Draft
Environmental Impact Report

SCH# 2023100467

Volume 2

Appendices A - K

WESTSIDE INDUSTRIAL PROJECT

by Seefried Industrial Properties

(PP24402)

General Plan Amendment No. 21, Map No. 142
Zone Classification Change No. 69, Map No. 142
Conditional Use Permit No. 75, Map No. 142
Conditional Use Permit No. 78, Map No. 142
Precise Development Plan No. 3, Map No. 142
Zone Variance No. 67, Map No. 142
Agricultural Preserve No. 10 - Exclusion
Tentative Parcel Map No. 12537

Kern County
Planning and Natural Resources Department
Bakersfield, CA

February 2024

Appendix A:
Notice of Preparation and Supporting Documents

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A-1: Notice of Preparation and Initial Study

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Lorelei H. Oviatt, AICP, Director
2700 "M" Street, Suite 100
Bakersfield, CA 93301-2323
Phone: (661) 862-8600
Fax: (661) 862-8601 **TTY Relay 1-800-735-2929**
Email: planning@kerncounty.com
Web Address: http://kernplanning.com/

PLANNING AND NATURAL RESOURCES DEPARTMENT

Planning
Community Development
Administrative Operations

DATE: October 17, 2023

TO: See Attached Mailing List

FROM: Kern County Planning and Natural Resources Department
Attn: Mark Tolentino
2700 "M" Street, Suite 100
Bakersfield, CA 93301
(661)862-5041; TolentinoM@kerncounty.com

SUBJECT: NOTICE OF PREPARATION (NOP) OF A DRAFT ENVIRONMENTAL IMPACT REPORT (EIR) FOR THE WESTSIDE INDUSTRIAL PROJECT BY SEEFRIED INDUSTRIAL PROPERTIES

The Kern County Planning and Natural Resources Department as Lead Agency (per CEQA Guidelines Section 15062) has determined that preparation of an Environmental Impact Report (per CEQA Guidelines 15161) is necessary for the proposed project identified below. The Planning and Natural Resources Department solicits the views of your agency as to the scope and content of the environmental information which is germane to your agency's statutory responsibilities in connection with the proposed project. Your agency may need to use the EIR prepared by our agency when considering your permit or other approval of the project.

You are invited to view the Initial Study/NOP and submit written comments regarding the scope and content of the environmental information in connection with the proposed project should you wish to do so. Due to the limits mandated by State law, your response must be received by **Monday, November 16, 2023 at 5:00 p.m**. Comments can be submitted to the Kern County Planning and Natural Resources Department at the address shown above or to TolentinoM@kerncounty.com. A Scoping meeting will be held on **Wednesday, November 8, 2023 at 1:30 p.m**. at the address listed above.

PROJECT TITLE: Westside Industrial Project by Seefried Industrial Properties (PP24402); GPA No. 21, Map No. 142; ZCC No. 69, Map No. 142; CUP No. 75, Map No.142; CUP No. 78, Map No. 142; PD Plan No. 3, Map 142; Exclusion No. 3, Ag Preserve No. 10; and TPM No. 12537

PROJECT LOCATION: The proposed project is located in unincorporated Kern County at the southeast corner of the Houghton Road and Wible Road intersection, approximately 1.25 miles west of State Route 99, at the southern end of the San Joaquin Valley. The project site is located in Section 13 of Township 31 South, Range 27 East in the Mount Diablo Base and Meridian (MDB&M).

PROJECT DESCRIPTION: The Westside Industrial Project, as proposed by Seefried Industrial Properties would allow for the construction and operation of a 653,442-square-foot single-story warehouse and distribution facility and related improvements. The facility would receive and consolidate products from vendors and then ship these products to other fulfillment centers within the network. The proposed project is situated on approximately 93.74 acres of privately owned land. The project's permanent facilities would include, but are not limited to, perimeter security fencing and nighttime directional lighting at the on-site warehouse and distribution facility, new pavement, curb and gutter, and sidewalk on frontage roads with associated signing and markings, office, break and ancillary space. Implementation of the project as proposed includes the following requests:

a) General Plan Amendment No. 21, Map No. 142 to amend the land use designation in the Kern County Metropolitan Bakersfield General Plan from R-IA (Resource - Intensive Agriculture) to LI (Light Industrial) on the project site.

b) Zone Change Case No. 69, Map No. 142 from A (Exclusive Agriculture) to M-1 PD (Light Industrial - Precise Development Combining) District on approximately 93.74 acres.

c) Conditional Use Permit No. 75, Map No. 142 to allow for the construction and operation of a temporary concrete batch plant pursuant to 19.36.030 C.1 of the Kern County Zoning Ordinance.

d) Conditional Use Permit No. 78, Map No. 142 to allow for the construction and operation of a permanent on-site wastewater treatment facility, pursuant to Chapter 19.36.030.H of the Kern County Zoning Ordinance.

e) Precise Development Plan No. 3, Map No. 142 for site development and implementation of the M-1 PD zoning request.

f) Exclusion No. 3, Agricultural Preserve No. 10 for the exclusion of approximately 93.74 acres from Agricultural Preserve No 10.

g) Tentative Parcel Map No. 12537 which may be processed concurrently with the other project entitlements.

Documents can be viewed online at: https://kernplanning.com/planning/notices-of-preparation/

Signature:
Name: Mark Tolentino, Planner II

Agencies & Interested Parties

I:\Planning\WORKGRPS\WP\LABELS\Westside Industrial Project.docx

Kern River Groundwater Sustainability Agency
3200 Rio Mirada Drive
Bakersfield, CA 93308

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

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

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 Ridgecrest
100 West California Avenue
Ridgecrest, CA 93555

City of Shafter
336 Pacific Avenue
Shafter, CA 93263

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

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

City of Wasco
764 E Street
Wasco, CA 93280

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

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

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

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

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

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

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

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

U.S. Postal Service
Address Management Systems
28201 Franklin Parkway
Santa Clarita, CA 91383-9321

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

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 Clearinghouse
Office of Planning and Research
1400 - 10th Street, Room 222
Sacramento, CA 95814

State Dept of Conservation
Director's Office
801 "K" Street, MS 24-01
Sacramento, CA 95814-3528

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

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

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

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

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

State Lands Commission
100 Howe Avenue, Ste 100-South
Sacramento, CA 95825-8202

State Dept of Water Resources
San Joaquin Dist.
3374 East Shields Avenue, Room A-7
Fresno, CA 93726

State Dept of Water Resources
Div. Land & Right-of-Way
P.O. Box 942836
Sacramento, CA 94236

Kern County
Agriculture Department

Kern County Airports Department

County Clerk

Kern County Administrative Officer

Kern County Public Works Department/
Building & Development/Floodplain

Kern County Public Works Department/
Building & Development/Survey

Kern County
Env Health Services Department

Kern County Fire Dept (Put in FIRE BOX)
Regina Arriaga
Roxanne Routh
Jim Killam

Kern County Fire Dept
Cary Wright, Fire Marshall

Kern County Library/Beale
Local History Room

Kern County Library/Beale
Andie Sullivan

Kern County Parks & Recreation

Kern County Sheriff's Dept
Administration

Kern County Public Works Department/
Building & Development/Development
Review

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

Kern County Public Works Department/
Building & Development/Code
Compliance

Kern High School Dist
5801 Sundale Avenue
Bakersfield, CA 93309

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

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

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

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

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

Kern Mosquito Abatement Dist
4705 Allen Road
Bakersfield, CA 93314

Adams, Broadwell, Joseph & Cardozo
Attention: Janet M. Laurain
601 Gateway Boulevard, Suite 1000
South San Francisco, CA 94080

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

Kern Audubon Society
Attn: Frank Bedard, Chairman
4124 Chardonnay Drive
Bakersfield, CA 93306

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

Center on Race, Poverty
& the Environment
5901 Christie Avenue, Suit 208
Emeryville, CA 94608

Center on Race, Poverty
& the Environmental/
CA Rural Legal Assistance Foundation
1012 Jefferson Street
Delano, CA 93215

Defenders of Wildlife/
Kim Delfino, California Dir
980 - 9th Street, Suite 1730
Sacramento, CA 95814

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

Pacific Gas & Electric Co
Matt Coleman, Land Mgt
1918 "H" Street
Bakersfield, CA 93301-4319

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

Chumash Council of Bakersfield
2421 "O" Street
Bakersfield, CA 93301-2441

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

Kern Valley Indian Council
Attn: Robert Robinson, Chairperson
P.O. Box 401
Weldon, CA 93283

Kern Valley Indian Council
Historic Preservation Office
P.O. Box 401
Weldon, CA 93283

Santa Rosa Rancheria
Ruben Barrios, Chairperson
P.O. Box 8
Lemoore, CA 93245

Tejon Indian Tribe
Octavio Escobedo III, Chairman
P.O. Box 640
Arvin, CA 93203

Kitanemuk & Yowlumne Tejon Indians
Chairperson
115 Radio Street
Bakersfield, CA 93305

Tubatulabals of Kern County
Attn: Robert Gomez, Chairperson
P.O. Box 833
Weldon, CA 93283

Tule River Indian Tribe
Neal Peyron, Chairperson
P.O. Box 589
Porterville, CA 93258

San Fernando Band of Mission Indians
Attn: John Valenzuela, Chairperson
P.O. Box 221838
Newhall, CA 91322

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

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

Big Pine Paiute Tribe of the Owens
Valley
Attn: Danielle Gutierrez
P.O . Box 700
Big Pine, CA 93513

David Walsh
22941 Banducci Road
Tehachapi, CA 93561

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

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

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

Big Pine Paiute Tribe of the Owens Valley
Attn: James Rambeau
P.O . Box 700
Big Pine, CA 93513

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

Big Pine Paiute Tribe of the Owens Valley
Attn: Sally Manning
P.O . Box 700
Big Pine, CA 93513

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

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

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

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

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

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

Indian Wells Valley Groundwater Authority
500 West Ridgecrest Boulevard
Ridgecrest, CA 93555

Department of Consumer Affairs
Bureau of Medical Cannabis Regulation
P.O. Box 138200
Sacramento, CA 95813

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

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

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

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

Angelo Fanucchi
1110 Fairway Drive
Bakersfield, CA 93309

Bolthouse Properties
Attn: Brad DeBranch
2000 Oak Street, Suite 250
Bakersfield, CA 93301

Carol Bender
13340 Smoke Creek Avenue
Bakersfield, CA 93314-9025

Joyce LoBasso
P.O. Box 6003
Bakersfield, CA 93386

Leadership Counsel for Justice & Accountability
85350 Bagdad Ave.
Coachella, CA 92236

LIUNA
Attn: Danny Zaragoza
2201 "H" Street
Bakersfield, CA 93301

Northcutt and Associates
4220 Poplar Street
Lake Isabella, CA 93240-9536

Thomas Roads Improvement Program
PARSONS
1600 Truxtun Avenue, 3rd Floor
Bakersfield, CA 93301

California Resources Corp
Attn: Minerals Mgt
11109 River Run Boulevard
Bakersfield, CA 93311

Jeff Modrzejewski
501 Shatto Pl. Suite 200
Los Angeles, CA 90020

General Shafter School Dist
1825 Shafter Road
Bakersfield, CA 93313

Panama-Buena Vista School Dist
4200 Ashe Road
Bakersfield, CA 93313

Lorelei H. Oviatt, AICP, Director
2700 "M" Street, Suite 100
Bakersfield, CA 93301-2323
Phone: (661) 862-8600
Fax: (661) 862-8601 TTY Relay 1-800-735-2929
Email: planning@kerncounty.com
Web Address: http://kernplanning.com/

PLANNING AND NATURAL RESOURCES DEPARTMENT

Planning
Community Development
Administrative Operations

DATE: October 17, 2023

TO: Surrounding Property Owners within 1,000 Feet of Project Boundary; and, Interested Parties

FROM: Kern County Planning and Natural Resources Department
2700 "M" Street, Suite 100
Bakersfield, CA 93301

SUBJECT: Notice of Preparation of an Environmental Impact Report – Westside Industrial Project by Seefried Industrial Properties (PP24402)

To whom this may concern:

The Kern County Planning and Natural Resources Department has determined that preparation of an Environmental Impact Report (EIR) is necessary for the proposed project identified below. The purpose of this letter is to notify interested parties and surrounding property owners within 1,000 feet of the project boundaries of this determination. A copy of the Initial Study/Notice of Preparation (IS/NOP) prepared for this proposed project is available for viewing at the following Kern County website:

https://kernplanning.com/planning/notices-of-preparation/

The purpose of the IS/NOP is to describe the proposed project, specify the project location, and to identify the potential environmental impacts of the project so that Responsible Agencies and interested persons can provide a meaningful response related to potential environmental concerns that should be analyzed in the Environmental Impact Report.

You are invited to view the IS/NOP and submit written comments regarding the scope and content of the environmental information in connection with the proposed project should you wish to do so. Due to the limits mandated by State law, your response must be received by **Monday, November 16, 2023 at 5:00 p.m**. Comments can be submitted to the Kern County Planning and Natural Resources Department at the address shown above or to TolentinoM@kerncounty.com. A Scoping meeting will be held on **Wednesday, November 8, 2023 at 1:30 p.m**. at the address listed above.

Please be advised that any comments received after the dates listed above will still be included in the public record for this project and made available to decision makers when this project is scheduled for consideration at a public hearing. You will receive an additional notice in the mail once a public hearing date is scheduled for this project and also be provided additional opportunities to submit comments at that time.

PROJECT TITLE: Westside Industrial Project by Seefried Industrial Properties (PP24402); GPA No. 21, Map No. 142; ZCC No. 69, Map No. 142; CUP No. 75, Map No. 142; CUP No. 78, Map No. 142; PD Plan No. 3, Map 142; Exclusion No. 3, Ag Preserve No. 10; and TPM No. 12537

PROJECT LOCATION: The proposed project is located in unincorporated Kern County at the intersection of Houghton Road and Wible Road, approximately 1.25 miles west of State Route 99, at the southern end of the San Joaquin Valley. The project site is located in Section 13 of Township 31 South, Range 27 East in the Mount Diablo Base and Meridian (MDB&M).

PROJECT DESCRIPTION: The Westside Industrial Project, as proposed by Seefried Industrial Properties would allow for the construction and operation of a 653,442-square-foot single-story warehouse and distribution facility and related improvements. The facility would receive and consolidate products from vendors and then ship these products to other fulfillment centers within the network. The proposed project is situated on approximately 93.74 acres of privately owned land. The project's permanent facilities would include, but are not limited to, perimeter security fencing and nighttime directional lighting at the on-site warehouse and distribution facility, new pavement, curb and gutter, and sidewalk on frontage roads with associated signing and markings, office, break and ancillary space. Implementation of the project as proposed includes the following requests:

a) General Plan Amendment No. 21, Map No. 142 to amend the land use designation in the Kern County Metropolitan Bakersfield General Plan from R-IA (Resource - Intensive Agriculture) to LI (Light Industrial) on the project site.

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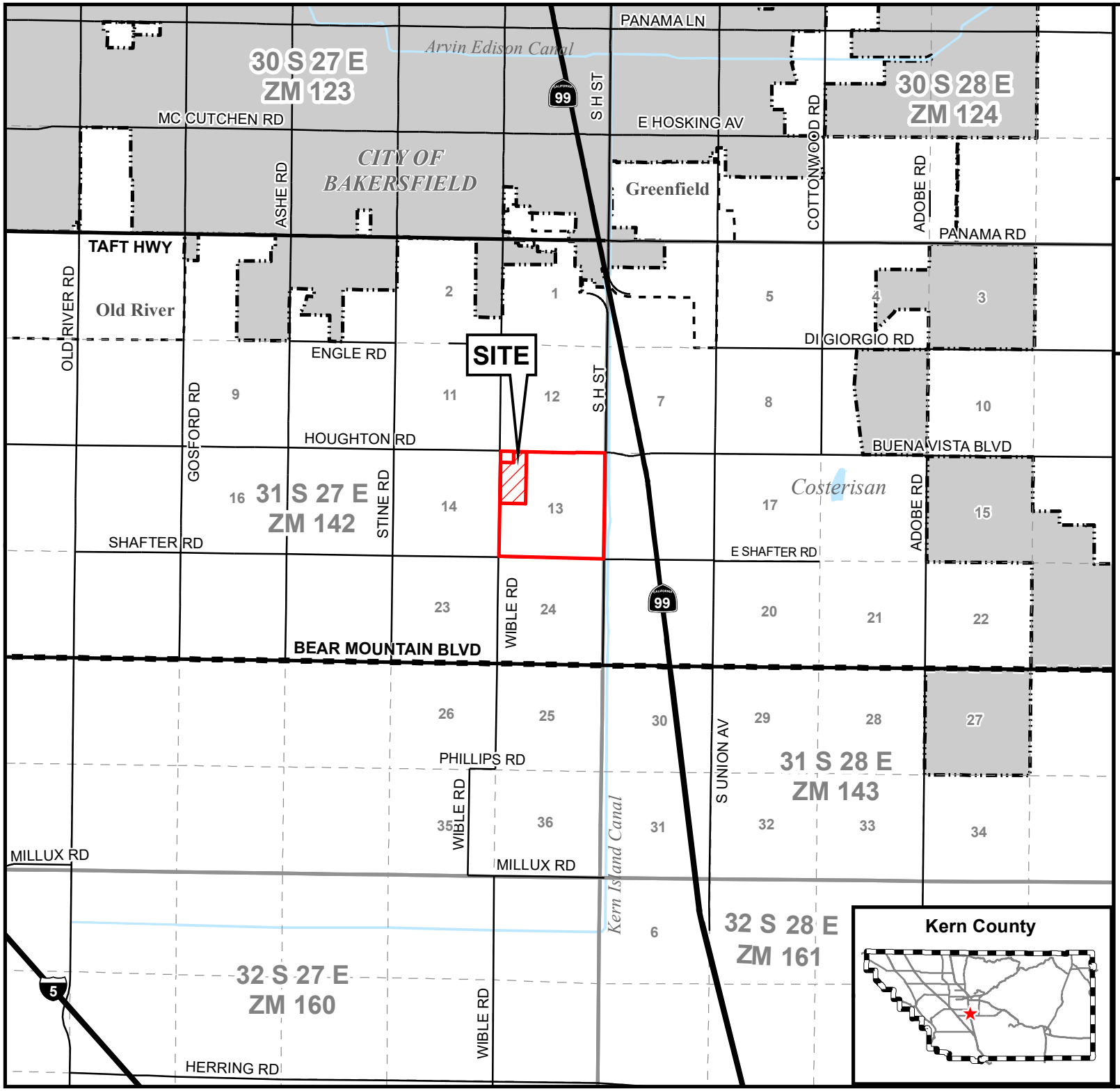
g) Tentative Parcel Map No. 12537 which may be processed concurrently with the other project entitlements.

Documents can be viewed online at: https://kernplanning.com/planning/notices-of-preparation/

Signature:
Name: Mark Tolentino, Planner II



GPA 21, Map 142;
ZCC 69, Map 142;
CUP 75, Map 142;
CUP 78, Map 142;
PD 3, Map 142;
Excl. No. 3, Ag Pres. No. 10
TPM No. 12537

Regional Vicinity

Westside Industrial Project

By:
Seefried Industrial Properties

- Project site
- Parcel Boundary
- INTERSTATE
- NAMED ROAD
- STATE HWY
- Arterials
- Township/Range
- Sections
- Water Courses
- City Limits

APN: 184-391-08 (portion)

Sec. 13 - T31S/R27E

Created on: 8/9/2023

0 2,600 5,200 7,800 10,400 Feet

Kern County
Planning & Natural
Resources Department

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Surrounding Property Owners

I:\Planning\WORKGRPS\WP\LABELS\Westside Industrial Project.docx

185 381 41 00 5
ANGUIANO MARIO & ANGELICA M
1639 KUHIO ST
BAKERSFIELD CA 93313-9564

185 510 03 02 3
BARRON JUANA & ANDRES CHIPRE
1601 SHAFTER RD
BAKERSFIELD CA 93313-9545

185 381 20 00 4
BORBA REVOCABLE LIVING TRUST
13500 S H ST
BAKERSFIELD CA 93313

184 392 29 00 4
CAPITOL LEGACY
5608 BARBADOS AV
BAKERSFIELD CA 93313

184 391 05 00 7
CERRO PHILIP JOHN II & LISA JO
3110 CORMIER DR
BAKERSFIELD CA 93311-2948

185 381 10 00 5
COLLINS JACKIE DYE
4021 S FAIRFAX RD
BAKERSFIELD CA 93307-8912

185 381 33 00 2
DE ALBA FAMILY TRUST
1518 KUHIO ST
BAKERSFIELD CA 93313

185 381 37 00 4
DEVIN FAMILY TRUST
13252 THOROUGHBRE ST
BAKERSFIELD CA 93313

184 392 70 00 2
FAMILY TREE FARMS LLC
11721 STINE RD
BAKERSFIELD CA 93313-9642

185 381 22 00 0
ALMEJO RODRIGO & NORMA
13136 S H ST
BAKERSFIELD CA 93313

184 391 12 00 7
ARBURUA MARTIN J
514 VIA DE LA VALLE STE 301
SOLANA BEACH CA 92075-2718

185 381 32 00 9
BEDINGFIELD JOHN & LAURA
13252 THOROUGHBRED ST
BAKERSFIELD CA 93313-9604

185 381 18 00 9
BORK GEORGE A JR & CAROLYN F
1500 DE HARVEY AV
BAKERSFIELD CA 93313

184 391 10 00 1
CERRO JULIA ANN FAMILY TRUST
3110 CORMIER DR
BAKERSFIELD CA 93311-2948

185 510 02 02 0
CHICHESTER LIVING TRUST
1645 SHAFTER RD
BAKERSFIELD CA 93313-9545

185 510 06 02 2
CROSS FAMILY TRUST
14711 MC CAFFREY ST
BAKERSFIELD CA 93313

185 382 23 00 0
DE LA GARZA JESUS ET AL
13900 S H ST
BAKERSFIELD CA 93313-9553

185 381 12 00 1
DEVIN SKYLER D & DANNON A
13080 THOROUGHBRED ST
BAKERSFIELD CA 93313-9604

185 382 28 00 5
FORBUS REV LIVING TRUST
14200 S H ST
BAKERSFIELD CA 93313-9784

185 381 35 00 8
ANCHONDO FAMILY TRUST
5407 MORAGA CT
BAKERSFIELD CA 93308

185 381 28 00 8
BAKER TONY & PATRICIA
1345 DE HARVEY AV
BAKERSFIELD CA 93313-9750

185 382 44 00 1
BENITES LUZ ELENA CABELLO
1528 FINSTER CT
BAKERSFIELD CA 93313-9565

185 382 32 00 6
BULLARD RICKY A
1600 SHAFTER RD
BAKERSFIELD CA 93313-9548

184 391 23 00 9
CERRO JULIA ANN FAMILY TRUST
45151 SWANE LN
PASO ROBLES CA 93446

184 392 11 01 0
CLASON DONNA D REV LIV TRUST
14801 WIBLE RD
BAKERSFIELD CA 93313-9602

185 510 01 01 8
CRUZ FAMILY TRUST
2055 MC KEE RD
BAKERSFIELD CA 93313

185 381 36 00 1
DEVIN FAMILY TRUST
13210 THOROUGHBRED ST
BAKERSFIELD CA 93313

184 392 08 00 3
EYRAUD FARM PROP INC
5638 SHAFTER RD
BAKERSFIELD CA 93313-9795

184 392 51 00 7
GENERAL SHAFTER SCHOOL DIST
1316 SHAFTER RD
BAKERSFIELD CA 93313

185 382 21 00 4
GONZALEZ PEDRO & GUILLERMINA
14128 CHEVALIER RD
BAKERSFIELD CA 93307-8901

185 381 27 00 5
GUTIERREZ MAGDALENO & MARIA ENGRACIA
1505 DE HARVEY AV
BAKERSFIELD CA 93313-9691

184 150 52 00 6
HOUGHTON HIGH FARMS LLC
3500 SHELL ST
BAKERSFIELD CA 93308

184 392 10 00 8
JIMENEZ MARIA & JOSE JESUS
14655 WIBLE RD
BAKERSFIELD CA 93313

185 382 26 00 9
LONG REVOCABLE TRUST
14052 OLD RIVER RD
BAKERSFIELD CA 93311

185 382 45 00 4
NEGRETE JORGE VILLA
13930 BILLIE ST
BAKERSFIELD CA 93313

185 510 05 00 1
ORTEGA RAMON & MARIA ISABEL
1455 SHAFTER RD
BAKERSFIELD CA 93313-9631

185 140 05 00 4
PINHEIRO FAMILY L P
5021 E BEAR MOUNTAIN BL
BAKERSFIELD CA 93307-9760

185 510 07 01 6
REDFEAIRN RICK L
P O BOX 41444
BAKERSFIELD CA 93384-1444

185 382 16 00 0
SAYABUAOVONG FAMILY TRUST
1444 PORTY AV
BAKERSFIELD CA 93313-9541

185 381 40 00 2
GUARDADO LUIS
13406 BILLIE ST
BAKERSFIELD CA 93313

185 381 26 00 2
GUTIERREZ REVOCABLE LIVING TRUST
13630 BILLIE ST
BAKERSFIELD CA 93313

185 381 44 00 4
HOWELL KENNETH M & SYLVIA J
1523 KUHIO ST
BAKERSFIELD CA 93313-9563

184 150 05 00 0
KERN DELTA WATER DIST
2001 22ND ST STE 100
BAKERSFIELD CA 93301

184 150 53 00 9
MARTIN BROS INVS LLC
7020 HEATHERWOOD ST DR
BAKERSFIELD CA 93313

185 382 19 00 9
NUNO JESUS ROBLES
13700 S H ST
BAKERSFIELD CA 93313-9552

185 382 18 00 6
PARKER GLENN E & CATHERINE A
13708 BILLIE ST
BAKERSFIELD CA 93313

185 381 17 00 6
PORTILLO JESUS REYNALDO JR
4901 PANDORA PL
BAKERSFIELD CA 93304

185 382 39 00 7
ROSE JUDY V TR
PO BOX 78808
BAKERSFIELD CA 93389

185 382 17 00 3
SCHARPENBERG CHARLES C
5880 DISTRICT BL STE 11
BAKERSFIELD CA 93313

184 392 09 00 6
GUTIERREZ JOSE R & MARGARITA
14541 WIBLE RD
BAKERSFIELD CA 93313-9602

185 381 11 00 8
HAYCOCK DUSTIN N & STEPHANIE
13031 THOROUGHBRED ST
BAKERSFIELD CA 93313-9604

185 381 24 00 6
HYLTON JEANNE C
13162 THOROUGHBRED ST
BAKERSFIELD CA 93313-9604

185 381 09 00 3
LARA RAFAEL & ANDREA S
1641 HOUGHTON RD
BAKERSFIELD CA 93313-9701

185 510 04 02 6
MENDIOLA WALTER C & CHRISTINA M DI MAGGIO
1501 SHAFTER RD
BAKERSFIELD CA 93313-9631

185 381 39 00 0
ONTIVEROS ARMIDA
7108 SANDRINILLA ST
BAKERSFIELD CA 93313

185 381 34 00 5
PINA MAX S JR & MICHELLE L
13106 BILLIE ST
BAKERSFIELD CA 93313

185 381 45 00 7
RAMIREZ ISRAEL & GRACIELA
1555 KUHIO ST
BAKERSFIELD CA 93313-9563

184 230 11 00 0
RUCKMAN ROBERT & GLORIA LINDA
9342 BRECKENRIDGE RD
BAKERSFIELD CA 93306-6948

185 382 53 00 7
SINGH INDERJIT
5015 COOL RUSH TR
BAKERSFIELD CA 93313-5836

184 392 73 00 1
TAYYEBA FARMS LLC
10400 REDBRIDGE WY
BAKERSFIELD CA 93311-2914

184 391 08 00 6
TBS PROP LLC
10457 VAN HORN RD
BAKERSFIELD CA 93313

184 230 08 00 2
WILDWOOD FARMS LLC
PO BOX 9729
BAKERSFIELD CA 93389-9729

185 382 33 00 9
WOODFIN MATTHEW
14424 S H ST
BAKERSFIELD CA 93313-9784

185 382 22 00 7
WRIGHT JACK E
2804 BEAR MOUNTAIN BL
BAKERSFIELD CA 93313-9772

185 381 42 00 8
ADAMS LESTER G & MARY D FMLY WEALTH PRES TR
1555 KUHIO ST
BAKERSFIELD CA 93313-9563

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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 # _____

Project Title: Westside Industrial Project by Seefried Industrial Properties

Lead Agency: Kern County Planning and Natural Resources Department | Contact Person: Mark Tolentino

Mailing Address: 2700 "M" Street Suite 100 | Phone: (661) 862-5041

City: Bakersfield | Zip: 93301 | County: Kern

Project Location: County: Kern | City/Nearest Community: City of Bakersfield

Cross Streets: Houghton Road & Wible Road | Zip Code: 93313

Lat. / Long.: 35° 14.19042' N, 119° 2.27736' W | Total Acres: 93.74

Assessor's Parcel No.: 184-391-08 | Section: 13 | Twp.: 31 S | Range: 27 E | Base: MDB&M

Within 2 Miles: State Hwy #: 99 | Waterways: N/A

Airports: N/A | Railways: N/A | Schools: Gen. Shafter Elementary

Document Type:

CEQA: ☒ NOP ☐ Early Cons ☐ Neg Dec ☐ Mit Neg Dec ☐ Draft EIR ☐ Supplement/Subsequent EIR (Prior SCH No.) _____ ☐ Other _____

NEPA: ☐ NOI ☐ EA ☐ Draft EIS ☐ FONSI

Other: ☐ Joint Document ☐ Final Document ☐ Other _____

Local Action Type:

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

Development Type:

☐ Residential: Units _____ Acres _____
☐ Office: Sq.ft. _____ Acres _____ Employees _____
☐ Commercial: Sq.ft. _____ Acres _____ Employees _____
☒ Industrial: Sq.ft. 653,442 Acres 93.74 Employees 1,830
☐ Educational _____
☐ Recreational _____

☐ Water Facilities: Type _____ MGD _____
☐ Transportation: Type _____
☐ Mining: Mineral _____
☐ Power: Type _____ MW _____
☐ Waste Treatment: Type _____ MGD _____
☐ Hazardous Waste: Type _____
☐ Other: _____

Project Issues Discussed in Document:

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

Present Land Use/Zoning/General Plan Designation:

Agricultural Land/*Zoning:* A (Exclusive Agriculture)/*General Plan:* R-IA (Intensive Agriculture)

Project Description: The Westside Industrial Project is a proposal by Seefried Industrial Properties for the construction and operation of a warehouse and distribution facility. The proposed project would include the construction of an approximately 653,442-square-foot single-story warehouse and related site improvements, including but not limited to, perimeter security fencing and nighttime directional lighting at the on-site warehouse and distribution facility, new pavement, curb and gutter, and sidewalk on frontage roads with associated signing and markings, office, break and ancillary space. The proposed project located on an approximately 93.74-acre portion of an approximately 630 total-acre parcel, and is bounded by Wible Road (west), Houghton Road (north), and agricultural land (south and east). The project site is approximately 1.3 miles south of the City of Bakersfield, in unincorporated Kern County. Regionally, the project site is located within the Kern County, Metropolitan Bakersfield General Plan (unincorporated Planning Area) within the City of Bakersfield Sphere of Influence (SOI).

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**".

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

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

Starting Date October 17, 2023 Ending Date November 16, 2023

Lead Agency (Complete if applicable):

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

Applicant: _____
Address: _____
City/State/Zip: _____
Phone _____

Signature of Lead Agency Representative: /s/ **Date:** 10/17/2023

Mark Tolentino, Planner II

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

NOTICE OF PREPARATION/INITIAL STUDY CHECKLIST

Westside Industrial Project
by Seefried Industrial Properties

General Plan Amendment No. 21, Map No. 142
Zone Classification Change No. 69, Map No. 142
Conditional Use Permit No. 75, Map No. 142
Conditional Use Permit No. 78, Map No. 142
Precise Development Plan No. 3, Map No. 142
Exclusion No. 3, Agricultural Preserve No. 10
Tentative Parcel Map No. 12537

PLN23-00792
(PP24402)

LEAD AGENCY:

Kern County Planning and Natural Resources Department
2700 M Street, Suite 100
Bakersfield, CA 93301-2370

Contact: Mark Tolentino, Planner II
(661) 862-5041
TolentinoM@kerncounty.com

October 2023

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INTRODUCTION

Pursuant to the California Environmental Quality Act (CEQA), the Kern County Planning and Natural Resources Department (County) will initiate the preparation of an Environmental Impact Report (EIR) for the Enterprise Solar Storage Project in the unincorporated area of southeastern Kern County, California.

1. Project Description

1.1. Project Location

The Westside Industrial Project (proposed project) is a proposal by Seefried Industrial Properties (project proponent) for the construction and operation of a warehouse and distribution facility. The proposed project would include the construction of an approximately 653,442-square-foot single-story warehouse and related site improvements. The proposed project located on an approximately 93.74-acre portion of an approximately 630 total-acre parcel (Assessor's Parcel Number 184-391-08) of privately owned land at the southern end of the San Joaquin Valley in unincorporated Kern County, California as shown in **Figure 1**, *Regional Vicinity Map.* The project site is bounded by Wible Road (west), Houghton Road (north), and agricultural land (south and east) as shown in **Figure 2**, *Local Vicinity Map.*

The project site is approximately 1.3 miles south of the City of Bakersfield, in unincorporated Kern County. The project site is located within the Kern County, Metropolitan Bakersfield General Plan (unincorporated Planning Area) within the City of Bakersfield Sphere of Influence (SOI). The City of Arvin lies approximately 11 miles east of the project site, and the unincorporated community of Lamont is approximately 6 miles northeast of the project site. The project site is bound by Houghton Road to the north and Wible Road to the west and is situated approximately 1 mile west of State Route (SR) 99 and 8.75 miles east of Interstate 5 (I-5). Regional access to the project site is available from SR-99 via the Houghton Road exit. Local access to the project site is available from Houghton Road and Wible Road. Unpaved roads provide existing access within the project site.

The Kern Island Canal and a cluster of unincorporated residences are located approximately 1 mile east of the project site. The project vicinity is characterized by cultivated agricultural uses (row crops and orchards) as well as agricultural processing facilities. The General Shafter Elementary School is located approximately 1 mile southeast of the project site at South H Street and Shafter Road. In addition, Kern High School District has identified a future school site at Wible Road and Engle Road approximately 0.5 mile north of the project site.

The project site is located on the *Connor, California* United States Geological Survey (USGS) 7.5-minute Topographic Quadrangle Map, Township 31 South, Range 27 East, Section 13. **Figures 8a - 8f**, *Proposed PD Plan* and **Figure 9,** *Proposed Tentative Parcel Map No. 12537* depict the proposed project and the project boundaries.

1.2. Environmental Setting

The project site is situated in the southern end of the San Joaquin Valley, in unincorporated Kern County and within the SOI of the City of Bakersfield. Kern County and City of Bakersfield have jointly adopted a general plan for the metropolitan area (Metropolitan Bakersfield General Plan 2002). Kern County is California's third largest county in land area and encompasses approximately 8,161 square miles. The County's geography includes, among others, mountainous areas, agricultural lands, and deserts. Bakersfield

is the largest city in Kern County and has a current estimated population of 408,865 residents (California Department of Finance [CDF] 2022). The County's current estimated population is 909,813 residents (CDF 2022).

The project site is relatively flat. Elevation on the project site is approximately 330 feet at the above mean sea level (AMSL) with a gradually decreasing topographic gradient to the south. While this area may be generally characterized as "open flats," outside of leveled fields and orchards, it is better described as an uneven plain consisting of extensive alluvial fans, debris flows and over-bank deposits. Vegetation on the valley floor is predominated by modern cultigens and other non-native species, such as Russian thistle (tumbleweed) and grasses, but also includes cheatgrass and doveweed.

Land uses within the region and the immediate area of the site primarily consist of agriculture with a mix of row crops and grazing land. Land uses surrounding the site include the following:

North–Houghton Road and Martin Feed Inc, an agricultural processing facility, is located north of the project site on the opposite side of Houghton Road. The facility contains several large agricultural structures and is surrounded by a fence.

South–An agricultural property used for row crops is located immediately south of the project site.

West–Wible Road and Martin Feed Inc, an agricultural processing facility, are located immediately west of the project site. The facility includes a canopy that covers processing equipment. An agricultural property used for orchards is located on the west side of Wible Road.

East–An agricultural property used for row crops is located immediately east of the project site.

The immediate project area has few nearby residences. The nearest residence is approximately 0.21 mile to the west. **Table 1,** *Project Site and Surrounding Land Uses* presents the existing land uses, Metropolitan Bakersfield General Plan designations, and Zoning classification for the project site and surrounding area. The nearest existing schools include General Shafter Elementary School, 0.66 mile southeast from the proposed project site, Dolores S. Whitley Elementary located approximately 2.36 miles north, McKee Middle School is located approximately 2.9 miles northeast, Golden Valley High School is located approximately 3 miles northeast, and Greenfield Middle Schools is located approximately 4.9 miles northeast of the site. In addition, Kern High School District has identified a new school site located approximately 0.5 mile north of the project site at Wible Road and Engle Road.

Table 1. Project Site and Surrounding Land Uses

	Existing Land Use	Existing Map Code Designation	Existing Zone Classification
Project Site	Agriculture	Intensive Agriculture (R-IA)	Exclusive Agriculture (A)
North	Agriculture, Agriculture Processing, Animal Feed Storage	Intensive Agriculture (R-IA)	Exclusive Agriculture (A)
East	Agriculture, Residential, Private School	Intensive Ag (R-IA), Rural Residential (RR), Public and Private Schools (PS)	Limited Agriculture (A-1), Limited Ag/Mobile Home (A-1-MH), Exclusive Ag (A)
South	Ag, Public School	Intensive Agriculture (R-IA)	Exclusive Agriculture (A)
West	Agriculture, Residential	Intensive Agriculture (R-IA)	Exclusive Agriculture (A)

1.3. Project Description

The proposed project would include the development of a 653,442-square-foot single-story warehouse distribution facility and associated improvements on approximately 93.74 acres of privately owned land in the central portion of unincorporated Kern County.

Implementation of the project as proposed include the following requests:

- General Plan Amendment No. 21, Map No. 142 to amend the land use designation in the Kern County Metropolitan Bakersfield General Plan from R-IA (Resource – Intensive Agriculture) to LI (Light Industrial) on the project site.
- Zoning Change Case No. 69, Map No. 142 to change the Zone Classification from Exclusive Agriculture (A) to Light Industrial – Precise Development Combining (M-1 PD) on approximately 93.74 acres.
- Conditional Use Permit No. 75, Map No. 142 to allow for the construction and operation of a temporary concrete batch plant pursuant to 19.36.030 C.1 of the Kern County Zoning Ordinance.
- Conditional Use Permit No. 78, Map No. 142 to allow for the construction and operation of a permanent on-site wastewater treatment facility, pursuant to Chapter 19.36.030.H of the Kern County Zoning Ordinance.
- Precise Development Plan No. 3, Map No. 142 for site development and implementation of the M-1 PD zoning request.
- Exclusion No. 3, Agricultural Preserve No. 10 to facilitate the exclusion of approximately 93.74 acres from Agricultural Preserve No. 10
- Tentative Parcel Map No. 12537 which may be processed concurrently with other project entitlements.

Table 2, *Project Assessor's Parcel Number, Existing and Proposed Land Uses, and Acreages* identifies the proposed project parcels, existing land uses, and the proposed land uses for the proposed project.

Table 2: Project Assessor's Parcel Number, Existing and Proposed Land Uses, and Acreages

Count	APN	Zone Map	General Plan	Existing Map Code Designation	Proposed Map Code Designation	Existing Zoning	Proposed Zoning	Acres
1.	184-391-08	142	Metro Bakersfield	R-IA	LI	A	M-1 PD	93.74

Metropolitan Bakersfield General Plan (MBGP) Map Code Designation:
R-IA (Resource – Intensive Agriculture); LI (Light Industrial)

Kern County Zoning District:
A (Exclusive Agriculture); M-1 PD (Light Industrial, Precise Development Combining)

1.4. Project Facilities, Construction Activities, and Operations

Project Facilities

The overall proposed development is a 653,442-square-foot single-story warehouse and distribution facility and related improvements. The facility would receive and consolidate products from vendors and then ship these products to other fulfillment centers within the network.

The proposed facility has a footprint of approximately 629,186 square feet (including approximately 44,424 square feet of office space) that would primarily facilitate material handling equipment and warehouse uses, as shown in **Figures 8a - 8f**, *Proposed PD Plan*. The remaining square footage is made up of a 24,256-square-foot mezzanine, which contains only material handling equipment conveyors with occasional maintenance and no storage. The proposed project would also include two guardhouses and one pumphouse. **Table 3**, *Project Summary* provides a project summary of the proposed project.

Table 3: Project Summary

Acreage	Proposed End Use	Maximum Building Footprint	Maximum Building Height	Truck Dock Trailer Parking Spaces	Automobile Parking Spaces	Truck Trailer Spaces
93.74 acres	Approximately 653,442 square foot high-cube warehouse	629,186	approx. 50 feet	135	1,000 stalls	702 stalls

Source: Ware Malcomb, March 2023.

The proposed warehouse building would be concrete tilt-up panel construction. The proposed building roof would consist of metal decking over steel bar joists. The maximum overall height of the facility would be approximately 50 feet high.

The warehouse would be exclusively truck-served, meaning it would be utilized by delivery trucks. **Table 4**, *Truck Door Summary*, is a summary of the assignment of truck doors by type.

Table 4: Truck Door Summary

Type	Doors (approximately)
Dock-High Doors	132
Grade-Level Doors	4
Total	136
Source: Ware Malcomb, March 2023	

Parking

Table 5, *Parking Summary*, is a summary of the assignment of parking spaces by type.

Table 5. Parking Summary

Type	Stalls (approximately)
Automobile	1,000
Truck Trailer	702
Dock Trailer	135
Accessible	22 (4 Van, 18 Standard)
Electric Vehicle Charging Stations (EVCS)	200
EV Supply Equipment (EVSE)	50
Accessible EVCS	12 (2 Van, 5 Standard, 5 Ambulance)
Motorcycle	16
Bicycle	40
Source: Ware Malcomb, March 2023	

Substation

The proposed substation would be located at the northeast portion of the site and would include circuit breakers, disconnect switches, metering protection equipment, and main step-up transformers. The substation required to step up the power generated by the project to transmission voltage would be located immediately inside the northeastern property line. The substation would occupy an area that would be approximately 172 feet by 256 feet in size. The substation would be enclosed by a 6-foot-high chain link fence topped with barbed wire, and gravel would cover the ground surface in accordance with Southern California Edison (SCE) Substation requirements Lighting would be installed in the substation for security and for use at times when nighttime emergency repair work is required.

Vehicular Access and Circulation

A new private road would be constructed along the eastern and southern perimeter of the project site to connect Houghton Road and Wible Road. The road would be two lanes and designed to accommodate heavy trucks. The new intersection of Houghton Road and the new eastern perimeter road would be signalized. The intersection of Wible Road and Houghton Road would also be signalized.

The proposed project would include approximately 5.54 acres of off-site improvements along Houghton Road and Wible Road. Such improvements would be improved to meet applicable California Department of Transportation (Caltrans) and Kern County Public Works Department development standards.

The existing roads, classified as major arterials, would be improved with new pavement, raised median, curb and gutter, and sidewalk. Additionally, signing and markings would be constructed for the new pavement delineations.

Landscaping

The proposed project would include approximately 217,529 square feet (4.99 acres) of landscaping and irrigation, which would consist primarily of drought tolerant and low maintenance plants. Islands with canopy trees would be provided to reduce heat island effect. Landscaping would also be utilized to provide visual screening where needed. Native hydroseed mix and rock cobble will be applied to large areas where landscaping and irrigation is not practical due to non-employee use. Landscaping would exceed the 5 percent landscaping requirement of Section 19.86.060 of the Kern County Zoning Ordinance. There are no existing trees on-site, and therefore no trees would be required to be removed.

Landscaping

The proposed project would operate 24 hours a day, 7 days a week as a warehouse facility. Therefore, lighting would be designed to maximize employee safety and security while complying with County standards to confine light spread within the project site. Proposed lighting would adhere to the requirements of Chapter 19.81 Outdoor Lighting "Dark Skies Ordinance" of the Kern County Municipal Code, which promotes the reduction of unnecessary light and flare, the reduction of light spillover onto adjacent properties, and energy conservation through the reduction of excessive or unwanted outdoor lighting. Lighting would be located throughout the proposed parking areas and in the substation for security at the site.

Construction Activities

Schedule and Workforce

For the purposes of this environmental analysis, the following construction schedule was assumed to last approximately 16 months. The project applicant anticipates that grading of the proposed project would start in July 2024 and would last approximately 20 days. Construction would be completed in a single phase, beginning in September 2024, and concluding in September 2025. It is anticipated that the proposed project would be operational in 2025. Should commencement of construction be delayed, the utilization of July 2024 represents a conservative estimate for the purpose of this document.

Construction would primarily occur during daylight hours, Monday through Friday, between 7:00 a.m. and 8:00 p.m., as required to meet the construction schedule. Additional hours/days may be necessary to facilitate the schedule. Any construction work performed outside of the normal work schedule would be coordinated with the appropriate agencies and would conform to the Kern County Noise Ordinance (Chapter 8.36). As noted in the Noise Ordinance, there are no limits to construction hours if a project is not within 1,000 feet of residences.

The on-site construction workforce would consist of up to 100 individuals; however, the average daily workforce would vary depending upon the stage in construction. The average daily workforce would include construction, supervisory, support, and construction management personnel on-site during

construction. It is anticipated that the construction workforce would commute to the project site each day from local communities and report to the designated construction staging yards prior to the beginning of each workday. Parking for construction personnel would be provided on-site. Portable toilets would be used and would be maintained by a private off-site company during the construction period.

Construction Activities and Equipment

Construction activities would consist of site preparation, grading, building construction, paving, and architectural coating. During construction, a temporary on-site, concrete batch plant would be necessary and assembled to manufacture and construct the facility and related improvements. This on-site concrete batch plant will be disassembled after construction is complete.

Construction Water Use and Wastewater

During construction of the proposed project, water would be required for common construction-related purposes, including but not limited to dust suppression, soil compaction, and grading. Dust-control water may be used for ingress and egress of on-site construction vehicle equipment traffic and for the construction of the warehouse infrastructure. A sanitary water supply would not be required during construction, because restroom facilities would be provided by portable units to be serviced by licensed providers.

Solid and Non-hazardous Waste Disposal

During construction, the building contractor would arrange to have trash, construction recycling, and regular recycling bins delivered to the site in accordance with Kern County Building Code requirements and guidelines. During construction, every effort would be made to minimize packaging and construction waste.

Construction recycling, regular recycling, and nonrecyclable trash would be regularly picked up during the construction period.

Hazards and Hazardous Materials Compliance

The hazardous materials used for construction would be typical of most construction projects of this type. Materials would include small quantities of gasoline, diesel fuel, oils, lubricants, solvents, detergents, degreasers, paints, ethylene glycol, dust palliative, herbicides, and welding materials/supplies. A hazardous materials business plan would be provided to the Kern County Environmental Health Services Division/Hazardous Materials Section. The hazardous materials business plan would include a complete list of all materials used on-site and information regarding how the materials would be transported and in what form they would be used. This information would be recorded to maintain safety and prevent possible environmental contamination or worker exposure. During project construction, safety data sheets for all applicable materials present at the site would be made readily available to on-site personnel.

To ensure minimum exposure of construction workers to hazardous materials (e.g., construction-related fuels and paints) and other hazardous materials, construction activities would comply with applicable worker protection laws and regulations, including the Occupational Safety and Health Act (OSHA), Title 9 of the Code of Federal Regulations, and Title 8 of the California Code of Regulations. The construction contractor selected for the project would be responsible for ensuring that construction workers are trained in accordance with local, state, and federal requirements for handling hazardous materials.

Operations

The proposed facility would operate 24 hours a day, 365 days a year and typically consist of both day and night shifts. The facility would employ approximately 915 employees per shift (two shifts, for a total of 1,830 employees) in peak season and approximately 732 employees per shift (two shifts for a total of 1,464 employees) in non-peak season. Once operational, the proposed project would utilize standard equipment such as electric forklifts and pallet jacks.

Vehicular Access and Circulation

The proposed project would generate approximately 1,812 daily truck trips. Ingress to the proposed project would be taken from the new southern perimeter road via the existing Wible Road. The southern perimeter road driveways would serve the employee parking lot as well as the truck entrance and exit. The eastern entrance would feature a primary guardhouse. Truck egress would occur at the western entrance of the southern perimeter road, which would also feature a secondary guardhouse.

Utilities and Infrastructure

The proposed project would be served with potable water provided by Cal Water. Service laterals would be extended from an existing water line located within Wible Road. The project proposes a single water tank for fire suppression volume.

The proposed project would be served by a private wastewater collection and treatment package system located on-site to accommodate the wastewater needs. Electricity and natural gas service would be provided by PG&E. Service laterals would be extended to the project site from existing utility facilities along Houghton Road and Wible Road. A substation would be located at the northeast corner of the project site and would provide power generation for the on-site building.

The proposed project would install an on-site storm drainage system consisting of inlets, underground piping, and surface and underground basins. Runoff would drain to one of three detention basins located at the southwest and southeast corners of the project site, as well as near the northern frontage of the project site along Houghton Road. The basins would be designed to accommodate a 100-year storm event and would detain runoff and release it at a rate no greater than the pre-development condition of the project site. The proposed project would be required to retain the stormwater per Kern County's drainage requirements and all other applicable standards.

Solid and Non-hazardous Waste Disposal

The proposed project would produce a small amount of waste associated with maintenance activities, which could include typical refuse generated by office and warehouse uses. Most of these materials would be collected and delivered back to the manufacturer or to recyclers. Nonrecyclable waste 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. The closest Class III municipal landfill is the Bakersfield Municipal Landfill.

Hazards and Hazardous Materials Compliance

The proposed project would produce a small amount of hazardous waste associated with maintenance activities, which could include paint, solvents, cleaners, and waste oil. Workers would be trained to properly identify and handle all hazardous wastes. Fuels and lubricants used in operations would be subject to the Spill Prevention, Containment, and Countermeasure Plan to be prepared for the proposed project.

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 of at an approved location.

1.5. Applicant Submitted Project Objectives

State CEQA Guidelines Section 15124(b) requires that a project description include a clearly written statement of objectives. The statement of objectives should include the underlying purpose of the project and may discuss the project benefits. The following are the applicant submitted project objectives for the proposed project:

- Develop an innovative industrial use on land with ready access to infrastructure and a major transportation corridor.
- Meet regional demand for new warehouse facilities near SR-99 to reduce local and regional traffic congestion and air emissions.
- Develop a visually appealing industrial project that is consistent with the provisions of the Kern County Zoning Ordinance, Land Division Ordinance, and Development Standards.
- Promote land use compatibility with adjacent agricultural uses by developing a compatible industrial project with a secure perimeter.
- Positively contribute to the local economy through new capital investment, the creation of new employment opportunities, expansion of the tax base, economic growth and development, and payment of development fees.
- Improve circulation through the construction of new roads and improvement of existing roads west of SR-99.
- Site an industrial project in a location that minimizes conflicts with residential, conservation, and agricultural uses.

1.6. Proposed Discretionary Actions/Required Approvals

The Kern County Planning and Natural Resources Department as the CEQA Lead Agency (per CEQA Guidelines Section 15052) has discretionary responsibility for the Westside Industrial Project owned by Seefried Industrial Properties, LLC. To implement this project, the project proponent may need to obtain the following discretionary and ministerial permits/approvals, but not be limited to:

State

- Central Valley Regional Water Quality Control Board (RWQCB)
  - 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 (if required)

- **Local**
    - Kern County
        - Certification of Final Environmental Impact Report
        - Adoption of 15091 Findings of Fact and 15093 Statement of Overriding Considerations
        - Adoption of Mitigation Monitoring and Reporting Program
        - Approval of Amendment to the Land Use Element of the Metropolitan Bakersfield General
        - Approval of Change in Zone Classification
        - Approval of Conditional Use Permits
        - Approval of Precise Development Plan
        - Approval and Recordation of Vesting Tentative Parcel Map
        - Approval of Kern County Grading and Building Permits
        - Approval of Kern County Encroachment Permits
        - Approval of Fire Safety Plan
    - San Joaquin Valley Air Pollution Control District
        - Authority to Construct (ATC)
        - Construction Fugitive Dust Control Plan
        - Permit to Operate (PTO)
        - Indirect Source Rule and Voluntary Emission Reduction Agreement

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.

Figure 1 – Regional Vicinity

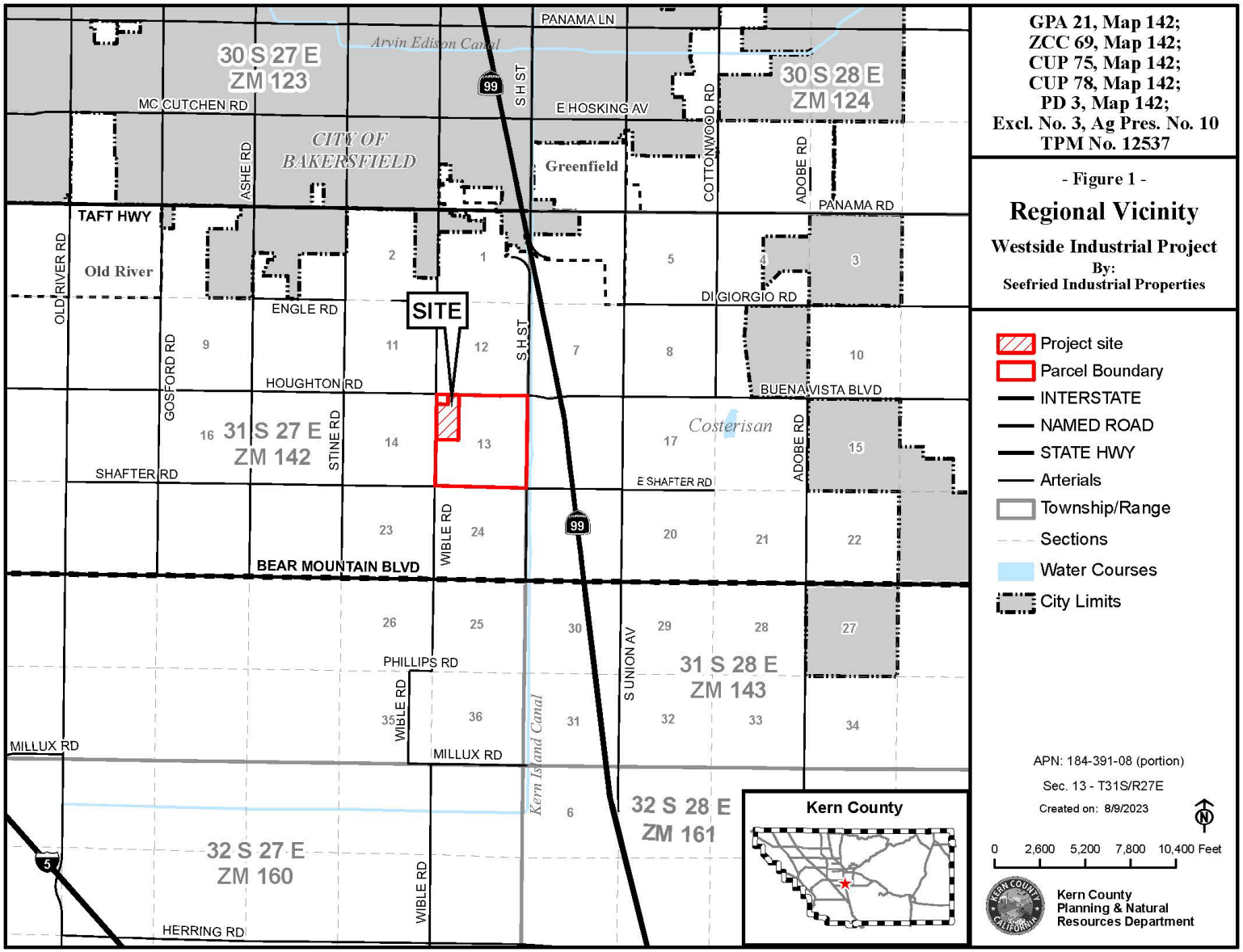


Figure 2 – Local Vicinity

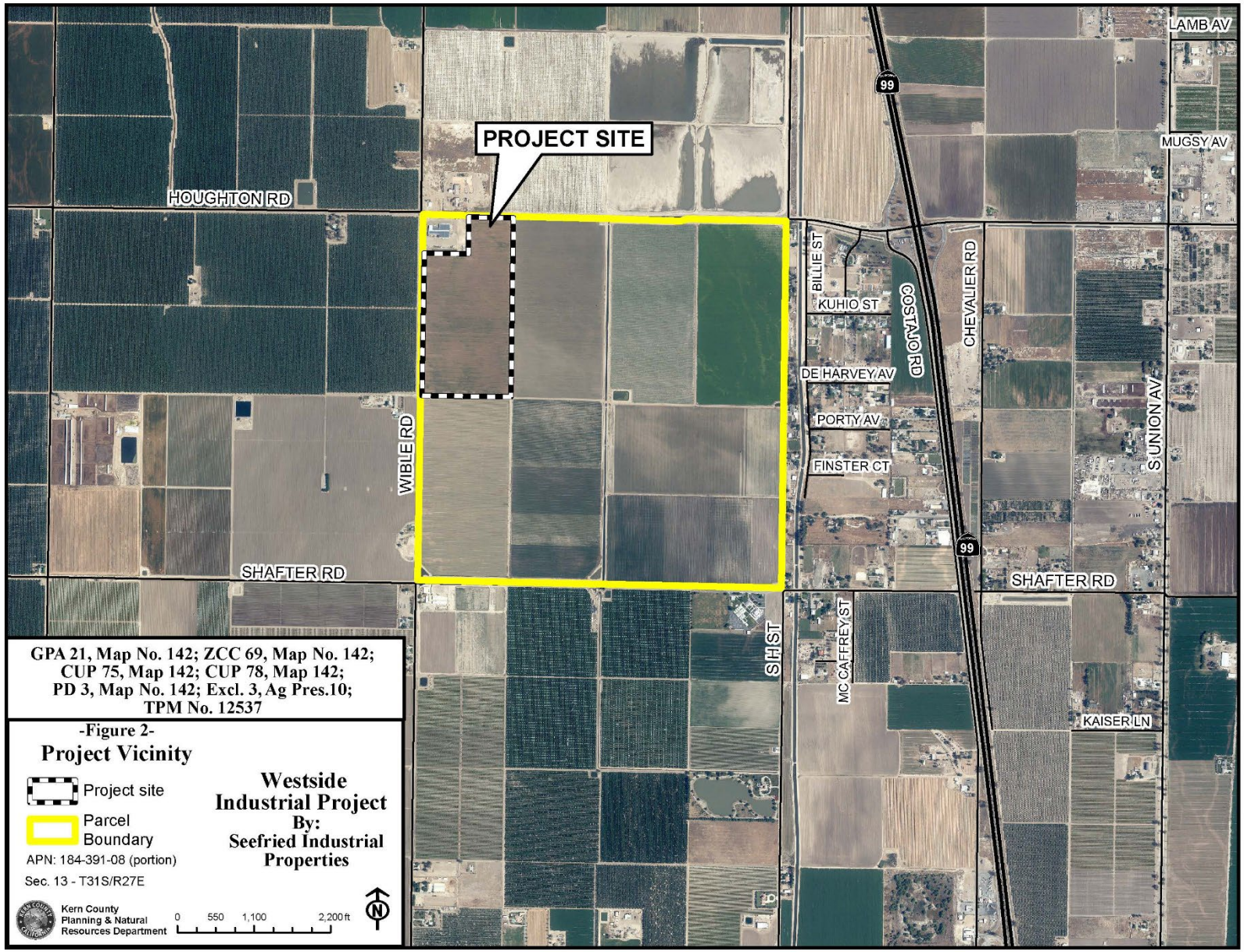


Figure 3 – Floodplain Map

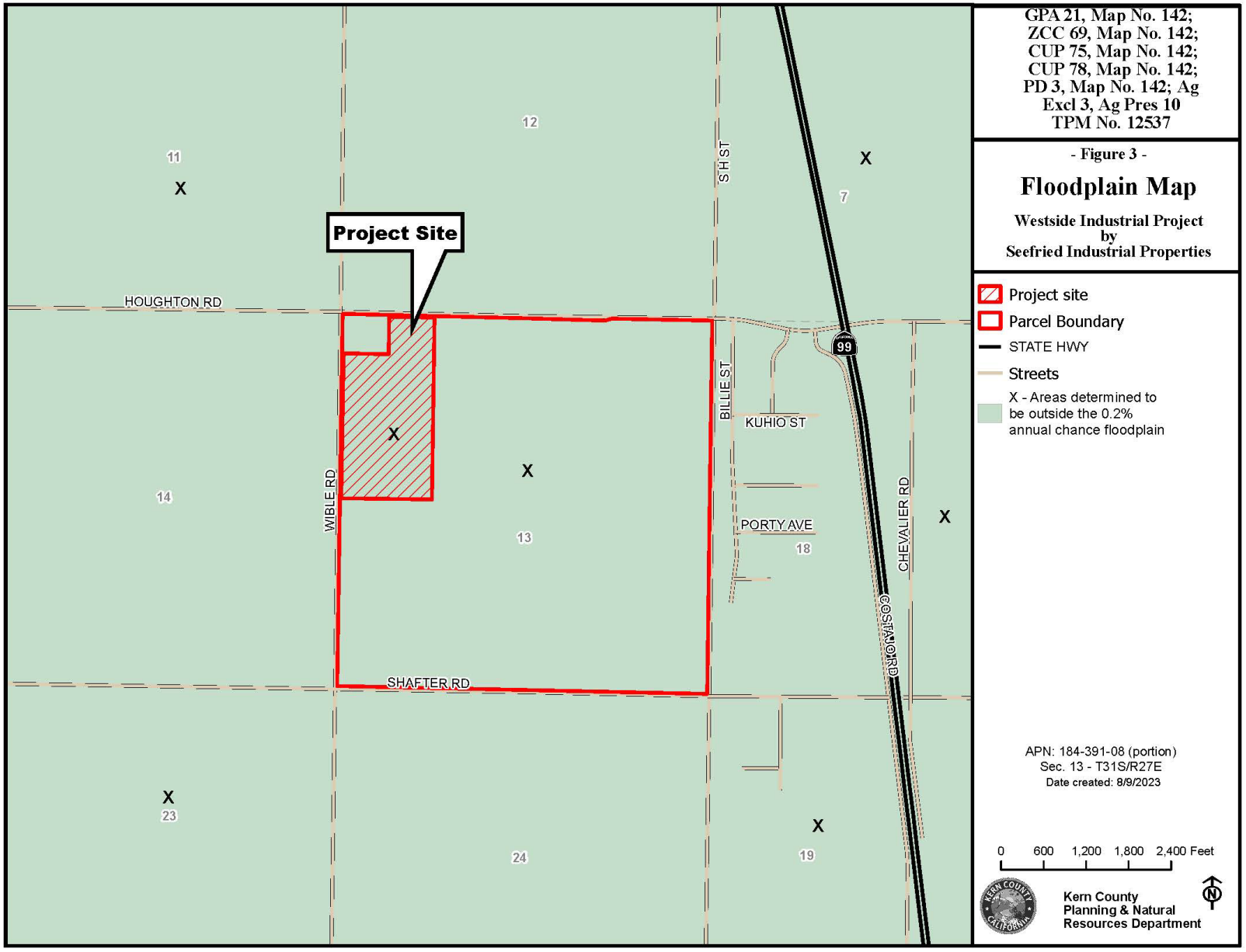


Figure 4 – Existing General Plan Map

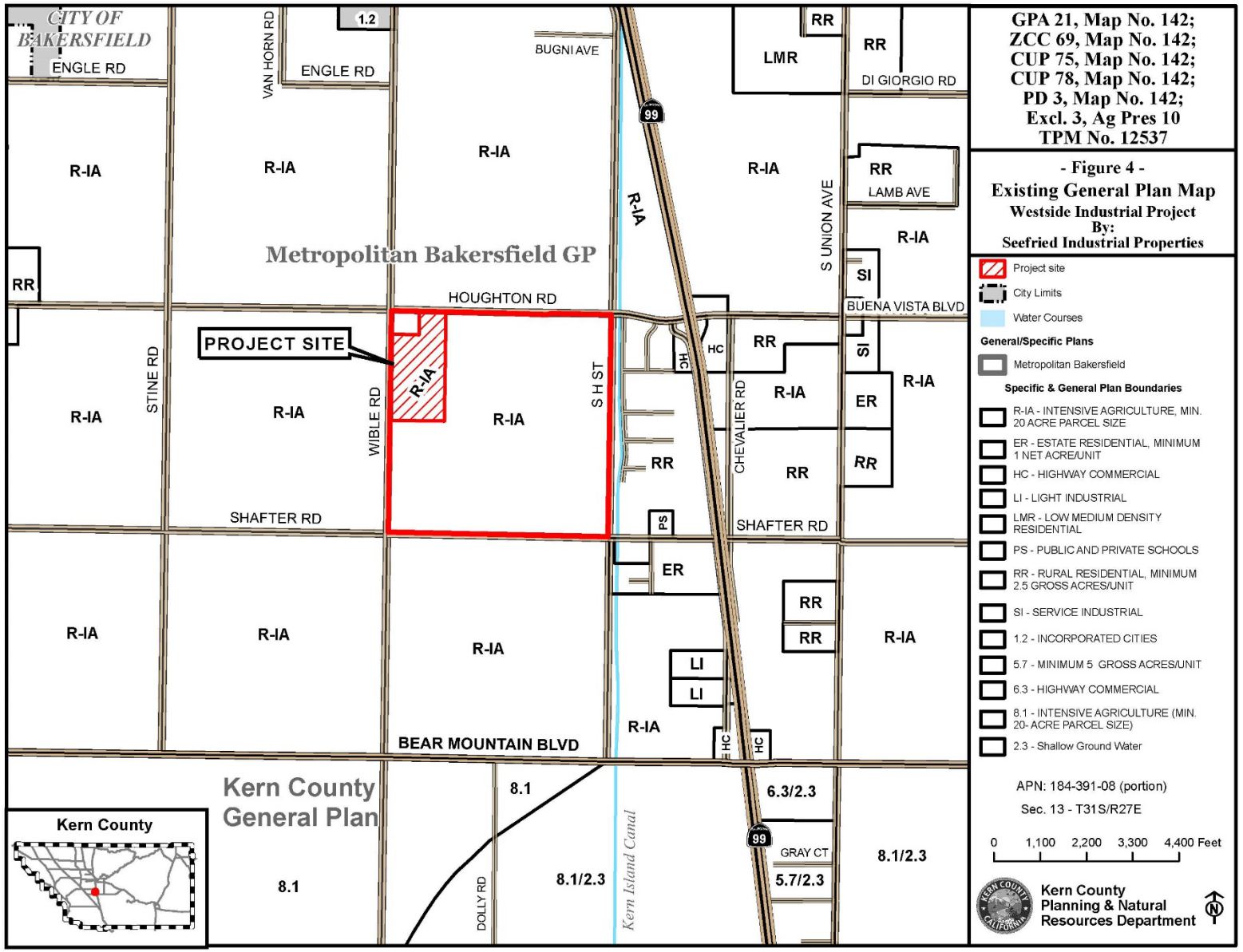


Figure 5 – Existing Zoning Classifications

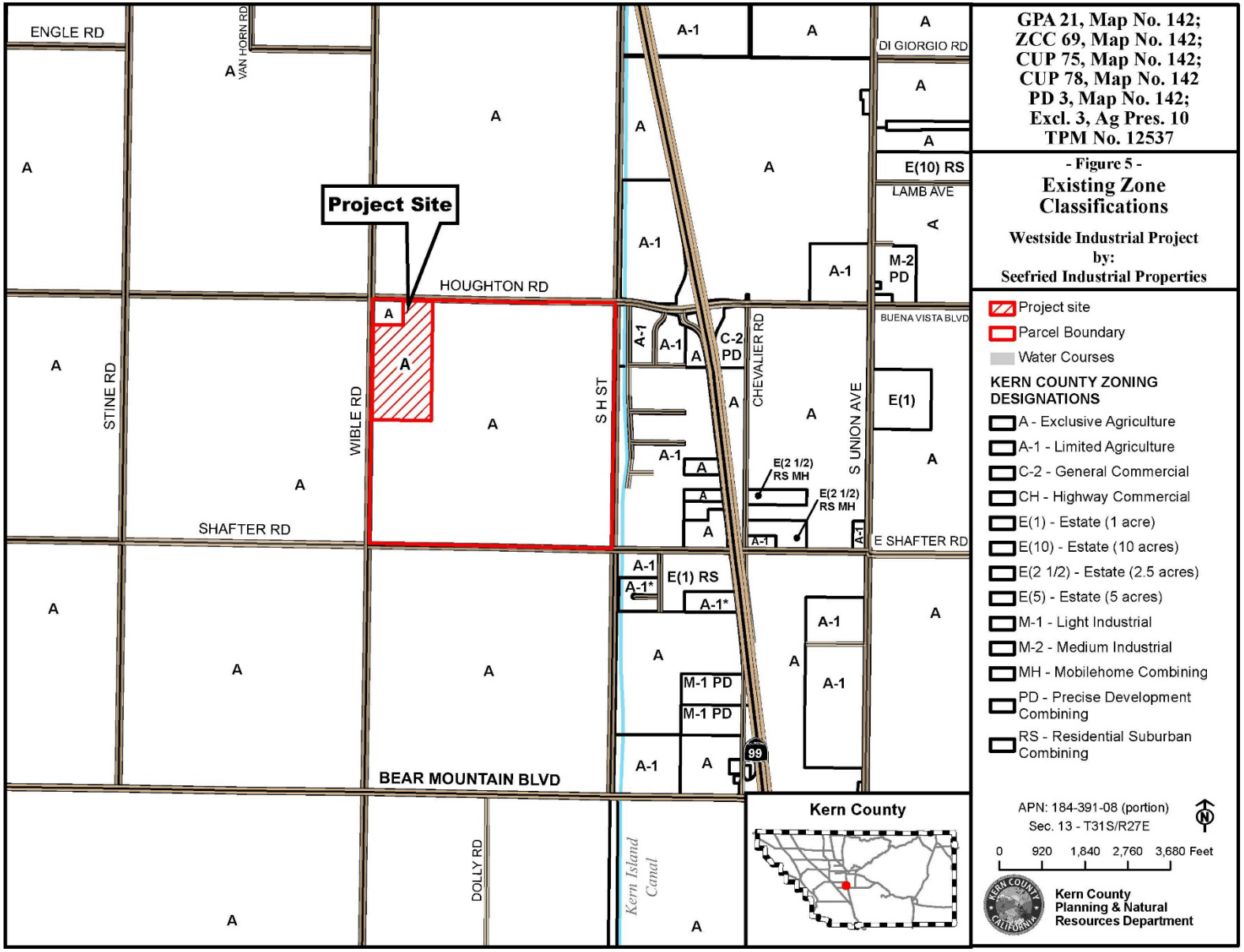


Figure 6 – Proposed General Plan Map

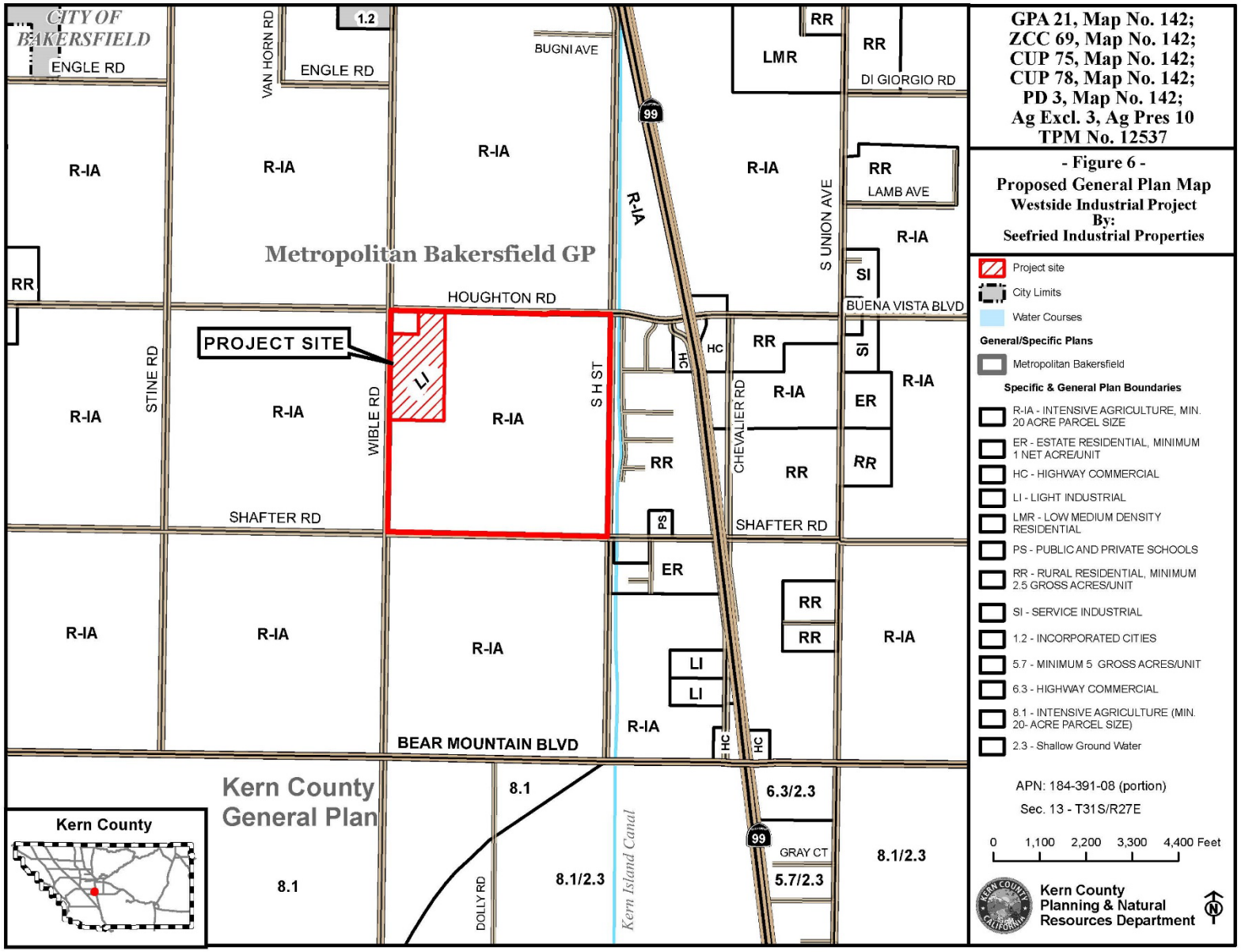


Figure 7 – Proposed Zone Classifications

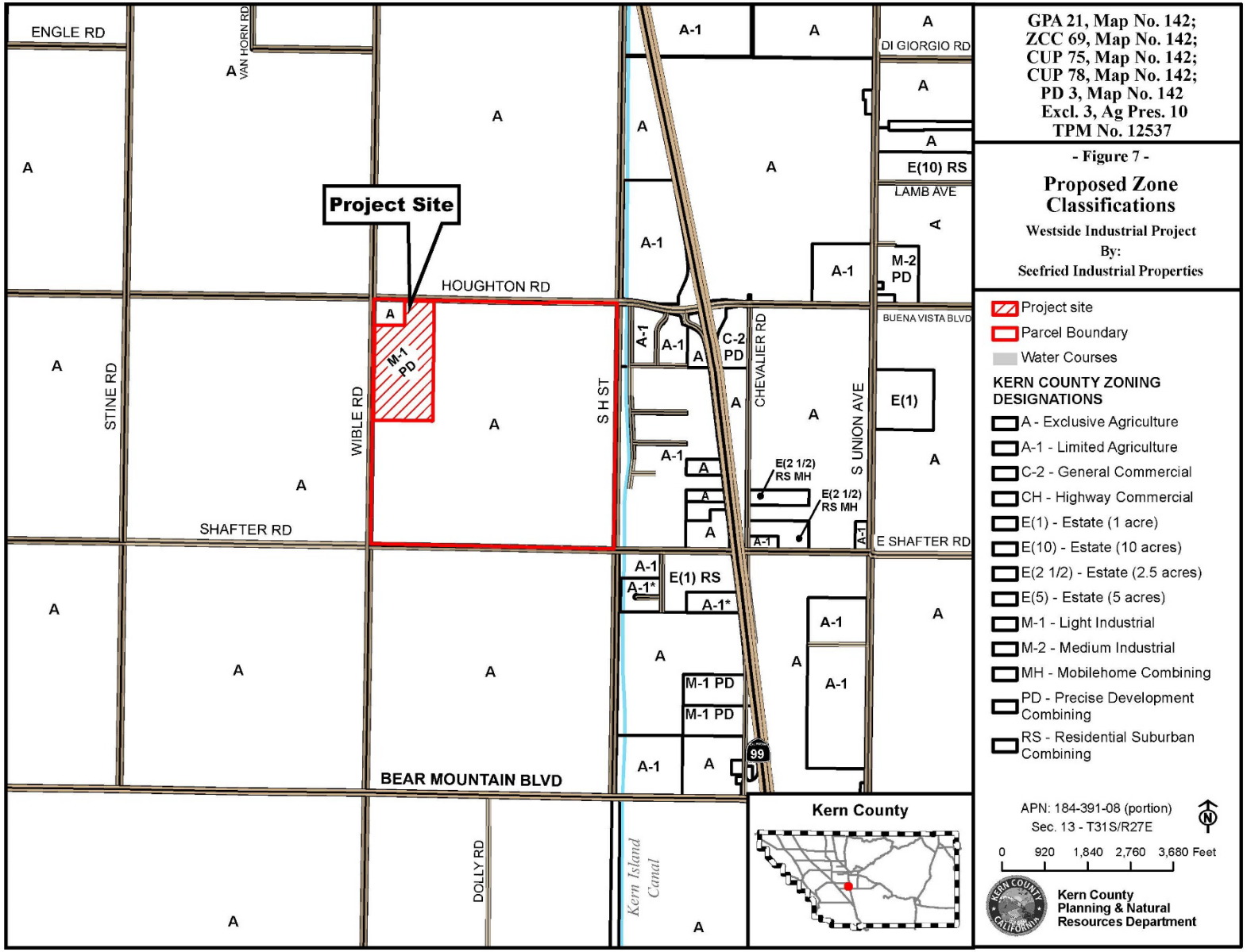


Figure 8a – Proposed PD Plan – Overall Site Plan

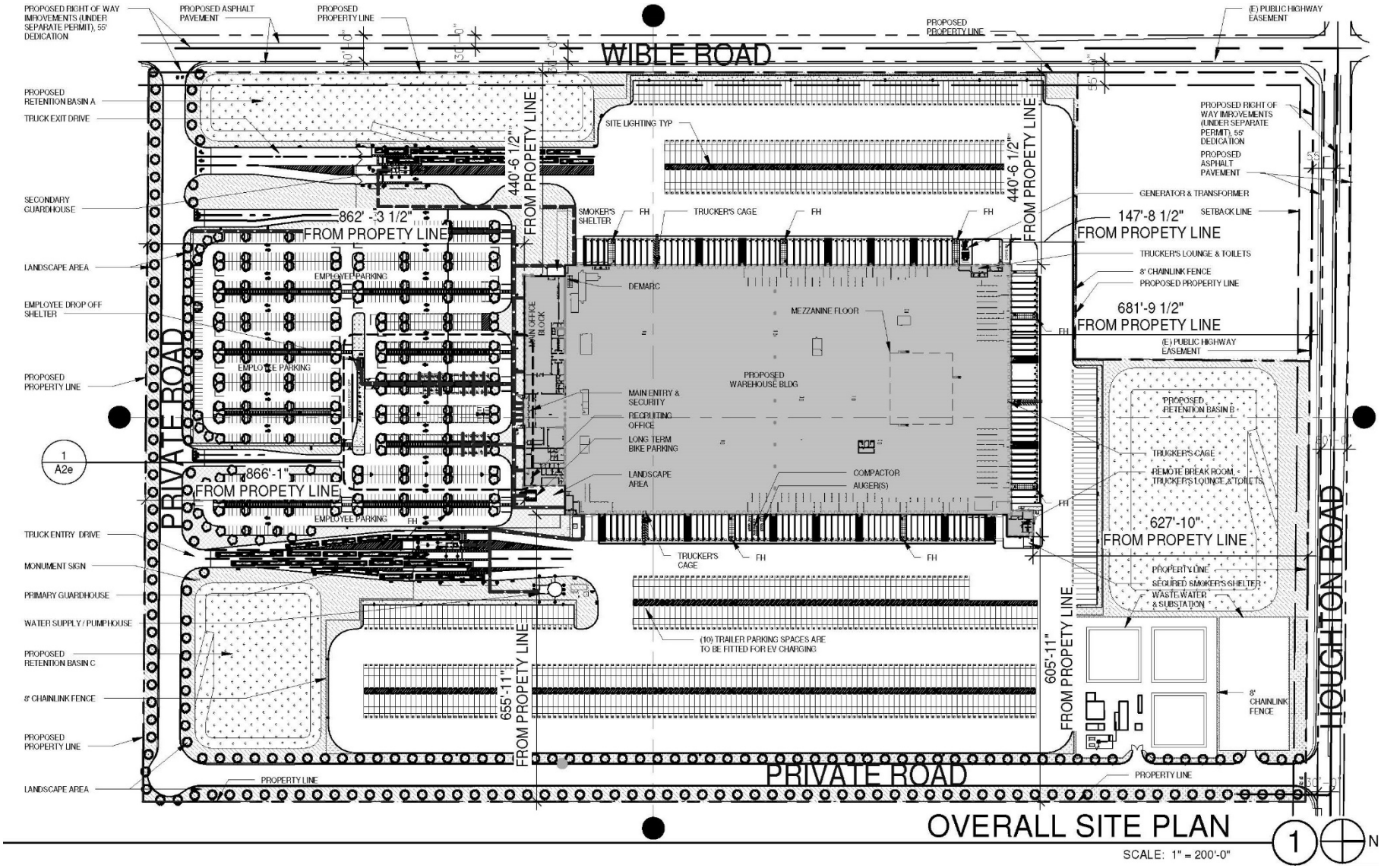


Figure 8b – Proposed PD Plan – Enlarged Site Plan Northeast

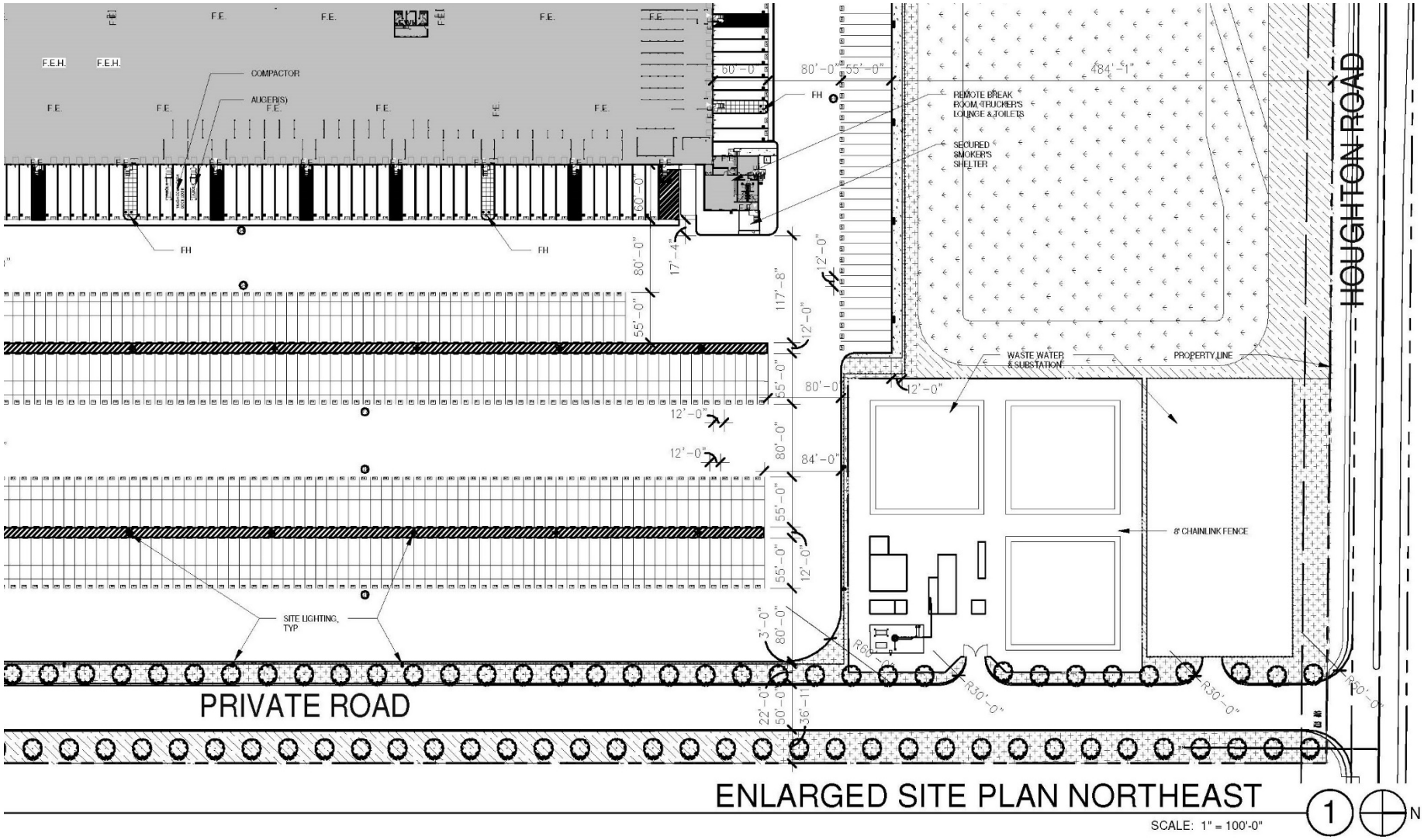


Figure 8c – Proposed PD Plan – Enlarged Site Plan Northwest

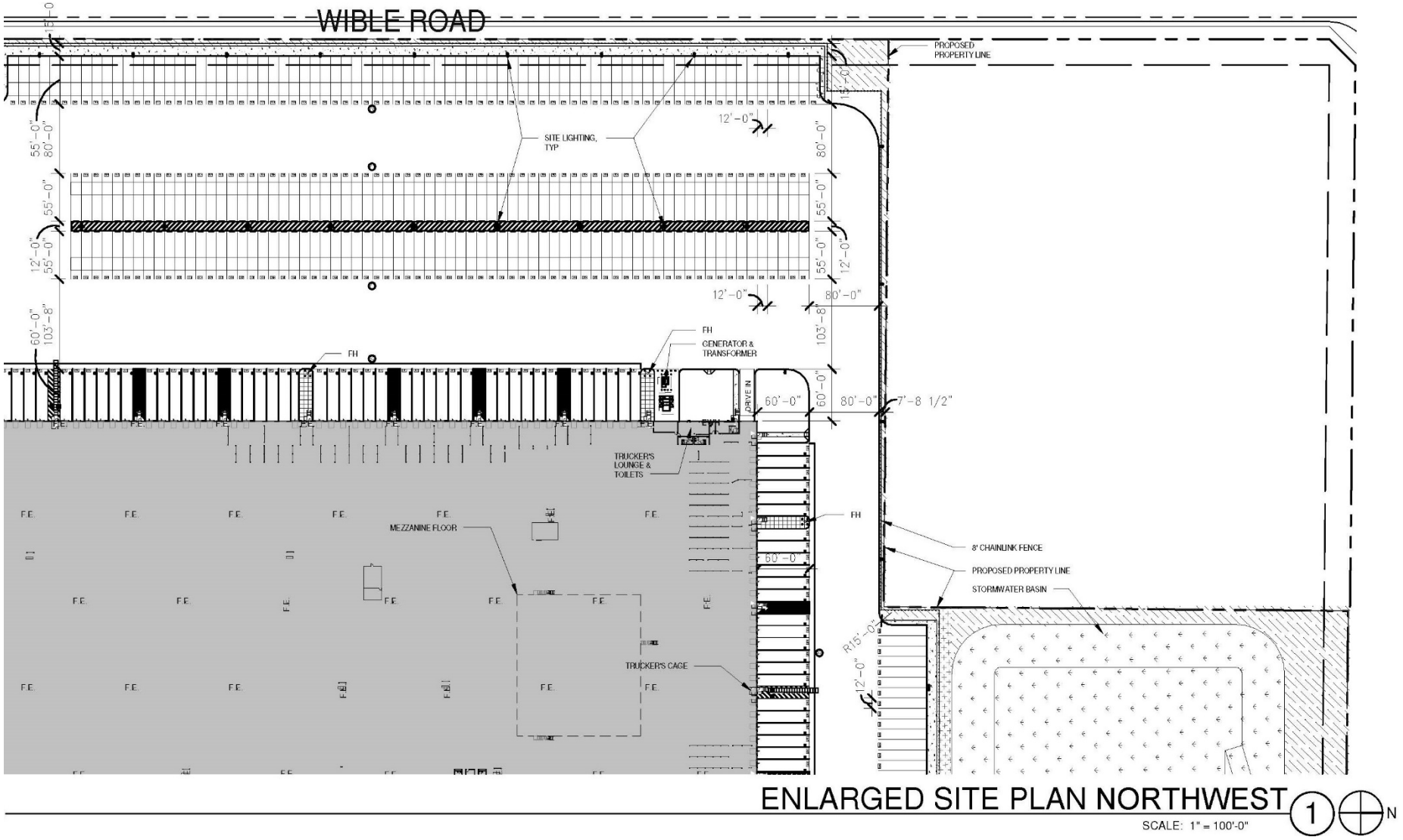


Figure 8d – Proposed PD Plan – Enlarged Site Plan Southeast

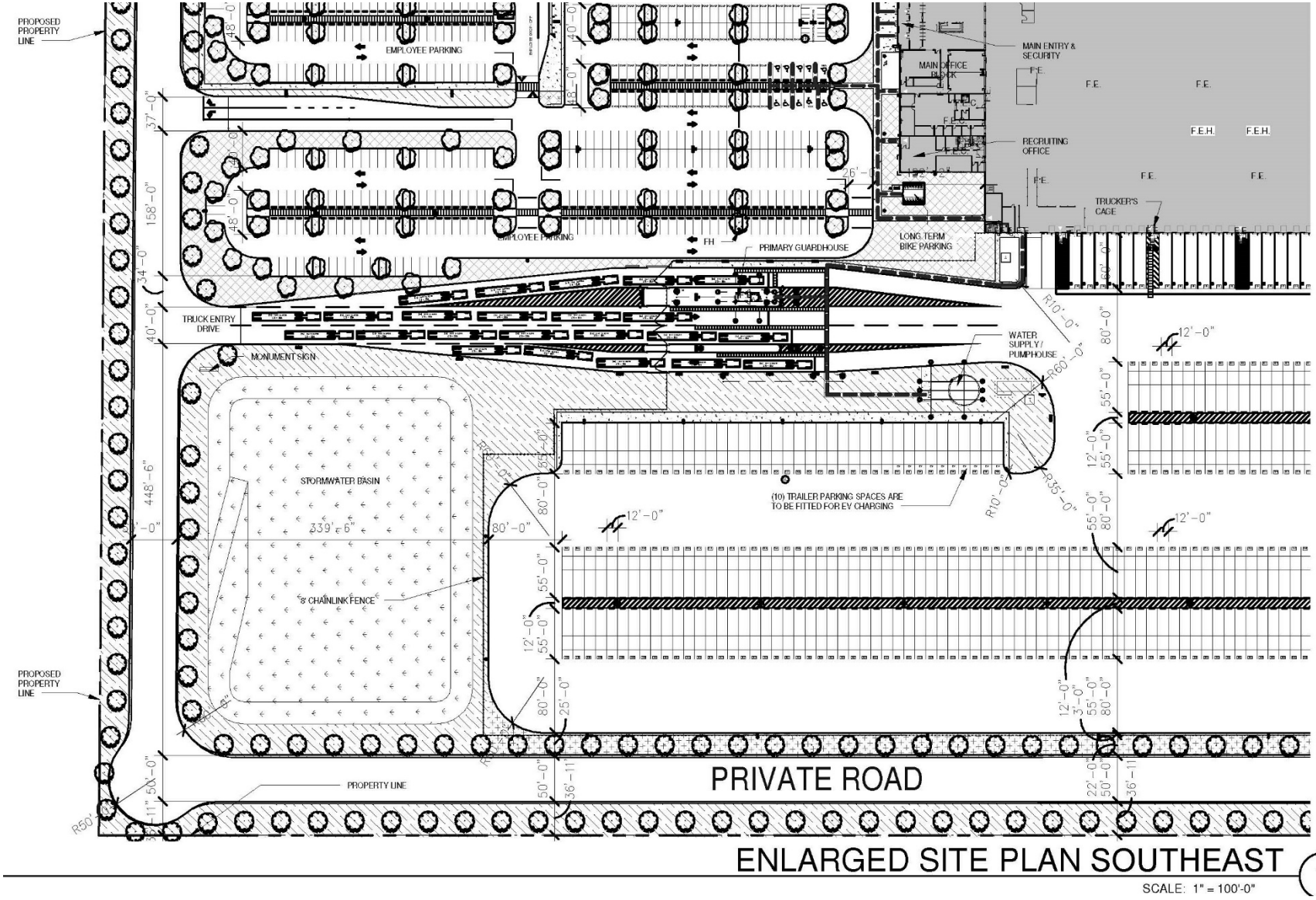


Figure 8e – Proposed PD Plan – Enlarged Site Plan Southwest

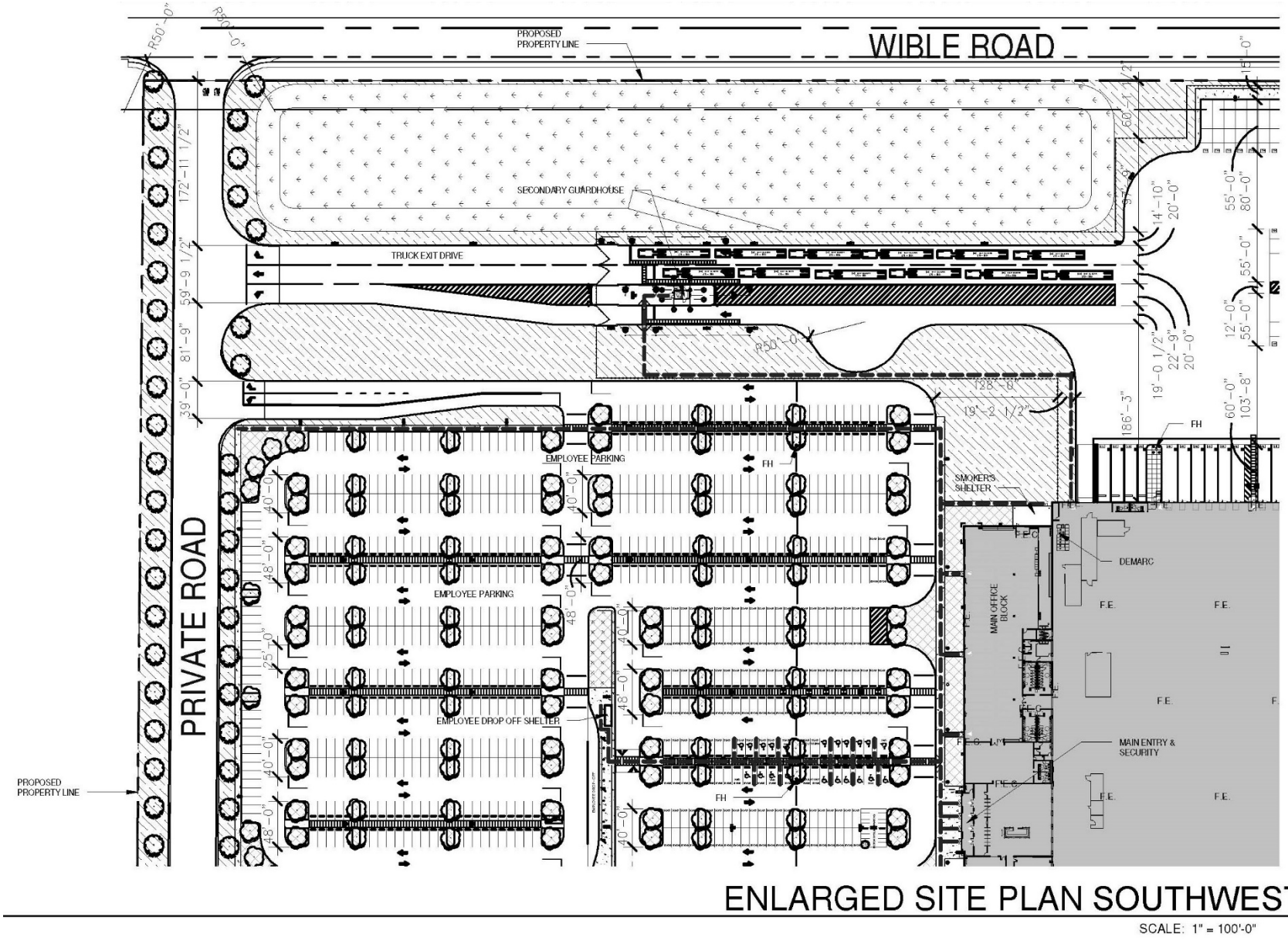


Figure 8f – Proposed PD Plan – Enlarged Site Plan

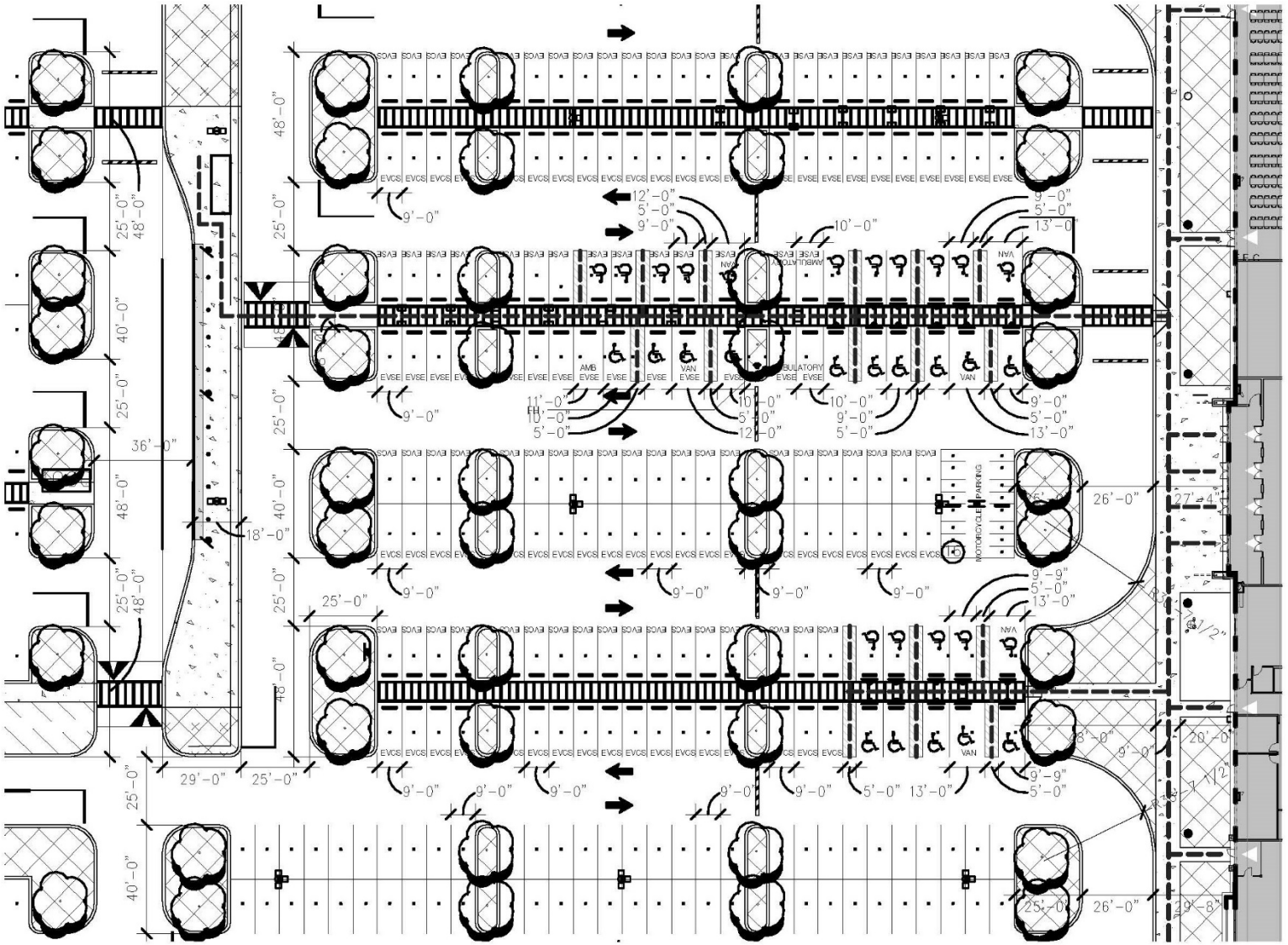
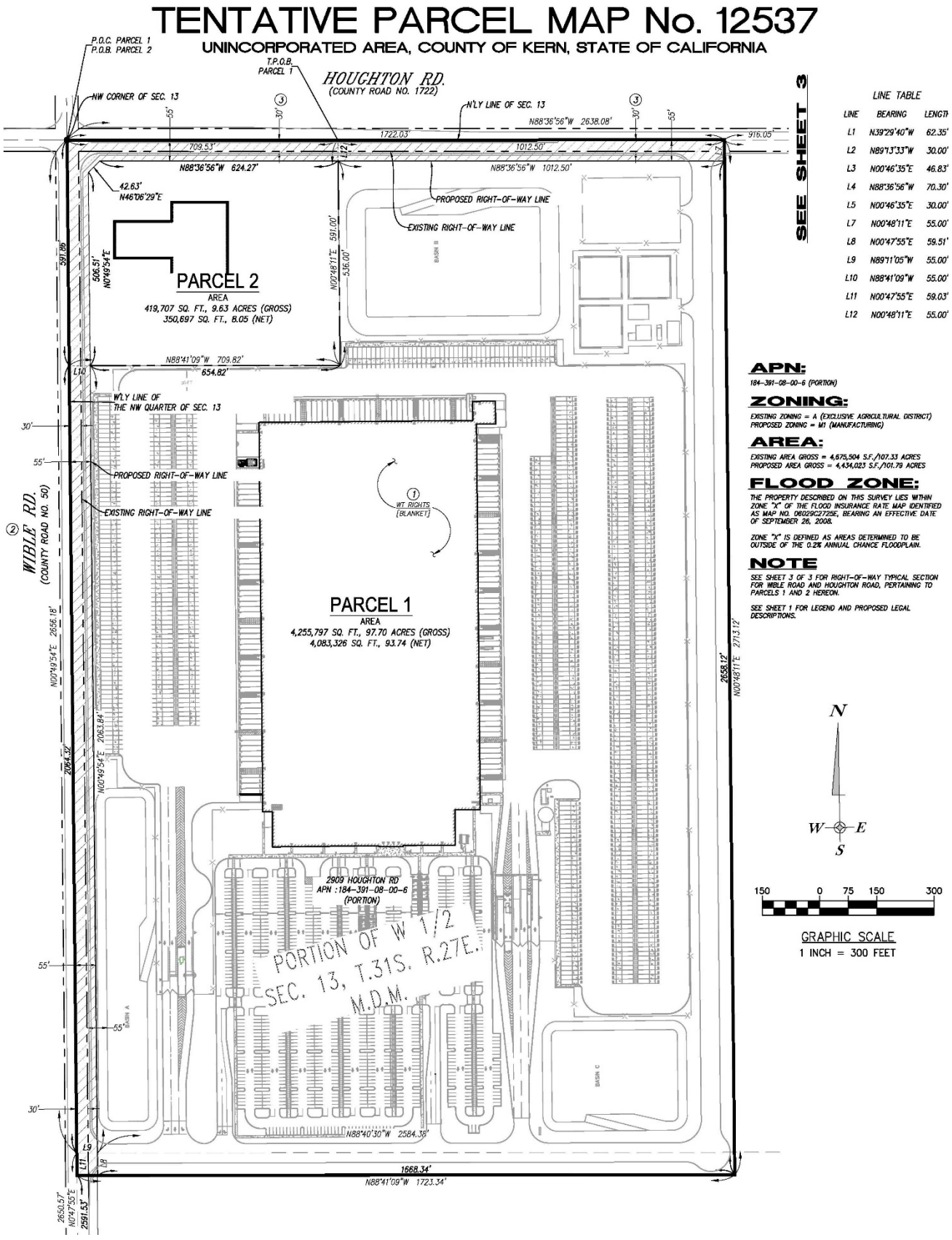


Figure 9 – Proposed Tentative Parcel Map No. 12537



2. Kern County Environmental Checklist Form

2.1. Environmental Factors Potentially Affected

In accordance with CEQA Guidelines, the County intends to prepare an Environmental Impact Report (EIR) to evaluate potential environmental effects of the project and to propose mitigation measures to reduce any significant effects identified.

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "potentially significant impact" as indicated by the Kern County Environmental Checklist. As such, the analysis contained within the EIR will focus on these issue areas.

☒ Aesthetics	☒ Agricultural and Forestry 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	☒ Population and Housing	☒ Public Services
☒ Recreation	☒ Transportation and Traffic	☒ Tribal Cultural Resources
☒ Utilities/Service Systems	☒ Wildfire	☒ Mandatory Findings of Significance

2.2. Determination

(To be completed by the Lead Agency)

Based on this initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☐ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☒ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect (a) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (b) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENT IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Signature:	Date: October 17, 2023
Printed Name: Mark Tolentino	Title: Planner II

A-2: Notice of Preparation and Scoping Comments

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California Department of Transportation

DISTRICT 6 OFFICE
1352 WEST OLIVE AVENUE | P.O. BOX 12616 | FRESNO, CA 93778-2616
(559) 840-6066 | FAX (559) 488-4195 | TTY 711
www.dot.ca.gov

September 27, 2023

KER-99-15.398
PRELIMINARY REVIEW
HOUGHTON INDUSTRIAL PHASE 1
GTS: 06-KER-2023-02160

SENT VIA EMAIL

Joe Shultz, P.E.
Kimley-Horn
401 B Street, Suite 600
San Diego, CA 92101

Dear Mr. Shultz:

Caltrans has completed reviewing a preliminary industrial warehouse development (Project). The Project site is located on the southwest corner of Houghton Road and South H Street, approximately 0.8-miles west of the State Route (SR) 99 and Houghton Road interchange, in the County of Kern.

Caltrans provides the following comments consistent with the State's smart mobility goals that support a vibrant economy and sustainable communities:

1. It is anticipated that the generated trips of the proposed development will immediately impact the local surroundings as well as the SR 99 and Houghton Road interchange.

2. Caltrans requests a Traffic Impact Study (TIS) to be completed and submitted for review. The TIS will determine the potential safety impacts this development may have on the nearby on- and off-ramps at at-grade intersections. A peak hour ramp queue analysis should be included to evaluate the safety impacts the Project-generated trips to the existing ramp capacity and turn lane storage. Ramp queue during peak hours may extend onto the freeway mainline and cause speed differential between the existing ramp and the freeway mainline.

3. Alternative transportation policies should be applied to the development. An assessment of multi-modal facilities should be conducted to develop an integrated multi-modal transportation system to serve and help alleviate traffic congestion caused by the Project and related development in this area.

4. Pedestrian walkways should link this community point-of-interest to an internal project area walkway, transit facilities, as well as other walkways in the surrounding area.

5. If transit is not available within ¼-mile of the site, transit should be extended to provide services to what will be a high-activity center.

6. Caltrans suggests the Project to explore the potential of commuter shuttles. The shuttle could be financed through an assessment district and provide a way for individuals to utilize a park-and-ride facility or commercial area parking lot and be shuttled to various commercial/office centers within the area. Commuters who need to go further could use transit if the **County of Kern** (Kern Rural Transit) planned for convenient connections. This may help to reduce the Single Occupancy Vehicle (SOV) demand seeking to use the State Highway System.

7. Caltrans recommends the Project implement "smart growth" principles regarding parking solutions, providing alternative transportation choices to residents and employees. Alternative transportation choices may include but are not limited to parking for carpools/vanpools, car-share and/or ride-share programs.

8. Active Transportation Plans and Smooth Growth efforts support the state's 2050 Climate goals. Caltrans supports reducing Vehicle Miles Traveled (VMT) and Green House Gas (GHG) emissions in ways that increase the likelihood people will use and benefit from a multimodal transportation network.

9. Based on Caltrans VMT-Focused Transportation Impact Study Guide, dated May 20, 2020 and effective as of July 1, 2020, Caltrans seeks to reduce single occupancy vehicle trips, provide a safe transportation system, reduce per capita Vehicle Miles Traveled (VMT), increase accessibility to destinations via cycling, walking, carpooling, transit and reduce greenhouse gas (GHG) emissions. Caltrans recommends that the project proponent continue to work with the **County of Kern** to further implement improvements to reduce vehicle miles traveled and offer a variety of transportation modes for its employees.

10. It also recommends the Project contributes towards the **County of Kern**'s developer impact fee program to fund future improvements of local and State transportation facilities in the vicinity due to cumulative traffic impact by continuous development.

11. Caltrans recommends the Project provide charging stations for electric vehicles as part of the statewide efforts to reduce GHG.

12. Due to severe truck parking shortages throughout the state and strict Federal Hours of Service regulations that limit the amount of time a truck driver can spend driving per day, many truck drivers cannot find safe and reliable truck parking spaces, and therefore park in unauthorized and/or unsafe areas. Constructing adequate truck parking on-site can alleviate the unauthorized/ unsafe truck parking demand on existing facilities. On-site freight parking for trucks will also strive to ensure a secure and reliable area for extended or overnight parking to help maintain adherence to the Federal Hours of Service regulations. On-site truck parking is adequate when facilities include, at a minimum: restrooms, lighting, trash facilities, drinking water, showers, and food sellers (such as, but not limited to a food court, restaurant, food truck) or vending machines.

13. An encroachment permit must be obtained for all proposed activities for placement of encroachments within, under or over the State highway rights-of-way. Activity and work planned in the State right-of-way shall be performed to State standards and specifications, at no cost to the State. Engineering plans, calculations, specifications, and reports (documents) shall be stamped and signed by a licensed Engineer or Architect. Engineering documents for encroachment permit activity and work in the State right-of-way may be submitted using English Units. The Permit Department and the Environmental Planning Branch will review and approve the activity and work in the State right-of-way before an encroachment permit is issued. The Streets and Highways Code Section 670 provides Caltrans discretionary approval authority for projects that encroach on the State Highway System. Encroachment permits will be issued in accordance with Streets and Highway Codes, Section 671.5, "Time Limitations." Encroachment permits do not run with the land. A change of ownership requires a new permit application. Only the legal property owner or his/her authorized agent can pursue obtaining an encroachment permit.

14. Prior to an encroachment permit application submittal, the project proponent is required to schedule a "Pre-Submittal" meeting with District 6 Encroachment Permit Office. To schedule this meeting, please call the Caltrans Encroachment Permit Office - District 6: 1352 W. Olive, Fresno, CA 93778, at **(559) 383-5047** or **(559) 383-5235**.

- **Please review the permit application - required document checklist at:** https://forms.dot.ca.gov/v2Forms/servlet/FormRenderer?frmid=TR0402&distpath=MAOTO&brapath=PERM.

- **Please also review the permit application - processing checklist at:** https://dot.ca.gov/-/media/dot-media/programs/traffic-operations/documents/encroachment-permits/tr-0416-applicable-review-process-checklist.pdf.

15. Dust control measures shall be implemented on the site in a manner to prevent dust from entering the State right-of-way.

16. No water from the proposed Project shall flow into the State right-of-way without approval from the District Hydraulic Engineer.

If you have any other questions, please contact Scott Lau at (559) 981-7341 or scott.lau@dot.ca.gov.

Sincerely,

Lorena Mendibles

LORENA MENDIBLES, Chief
Transportation Planning – South

C: Sara Eickenhorst – Kern County Planning

NATIVE AMERICAN HERITAGE COMMISSION

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NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov
NAHC.ca.gov

October 24, 2023

Mark Tolentino
Kern County Planning and Natural Resources Department
2700 "M" Street Suite 100
Bakersfield, CA 93301

Re: 2023100467, Westside Industrial Project by Seefried Industrial Project, Kern County

Dear Mr. Tolentino:

The Native American Heritage Commission (NAHC) has received the Notice of Preparation (NOP), Draft Environmental Impact Report (DEIR) or Early Consultation for the project referenced above. The California Environmental Quality Act (CEQA) (Pub. Resources Code §21000 et seq.), specifically Public Resources Code §21084.1, states that a project 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. (Pub. Resources Code § 21084.1; Cal. Code Regs., tit.14, §15064.5 (b) (CEQA Guidelines §15064.5 (b)). If there is substantial evidence, in light of the whole record before a lead agency, that a project may have a significant effect on the environment, an Environmental Impact Report (EIR) shall be prepared. (Pub. Resources Code §21080 (d); Cal. Code Regs., tit. 14, § 5064 subd.(a)(1) (CEQA Guidelines §15064 (a)(1)). In order to determine whether a project will cause a substantial adverse change in the significance of a historical resource, a lead agency will need to determine whether there are historical resources within the area of potential effect (APE).

CEQA was amended significantly in 2014. Assembly Bill 52 (Gatto, Chapter 532, Statutes of 2014) (AB 52) amended CEQA to create a separate category of cultural resources, "tribal cultural resources" (Pub. Resources Code §21074) and provides that a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment. (Pub. Resources Code §21084.2). Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource. (Pub. Resources Code §21084.3 (a)). **AB 52 applies to any project for which a notice of preparation, a notice of negative declaration, or a mitigated negative declaration is filed on or after July 1, 2015.** If your project involves the adoption of or amendment to a general plan or a specific plan, or the designation or proposed designation of open space, on or after March 1, 2005, it may also be subject to Senate Bill 18 (Burton, Chapter 905, Statutes of 2004) (SB 18). **Both SB 18 and AB 52 have tribal consultation requirements.** If your project is also subject to the federal National Environmental Policy Act (42 U.S.C. § 4321 et seq.) (NEPA), the tribal consultation requirements of Section 106 of the National Historic Preservation Act of 1966 (154 U.S.C. 300101, 36 C.F.R. §800 et seq.) may also apply.

The NAHC recommends consultation with California Native American tribes that are traditionally and culturally affiliated with the geographic area of your proposed project as early as possible in order to avoid inadvertent discoveries of Native American human remains and best protect tribal cultural resources. Below is a brief summary of portions of AB 52 and SB 18 as well as the NAHC's recommendations for conducting cultural resources assessments.

Consult your legal counsel about compliance with AB 52 and SB 18 as well as compliance with any other applicable laws.

AB 52

AB 52 has added to CEQA the additional requirements listed below, along with many other requirements:

1. Fourteen Day Period to Provide Notice of Completion of an Application/Decision to Undertake a Project: Within fourteen (14) days of determining that an application for a project is complete or of a decision by a public agency to undertake a project, a lead agency shall provide formal notification to a designated contact of, or tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, to be accomplished by at least one written notice that includes:

- **a.** A brief description of the project.
- **b.** The lead agency contact information.
- **c.** Notification that the California Native American tribe has 30 days to request consultation. (Pub. Resources Code §21080.3.1 (d)).
- **d.** A "California Native American tribe" is defined as a Native American tribe located in California that is on the contact list maintained by the NAHC for the purposes of Chapter 905 of Statutes of 2004 (SB 18). (Pub. Resources Code §21073).

2. Begin Consultation Within 30 Days of Receiving a Tribe's Request for Consultation and Before Releasing a Negative Declaration, Mitigated Negative Declaration, or Environmental Impact Report: A lead agency shall begin the consultation process within 30 days of receiving a request for consultation from a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project. (Pub. Resources Code §21080.3.1, subds. (d) and (e)) and prior to the release of a negative declaration, mitigated negative declaration or Environmental Impact Report. (Pub. Resources Code §21080.3.1(b)).

- **a.** For purposes of AB 52, "consultation shall have the same meaning as provided in Gov. Code §65352.4 (SB 18). (Pub. Resources Code §21080.3.1 (b)).

3. Mandatory Topics of Consultation If Requested by a Tribe: The following topics of consultation, if a tribe requests to discuss them, are mandatory topics of consultation:

- **a.** Alternatives to the project.
- **b.** Recommended mitigation measures.
- **c.** Significant effects. (Pub. Resources Code §21080.3.2 (a)).

4. Discretionary Topics of Consultation: The following topics are discretionary topics of consultation:

- **a.** Type of environmental review necessary.
- **b.** Significance of the tribal cultural resources.
- **c.** Significance of the project's impacts on tribal cultural resources.
- **d.** If necessary, project alternatives or appropriate measures for preservation or mitigation that the tribe may recommend to the lead agency. (Pub. Resources Code §21080.3.2 (a)).

5. Confidentiality of Information Submitted by a Tribe During the Environmental Review Process: With some exceptions, any information, including but not limited to, the location, description, and use of tribal cultural resources 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, consistent with Government Code §6254 (r) and §6254.10. Any information submitted by a California Native American tribe during the consultation or environmental review process shall 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. (Pub. Resources Code §21082.3 (c)(1)).

6. Discussion of Impacts to Tribal Cultural Resources in the Environmental Document: If a project may have a significant impact on a tribal cultural resource, the lead agency's environmental document shall discuss both of the following:

- **a.** Whether the proposed project has a significant impact on an identified tribal cultural resource.
- **b.** Whether feasible alternatives or mitigation measures, including those measures that may be agreed to pursuant to Public Resources Code §21082.3, subdivision (a), avoid or substantially lessen the impact on the identified tribal cultural resource. (Pub. Resources Code §21082.3 (b)).

7. Conclusion of Consultation: Consultation with a tribe shall be considered concluded when either of the following occurs:

a. The parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource; or

b. A party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached. (Pub. Resources Code §21080.3.2 (b)).

8. Recommending Mitigation Measures Agreed Upon in Consultation in the Environmental Document: Any mitigation measures agreed upon in the consultation conducted pursuant to Public Resources Code §21080.3.2 shall be recommended for inclusion in the environmental document and in an adopted mitigation monitoring and reporting program, if determined to avoid or lessen the impact pursuant to Public Resources Code §21082.3, subdivision (b), paragraph 2, and shall be fully enforceable. (Pub. Resources Code §21082.3 (a)).

9. Required Consideration of Feasible Mitigation: If mitigation measures recommended by the staff of the lead agency as a result of the consultation process are not included in the environmental document or if there are no agreed upon mitigation measures at the conclusion of consultation, or if consultation does not occur, and if substantial evidence demonstrates that a project will cause a significant effect to a tribal cultural resource, the lead agency shall consider feasible mitigation pursuant to Public Resources Code §21084.3 (b). (Pub. Resources Code §21082.3 (e)).

10. Examples of Mitigation Measures That, If Feasible, May Be Considered to Avoid or Minimize Significant Adverse Impacts to Tribal Cultural Resources:

a. Avoidance and preservation of the resources in place, including, but not limited to:

i. Planning and construction to avoid the resources and protect the cultural and natural context.

ii. Planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.

b. Treating the resource with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:

i. Protecting the cultural character and integrity of the resource.

ii. Protecting the traditional use of the resource.

iii. Protecting the confidentiality of the resource.

c. Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places.

d. Protecting the resource. (Pub. Resource Code §21084.3 (b)).

e. Please note that a federally recognized California Native American tribe or a non-federally recognized California Native American tribe that is on the contact list maintained by the NAHC to protect a California prehistoric, archaeological, cultural, spiritual, or ceremonial place may acquire and hold conservation easements if the conservation easement is voluntarily conveyed. (Civ. Code §815.3 (c)).

f. Please note that it is the policy of the state that Native American remains and associated grave artifacts shall be repatriated. (Pub. Resources Code §5097.991).

11. Prerequisites for Certifying an Environmental Impact Report or Adopting a Mitigated Negative Declaration or Negative Declaration with a Significant Impact on an Identified Tribal Cultural Resource: An Environmental Impact Report may not be certified, nor may a mitigated negative declaration or a negative declaration be adopted unless one of the following occurs:

a. The consultation process between the tribes and the lead agency has occurred as provided in Public Resources Code §21080.3.1 and §21080.3.2 and concluded pursuant to Public Resources Code §21080.3.2.

b. The tribe that requested consultation failed to provide comments to the lead agency or otherwise failed to engage in the consultation process.

c. The lead agency provided notice of the project to the tribe in compliance with Public Resources Code §21080.3.1 (d) and the tribe failed to request consultation within 30 days. (Pub. Resources Code §21082.3 (d)).

The NAHC's PowerPoint presentation titled, "Tribal Consultation Under AB 52: Requirements and Best Practices" may be found online at: http://nahc.ca.gov/wp-content/uploads/2015/10/AB52TribalConsultation_CalEPAPDF.pdf

SB 18

SB 18 applies to local governments and requires local governments to contact, provide notice to, refer plans to, and consult with tribes prior to the adoption or amendment of a general plan or a specific plan, or the designation of open space. (Gov. Code §65352.3). Local governments should consult the Governor's Office of Planning and Research's "Tribal Consultation Guidelines," which can be found online at: https://www.opr.ca.gov/docs/09_14_05_Updated_Guidelines_922.pdf.

Some of SB 18's provisions include:

1. Tribal Consultation: If a local government considers a proposal to adopt or amend a general plan or a specific plan, or to designate open space it is required to contact the appropriate tribes identified by the NAHC by requesting a "Tribal Consultation List." If a tribe, once contacted, requests consultation the local government must consult with the tribe on the plan proposal. **A tribe has 90 days from the date of receipt of notification to request consultation unless a shorter timeframe has been agreed to by the tribe.** (Gov. Code §65352.3 (a)(2)).
2. No Statutory Time Limit on SB 18 Tribal Consultation. There is no statutory time limit on SB 18 tribal consultation.
3. Confidentiality: Consistent with the guidelines developed and adopted by the Office of Planning and Research pursuant to Gov. Code §65040.2, the city or county shall protect the confidentiality of the information concerning the specific identity, location, character, and use of places, features and objects described in Public Resources Code §5097.9 and §5097.993 that are within the city's or county's jurisdiction. (Gov. Code §65352.3 (b)).
4. Conclusion of SB 18 Tribal Consultation: Consultation should be concluded at the point in which:
    a. The parties to the consultation come to a mutual agreement concerning the appropriate measures for preservation or mitigation; or
    b. Either the local government or the tribe, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached concerning the appropriate measures of preservation or mitigation. (Tribal Consultation Guidelines, Governor's Office of Planning and Research (2005) at p. 18).

Agencies should be aware that neither AB 52 nor SB 18 precludes agencies from initiating tribal consultation with tribes that are traditionally and culturally affiliated with their jurisdictions before the timeframes provided in AB 52 and SB 18. For that reason, we urge you to continue to request Native American Tribal Contact Lists and "Sacred Lands File" searches from the NAHC. The request forms can be found online at: http://nahc.ca.gov/resources/forms/.

NAHC Recommendations for Cultural Resources Assessments

To adequately assess the existence and significance of tribal cultural resources and plan for avoidance, preservation in place, or barring both, mitigation of project-related impacts to tribal cultural resources, the NAHC recommends the following actions:

1. Contact the appropriate regional California Historical Research Information System (CHRIS) Center (https://ohp.parks.ca.gov/?page_id=30331) for an archaeological records search. The records search will determine:
    a. If part or all of the APE has been previously surveyed for cultural resources.
    b. If any known cultural resources have already been recorded on or adjacent to the APE.
    c. If the probability is low, moderate, or high that cultural resources are located in the APE.
    d. If a survey is required to determine whether previously unrecorded cultural resources are present.

2. If an archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.
    a. The final report containing site forms, site significance, and mitigation measures should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum and not be made available for public disclosure.
    b. The final written report should be submitted within 3 months after work has been completed to the appropriate regional CHRIS center.

3. Contact the NAHC for:
    a. A Sacred Lands File search. Remember that tribes do not always record their sacred sites in the Sacred Lands File, nor are they required to do so. A Sacred Lands File search is not a substitute for consultation with tribes that are traditionally and culturally affiliated with the geographic area of the project's APE.
    b. A Native American Tribal Consultation List of appropriate tribes for consultation concerning the project site and to assist in planning for avoidance, preservation in place, or, failing both, mitigation measures.

4. Remember that the lack of surface evidence of archaeological resources (including tribal cultural resources) does not preclude their subsurface existence.
    a. Lead agencies should include in their mitigation and monitoring reporting program plan provisions for the identification and evaluation of inadvertently discovered archaeological resources per Cal. Code Regs., tit. 14, §15064.5(f) (CEQA Guidelines §15064.5(f)). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American with knowledge of cultural resources should monitor all ground-disturbing activities.
    b. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the disposition of recovered cultural items that are not burial associated in consultation with culturally affiliated Native Americans.
    c. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the treatment and disposition of inadvertently discovered Native American human remains. Health and Safety Code §7050.5, Public Resources Code §5097.98, and Cal. Code Regs., tit. 14, §15064.5, subdivisions (d) and (e) (CEQA Guidelines §15064.5, subds. (d) and (e)) address the processes to be followed in the event of an inadvertent discovery of any Native American human remains and associated grave goods in a location other than a dedicated cemetery.

If you have any questions or need additional information, please contact me at my email address: Cameron.Vela@nahc.ca.gov.

Sincerely,

Cameron Vela

Cameron Vela
Cultural Resources Analyst

cc: State Clearinghouse

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OCT 31 2023
Kern County Planning &
Natural Resources Dept

ROB BONTA
Attorney General

State of California
DEPARTMENT OF JUSTICE

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October 26, 2023

Mark Tolentino, Planner II
Kern County Planning and Natural Resources Dept.
2700 M Street, Suite 100
Bakersfield, CA 93301

RE: Westside Industrial Project by Seefried Industrial Properties, SCH 2023100467

Dear Mr. Tolentino:

Thank you for the opportunity to provide comments on the Notice of Preparation for the Westside Industrial Project by Seefried Industrial Properties project. While the logistics industry is an important component of our modern economy, warehouses can bring various environmental impacts to the communities where they are located. For example, diesel trucks visiting warehouses emit nitrogen oxide (NO_x)—a primary precursor to smog formation and a significant factor in the development of respiratory problems like asthma, bronchitis, and lung irritation—and diesel particulate matter (a subset of fine particular matter that is smaller than 2.5 micrometers)—a contributor to cancer, heart disease, respiratory illnesses, and premature death.[1] Trucks and on-site loading activities can also be loud, bringing disruptive noise levels during 24/7 operation that can cause hearing damage after prolonged exposure.[2] The hundreds, and sometimes thousands, of daily truck and passenger car trips that warehouses generate can contribute to traffic jams, deterioration of road surfaces, traffic accidents, and unsafe conditions for pedestrians and bicyclists. Depending on the circumstances of an individual project, warehouses may also have other environmental impacts.

To help lead agencies avoid, analyze, and mitigate warehouses' environmental impacts, the Attorney General Office's Bureau of Environmental Justice has published a document containing best practices and mitigation measures for warehouse projects. We have attached a

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[1] California Air Resources Board, Nitrogen Dioxide & Health, https://ww2.arb.ca.gov/resources/nitrogen-dioxide-and-health (NOx); California Air Resources Board, Summary: Diesel Particular Matter Health Impacts, https://ww2.arb.ca.gov/resources/summary-diesel-particulate-matter-health-impacts; Office of Environmental Health Hazard Assessment and American Lung Association of California, Health Effects of Diesel Exhaust, https://oehha.ca.gov/media/downloads/calenviroscreen/indicators/diesel4-02.pdf (DPM).

[2] Noise Sources and Their Effects, https://www.chem.purdue.edu/chemsafety/Training/PPETrain/dblevels.htm (a diesel truck moving 40 miles per hour, 50 feet away, produces 84 decibels of sound).

copy of this document to this letter, and it is also available online.[3] We encourage you to consider the information in this document as you prepare the draft environmental impact report for this project.

Priority should be placed on avoiding land use conflicts between warehouses and sensitive receptors and on mitigating the impacts of any unavoidable land use conflicts. However, even projects located far from sensitive receptors may contribute to harmful regional air pollution, so you should consider measures to reduce emissions associated with the project to help the State meet its air quality goals. A distant warehouse may also impact sensitive receptors if trucks must pass near sensitive receptors to visit the warehouse.

The Bureau will continue to monitor proposed warehouse projects for compliance with the California Environmental Quality Act and other laws. We are available to discuss as you prepare the draft environmental impact report and consider how to guide warehouse development in your jurisdiction. Please do not hesitate to contact the Environmental Justice Bureau at ej@doj.ca.gov if you have any questions.

Sincerely,

CHRISTIE VOSBURG
Supervising Deputy Attorney General

For ROB BONTA
Attorney General

[3] https://oag.ca.gov/system/files/media/warehouse-best-practices.pdf.

ROB BONTA
Attorney General

State of California
DEPARTMENT OF JUSTICE

Warehouse Projects: Best Practices and Mitigation Measures to Comply with the California Environmental Quality Act

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In carrying out its duty to enforce laws across California, the California Attorney General's Bureau of Environmental Justice (Bureau)[1] regularly reviews proposed warehouse projects for compliance with the California Environmental Quality Act (CEQA) and other laws. When necessary, the Bureau submits comment letters to lead agencies regarding warehouse projects, and in rare cases the Bureau has filed litigation to enforce CEQA.[2] This document builds upon the Bureau's work on warehouse projects, collecting information gained from the Bureau's review of hundreds of warehouse projects across the state.[3] It is meant to help lead agencies pursue CEQA compliance and promote environmentally-just development as they confront warehouse project proposals.[4] While CEQA analysis is necessarily project-specific, this document provides information on feasible best practices and mitigation measures, nearly all of which have been adapted from actual warehouse projects in California.

I. Background

In recent years, the proliferation of e-commerce and rising consumer expectations of rapid shipping have contributed to a boom in warehouse development.[5] California, with its ports, population centers, and transportation network, has found itself at the center of this trend. In 2020, the Ports of Los Angeles, Long Beach, and Oakland collectively accounted for over 34% of all United States international container trade.[6] The Ports of Los Angeles and Long Beach alone generate about 35,000 container truck trips every day.[7] Accordingly, the South Coast Air Basin now contains approximately 3,000 warehouses of over 100,000 square feet each, with a total warehouse capacity of approximately 700 million square feet, an increase of 20 percent over the last five years.[8] This trend has only accelerated, with e-commerce growing to

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[1] https://oag.ca.gov/environment/justice.

[2] https://oag.ca.gov/environment/ceqa; *People of the State of California v. City of Fontana* (Super. Ct. San Bernardino County, No. CIVSB2121829); *South Central Neighbors United et al. v. City of Fresno et al.* (Super. Ct. Fresno County, No. 18CECG00690).

[3] This September 2022 version revises and replaces the prior March 2021 version of this document.

[4] Anyone reviewing this document to determine CEQA compliance responsibilities should consult their own attorney for legal advice.

[5] As used in this document, "warehouse" or "logistics facility" is defined as a facility consisting of one or more buildings that stores cargo, goods, or products on a short- or long-term basis for later distribution to businesses and/or retail customers.

[6] Data from the Bureau of Transportation Statistics, Container TEUs (Twenty-foot Equivalent Units) (2020), https://data.bts.gov/stories/s/Container-TEU/x3fb-aeda/ (Ports of Los Angeles, Long Beach, and Oakland combined for 14.157 million TEUs, 34% of 41.24 million TEUs total nationwide) (last accessed September 18, 2022).

[7] U.S. Dept. of Transportation, Federal Highway Administration, *FHWA Operations Support – Port Peak Pricing Program Evaluation* (2020), available at https://ops.fhwa.dot.gov/publications/fhwahop09014/sect2.htm (last accessed September 18, 2022).

[8] South Coast Air Qual. Mgmt. Dist., *Final Socioeconomic Assessment for Proposed Rule 2305 – Warehouse Indirect Source Rule – Warehouse Actions and Investments to Reduce Emissions (WAIRE) Program and Proposed Rule 316 – Fees for Rule 2305*, at 7-8, 41 (May 2021).

13% of all retail sales and 2021 being a second consecutive record year for new warehouse space leased.[9] The latest data and forecasts predict that the next wave of warehouse development will be in the Central Valley.[10]

When done properly, these activities can contribute to the economy and consumer welfare. However, imprudent warehouse development can harm local communities and the environment. Among other pollutants, diesel trucks visiting warehouses emit nitrogen oxide (NO_x)—a primary precursor to smog formation and a significant factor in the development of respiratory problems like asthma, bronchitis, and lung irritation—and diesel particulate matter (a subset of fine particular matter that is smaller than 2.5 micrometers)—a contributor to cancer, heart disease, respiratory illnesses, and premature death.[11] Trucks and on-site loading activities can also be loud, bringing disruptive noise levels during 24/7 operation that can cause hearing damage after prolonged exposure.[12] The hundreds, and sometimes thousands, of daily truck and passenger car trips that warehouses generate contribute to traffic jams, deterioration of road surfaces, and traffic accidents.

These environmental impacts also tend to be concentrated in neighborhoods already suffering from disproportionate health impacts and systemic vulnerability. For example, a comprehensive study by the South Coast Air Quality Management District found that communities located near large warehouses scored far higher on California's environmental justice screening tool, which measures overall pollution and demographic vulnerability.[13] That

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[9] U.S. Census Bureau News, Quarterly Retail E-Commerce Sales 4th Quarter 2021 (February 22, 2022), https://www.census.gov/retail/mrts/www/data/pdf/ec_current.pdf (last accessed September 18, 2022); CBRE Research, *2022 North America Industrial Big Box Report: Review and Outlook*, at 2-3 (March 2022), *available at* https://www.cbre.com/insights/reports/2022-north-america-industrial-big-box#download-report (last accessed September 18, 2022).

[10] CBRE Research, *supra note* 9, at 4, 36; New York Times, *Warehouses Are Headed to the Central Valley, Too* (Jul. 22, 2020), *available* at https://www.nytimes.com/2020/07/22/us/coronavirus-ca-warehouse-workers.html.

[11] California Air Resources Board, Nitrogen Dioxide & Health, https://ww2.arb.ca.gov/resources/nitrogen-dioxide-and-health (last accessed September 18, 2022) (NOx); California Air Resources Board, Summary: Diesel Particular Matter Health Impacts, https://ww2.arb.ca.gov/resources/summary-diesel-particulate-matter-health-impacts (last accessed September 18, 2022); Office of Environmental Health Hazard Assessment and American Lung Association of California, Health Effects of Diesel Exhaust, https://oehha.ca.gov/media/downloads/calenviroscreen/indicators/diesel4-02.pdf (last accessed September 18, 2022) (DPM).

[12] Noise Sources and Their Effects, https://www.chem.purdue.edu/chemsafety/Training/PPETrain/dblevels.htm (last accessed September 18, 2022) (a diesel truck moving 40 miles per hour, 50 feet away, produces 84 decibels of sound).

[13] South Coast Air Quality Management District, "Final Socioeconomic Assessment for Proposed Rule 2305 – Warehouse Indirect Source Rule – Warehouse Actions and Investments to Reduce Emissions (WAIRE) Program and Proposed Rule 316 – Fees for Rule 2305" (May 2021), at 4-5.

study concluded that, compared to the South Coast Air Basin averages, communities in the South Coast Air Basin near large warehouses had a substantially higher proportion of people of color; were exposed to more diesel particulate matter; had higher rates of asthma, cardiovascular disease, and low birth weights; and had higher poverty and unemployment rates.[14] Each area has its own unique history, but many of these impacts and vulnerabilities reflect historic redlining practices in these communities, which devalued land and concentrated poverty, racial outgroups, and pollution into designated areas.[15]

II. Proactive Planning: General Plans, Local Ordinances, and Good Neighbor Policies

To systematically guide warehouse development, we encourage local governing bodies to proactively plan for logistics projects in their jurisdictions. Proactive planning allows jurisdictions to prevent land use conflicts before they materialize and direct sustainable development. Benefits also include providing a predictable business environment, protecting residents from environmental harm, and setting consistent expectations jurisdiction-wide.

Proactive planning can take many forms. Land use designation and zoning decisions should channel development into appropriate areas. For example, establishing industrial districts near major highway and rail corridors but away from sensitive receptors[16] can help attract investment while avoiding conflicts between warehouse facilities and residential communities. Transition zones with lighter industrial and commercial land uses may also help minimize conflicts between residential and industrial uses.

In addition, general plan policies, local ordinances, and good neighbor policies should set minimum standards for logistics projects. General plan policies can be incorporated into existing economic development, land use, circulation, or other related general plan elements. Many jurisdictions alternatively choose to consolidate policies in a separate environmental justice element. Adopting general plan policies to guide warehouse development may also help

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[14] *Id*. at 5-7.

[15] Beginning in the 1930s, federal housing policy directed investment away from Black, immigrant, and working-class communities by color-coding neighborhoods according to the purported "riskiness" of loaning to their residents. In California cities where such "redlining" maps were drawn, nearly all of the communities where warehouses are now concentrated were formerly coded "red," signifying the least desirable areas where investment was to be avoided. *See* University of Richmond Digital Scholarship Lab, Mapping Inequality, https://dsl.richmond.edu/panorama/redlining/#loc=12/33.748/-118.272&city=los-angeles-ca (Los Angeles), https://dsl.richmond.edu/panorama/redlining/#loc=13/32.685/-117.132&city=san-diego-ca (San Diego), https://dsl.richmond.edu/panorama/redlining/#loc=11/37.81/-122.38&city=oakland-ca (Oakland), https://dsl.richmond.edu/panorama/redlining/#loc=13/37.956/-121.326&city=stockton-ca (Stockton), https://dsl.richmond.edu/panorama/redlining/#loc=12/36.751/-119.86&city=fresno-ca (Fresno) (all last accessed September 18, 2022).

[16] In this document, "sensitive receptors" refers to residences, schools, public recreation facilities, health care facilities, places of worship, daycare facilities, community centers, or incarceration facilities.

jurisdictions comply with their obligations under SB 1000, which requires local government general plans to identify objectives and policies to reduce health risks in disadvantaged communities, promote civil engagement in the public decision making process, and prioritize improvements and programs that address the needs of disadvantaged communities.[17]

Local ordinances and good neighbor policies that set development standards for all warehouses in the jurisdiction are a critical and increasingly common tool that serve several goals. When well-designed, these ordinances direct investment to local improvements, provide predictability for developers, conserve government resources by streamlining project review processes, and reduce the environmental impacts of industrial development. While many jurisdictions have adopted warehouse-specific development standards, an ordinance in the City of Fontana provides an example to review and build upon.[18] Good neighbor policies in Riverside County and by the Western Riverside Council of Government include additional measures worth consideration.[19]

The Bureau encourages jurisdictions to adopt their own local ordinances that combine the strongest policies from those models with measures discussed in the remainder of this document.

III. Community Engagement

Early and consistent community engagement is central to establishing good relationships between communities, lead agencies, and warehouse developers and tenants. Robust community engagement can give lead agencies access to community residents' on-the-ground knowledge and information about their concerns, build community support for projects, and develop creative solutions to ensure new logistics facilities are mutually beneficial. Examples of best practices for community engagement include:

- Holding a series of community meetings at times and locations convenient to members of the affected community and incorporating suggestions into the project design.
- Posting information in hard copy in public gathering spaces and on a website about the project. The information should include a complete, accurate project description, maps and drawings of the project design, and information about how the public can provide input and be involved in the project approval process. The

[17] For more information about SB 1000, *see* https://oag.ca.gov/environment/sb1000.
[18] https://oag.ca.gov/system/files/attachments/press-docs/Final%20Signed%20Fontana%20Ordinance.pdf (last accessed September 18, 2022).
[19] For example, the Riverside County policy requires community benefits agreements and supplemental funding contributions toward additional pollution offsets, and the Western Riverside Council of Governments policy sets a minimum buffer zone of 300 meters between warehouses and sensitive receptors. https://www.rivcocob.org/wp-content/uploads/2020/01/Good-Neighbor-Policy-F-3-Final-Adopted.pdf (last accessed September 18, 2022) (Riverside County); http://www.wrcog.cog.ca.us/DocumentCenter/View/318/Good-Neighbor-Guidelines-for-Siting-Warehouse-Distribution-Facilities-PDF?bidId= (last accessed September 18, 2022) (Western Riverside Council of Governments).

information should be in a format that is easy to navigate and understand for members of the affected community.

- Providing notice by mail to residents and schools within a certain radius of the project and along transportation corridors to be used by vehicles visiting the project, and by posting a prominent sign on the project site. The notice should include a brief project description and directions for accessing complete information about the project and for providing input on the project.
- Providing translation or interpretation in residents' native language, where appropriate.
- For public meetings broadcast online or otherwise held remotely, providing for access and public comment by telephone and supplying instructions for access and public comment with ample lead time prior to the meeting.
- Partnering with local community-based organizations to solicit feedback, leverage local networks, co-host meetings, and build support.
- Considering adoption of a community benefits agreement, negotiated with input from affected residents and businesses, by which the developer provides benefits to the affected community.
- Creating a community advisory board made up of local residents to review and provide feedback on project proposals in early planning stages.
- Identifying a person to act as a community liaison concerning on-site construction activity and operations, and providing contact information for the community liaison to the surrounding community.
- Requiring signage in public view at warehouse facilities with contact information for a local designated representative for the facility operator who can receive community complaints, and requiring any complaints to be answered by the facility operator within 48 hours of receipt.

IV. Warehouse Siting and Design Considerations

The most important consideration when planning a logistics facility is its location. Warehouses located in residential neighborhoods or near sensitive receptors expose community residents and those using or visiting sensitive receptor sites to the air pollution, noise, traffic, and other environmental impacts they generate. Therefore, placing facilities away from sensitive receptors significantly reduces their environmental and quality of life harms on local communities. The suggested best practices for siting and design of warehouse facilities does not relieve lead agencies' responsibility under CEQA to conduct a project-specific analysis of the project's impacts and evaluation of feasible mitigation measures and alternatives; lead agencies' incorporation of the best practices must be part of the impact, mitigation and alternatives analyses to meet the requirements of CEQA. Examples of best practices when siting and designing warehouse facilities include:

- Per California Air Resources Board (CARB) guidance, siting warehouse facilities so that their property lines are at least 1,000 feet from the property lines of the nearest sensitive receptors.[20]
- Providing adequate amounts of on-site parking to prevent trucks and other vehicles from parking or idling on public streets and to reduce demand for off-site truck yards.
- Establishing setbacks from the property line of the nearest sensitive receptor to warehouse dock doors, loading areas, and truck drive aisles, and locating warehouse dock doors, loading areas, and truck drive aisles on the opposite side of the building from the nearest sensitive receptors—e.g., placing dock doors on the north side of the facility if sensitive receptors are near the south side of the facility.
- Placing facility entry and exit points from the public street away from sensitive receptors—e.g., placing these points on the north side of the facility if sensitive receptors are adjacent to the south side of the facility.
- Ensuring heavy duty trucks abide by the on-site circulation plans by constructing physical barriers to block those trucks from using areas of the project site restricted to light duty vehicles or emergency vehicles only.
- Preventing truck queuing spillover onto surrounding streets by positioning entry gates after a minimum of 140 feet of space for queuing, and increasing the distance by 70 feet for every 20 loading docks beyond 50 docks.
- Locating facility entry and exit points on streets of higher commercial classification that are designed to accommodate heavy duty truck usage.
- Screening the warehouse site perimeter and onsite areas with significant truck traffic (e.g., dock doors and drive aisles) by creating physical, structural, and/or vegetative buffers that prevent or substantially reduce pollutant and noise dispersion from the facility to sensitive receptors.
- Planting exclusively 36-inch box evergreen trees to ensure faster maturity and four-season foliage.
- Requiring all property owners and successors in interest to maintain onsite trees and vegetation for the duration of ownership, including replacing any dead or unhealthy trees and vegetation.
- Posting signs clearly showing the designated entry and exit points from the public street for trucks and service vehicles.
- Including signs and drive aisle pavement markings that clearly identify onsite circulation patterns to minimize unnecessary onsite vehicle travel.
- Posting signs indicating that all parking and maintenance of trucks must be conducted within designated on-site areas and not within the surrounding community or public streets.

[20] CARB, Air Quality and Land Use Handbook: A Community Health Perspective (April 2005), at ES-1. CARB staff has released draft updates to this siting and design guidance which suggests a greater distance may be warranted in some scenarios. CARB, Concept Paper for the Freight Handbook (December 2019), *available at* https://ww2.arb.ca.gov/sites/default/files/2020-03/2019.12.12%20-%20Concept%20Paper%20for%20the%20Freight%20Handbook_1.pdf (last accessed September 18, 2022).

V. Air Quality and Greenhouse Gas Emissions Analysis and Mitigation

Emissions of air pollutants and greenhouse gases are often among the most substantial environmental impacts from new warehouse facilities. CEQA compliance demands a proper accounting of the full air quality and greenhouse gas impacts of logistics facilities and adoption of all feasible mitigation of significant impacts. Although efforts by CARB and other authorities to regulate the heavy-duty truck and off-road diesel fleets have made excellent progress in reducing the air quality impacts of logistics facilities, the opportunity remains for local jurisdictions to further mitigate these impacts at the project level. Lead agencies and developers should also consider designing projects with their long-term viability in mind. Constructing the necessary infrastructure to prepare for the zero-emission future of goods movement not only reduces a facility's emissions and local impact now, but it can also save money as demand for zero-emission infrastructure grows. In planning new logistics facilities, the Bureau strongly encourages developers to consider the local, statewide, and global impacts of their projects' emissions.

Examples of best practices when studying air quality and greenhouse gas impacts include:

- Fully analyzing all reasonably foreseeable project impacts, including cumulative impacts. In general, new warehouse developments are not ministerial under CEQA because they involve public officials' personal judgment as to the wisdom or manner of carrying out the project, even when warehouses are permitted by a site's applicable zoning and/or general plan land use designation.[21]
- When analyzing cumulative impacts, thoroughly considering the project's incremental impact in combination with past, present, and reasonably foreseeable future projects, even if the project's individual impacts alone do not exceed the applicable significance thresholds.
- Preparing a quantitative air quality study in accordance with local air district guidelines.
- Preparing a quantitative health risk assessment in accordance with California Office of Environmental Health Hazard Assessment and local air district guidelines.
- Refraining from labeling compliance with CARB or air district regulations as a mitigation measure—compliance with applicable regulations is required regardless of CEQA.
- Disclosing air pollution from the entire expected length of truck trips. CEQA requires full public disclosure of a project's anticipated truck trips, which entails calculating truck trip length based on likely truck trip destinations, rather than the distance from the facility to the edge of the air basin, local jurisdiction, or other truncated endpoint. All air pollution associated with the project must be considered, regardless of where those impacts occur.

[21] CEQA Guidelines § 15369.

- Accounting for all reasonably foreseeable greenhouse gas emissions from the project, without discounting projected emissions based on participation in California's Cap-and-Trade Program.

Examples of measures to mitigate air quality and greenhouse gas impacts from construction are below. To ensure mitigation measures are enforceable and effective, they should be imposed as permit conditions on the project where applicable.

- Requiring off-road construction equipment to be hybrid electric-diesel or zero-emission, where available, and all diesel-fueled off-road construction equipment to be equipped with CARB Tier IV-compliant engines or better, and including this requirement in applicable bid documents, purchase orders, and contracts, with successful contractors demonstrating the ability to supply the compliant construction equipment for use prior to any ground-disturbing and construction activities.
- Prohibiting off-road diesel-powered equipment from being in the "on" position for more than 10 hours per day.
- Using electric-powered hand tools, forklifts, and pressure washers, and providing electrical hook ups to the power grid rather than use of diesel-fueled generators to supply their power.
- Designating an area in the construction site where electric-powered construction vehicles and equipment can charge.
- Limiting the amount of daily grading disturbance area.
- Prohibiting grading on days with an Air Quality Index forecast of greater than 100 for particulates or ozone for the project area.
- Forbidding idling of heavy equipment for more than three minutes.
- Keeping onsite and furnishing to the lead agency or other regulators upon request, all equipment maintenance records and data sheets, including design specifications and emission control tier classifications.
- Conducting an on-site inspection to verify compliance with construction mitigation and to identify other opportunities to further reduce construction impacts.
- Using paints, architectural coatings, and industrial maintenance coatings that have volatile organic compound levels of less than 10 g/L.
- Providing information on transit and ridesharing programs and services to construction employees.
- Providing meal options onsite or shuttles between the facility and nearby meal destinations for construction employees.

Examples of measures to mitigate air quality and greenhouse gas impacts from operation include:

- Requiring all heavy-duty vehicles engaged in drayage[22] to or from the project site to be zero-emission beginning in 2030.

[22] "Drayage" refers generally to transport of cargo to or from a seaport or intermodal railyard.

- Requiring all on-site motorized operational equipment, such as forklifts and yard trucks, to be zero-emission with the necessary charging or fueling stations provided.
- Requiring tenants to use zero-emission light- and medium-duty vehicles as part of business operations.
- Forbidding trucks from idling for more than three minutes and requiring operators to turn off engines when not in use.
- Posting both interior- and exterior-facing signs, including signs directed at all dock and delivery areas, identifying idling restrictions and contact information to report violations to CARB, the local air district, and the building manager.
- Installing solar photovoltaic systems on the project site of a specified electrical generation capacity that is equal to or greater than the building's projected energy needs, including all electrical chargers.
- Designing all project building roofs to accommodate the maximum future coverage of solar panels and installing the maximum solar power generation capacity feasible.
- Constructing zero-emission truck charging/fueling stations proportional to the number of dock doors at the project.
- Running conduit to designated locations for future electric truck charging stations.
- Unless the owner of the facility records a covenant on the title of the underlying property ensuring that the property cannot be used to provide refrigerated warehouse space, constructing electric plugs for electric transport refrigeration units at every dock door and requiring truck operators with transport refrigeration units to use the electric plugs when at loading docks.
- Oversizing electrical rooms by 25 percent or providing a secondary electrical room to accommodate future expansion of electric vehicle charging capability.
- Constructing and maintaining electric light-duty vehicle charging stations proportional to the number of employee parking spaces (for example, requiring at least 10% of all employee parking spaces to be equipped with electric vehicle charging stations of at least Level 2 charging performance)
- Running conduit to an additional proportion of employee parking spaces for a future increase in the number of electric light-duty charging stations.
- Installing and maintaining, at the manufacturer's recommended maintenance intervals, air filtration systems at sensitive receptors within a certain radius of facility for the life of the project.
- Installing and maintaining, at the manufacturer's recommended maintenance intervals, an air monitoring station proximate to sensitive receptors and the facility for the life of the project, and making the resulting data publicly available in real time. While air monitoring does not mitigate the air quality or greenhouse gas impacts of a facility, it nonetheless benefits the affected community by providing information that can be used to improve air quality or avoid exposure to unhealthy air.
- Requiring all stand-by emergency generators to be powered by a non-diesel fuel.
- Requiring facility operators to train managers and employees on efficient scheduling and load management to eliminate unnecessary queuing and idling of

trucks.

- Requiring operators to establish and promote a rideshare program that discourages single-occupancy vehicle trips and provides financial incentives for alternate modes of transportation, including carpooling, public transit, and biking.
- Meeting CalGreen Tier 2 green building standards, including all provisions related to designated parking for clean air vehicles, electric vehicle charging, and bicycle parking.
- Designing to LEED green building certification standards.
- Providing meal options onsite or shuttles between the facility and nearby meal destinations.
- Posting signs at every truck exit driveway providing directional information to the truck route.
- Improving and maintaining vegetation and tree canopy for residents in and around the project area.
- Requiring that every tenant train its staff in charge of keeping vehicle records in diesel technologies and compliance with CARB regulations, by attending CARB-approved courses. Also require facility operators to maintain records on-site demonstrating compliance and make records available for inspection by the local jurisdiction, air district, and state upon request.
- Requiring tenants to enroll in the United States Environmental Protection Agency's SmartWay program, and requiring tenants who own, operate, or hire trucking carriers with more than 100 trucks to use carriers that are SmartWay carriers.
- Providing tenants with information on incentive programs, such as the Carl Moyer Program and Voucher Incentive Program, to upgrade their fleets.

VI. Noise Impacts Analysis and Mitigation

The noise associated with logistics facilities can be among their most intrusive impacts to nearby sensitive receptors. Various sources, such as unloading activity, diesel truck movement, and rooftop air conditioning units, can contribute substantial noise pollution. These impacts are exacerbated by logistics facilities' typical 24-hour, seven-days-per-week operation. Construction noise is often even greater than operational noise, so if a project site is near sensitive receptors, developers and lead agencies should adopt measures to reduce the noise generated by both construction and operation activities.

Examples of best practices when studying noise impacts include:

- Preparing a noise impact analysis that considers all reasonably foreseeable project noise impacts, including to nearby sensitive receptors. All reasonably foreseeable project noise impacts encompasses noise from both construction and operations, including stationary, on-site, and off-site noise sources.
- Adopting a lower significance threshold for incremental noise increases when baseline noise already exceeds total noise significance thresholds, to account for the cumulative impact of additional noise and the fact that, as noise moves up the decibel scale, each decibel increase is a progressively greater increase in sound

pressure than the last. For example, 70 dBA is ten times more sound pressure than 60 dBA.

- Disclosing and considering the significance of short-term noise levels associated with all aspects of project operation (i.e. both on-site noise generation and off-site truck noise). Considering only average noise levels may mask noise impacts sensitive receptors would consider significant—for example, the repeated but short-lived passing of individual trucks or loading activities at night.

Examples of measures to mitigate noise impacts include:

- Constructing physical, structural, or vegetative noise barriers on and/or off the project site.
- Planning and enforcing truck routes that avoid passing sensitive receptors.
- Locating or parking all stationary construction equipment as far from sensitive receptors as possible, and directing emitted noise away from sensitive receptors.
- Verifying that construction equipment has properly operating and maintained mufflers.
- Requiring all combustion-powered construction equipment to be surrounded by a noise protection barrier
- Limiting operation hours to daytime hours on weekdays.
- Paving roads where truck traffic is anticipated with low noise asphalt.
- Orienting any public address systems onsite away from sensitive receptors and setting system volume at a level not readily audible past the property line.

VII. Traffic Impacts Analysis and Mitigation

Warehouse facilities inevitably bring truck and passenger car traffic. Truck traffic can present substantial safety issues. Collisions with heavy-duty trucks are especially dangerous for passenger cars, motorcycles, bicycles, and pedestrians. These concerns can be even greater if truck traffic passes through residential areas, school zones, or other places where pedestrians are common and extra caution is warranted.

Examples of measures to mitigate traffic impacts include:

- Designing, clearly marking, and enforcing truck routes that keep trucks out of residential neighborhoods and away from other sensitive receptors.
- Installing signs in residential areas noting that truck and employee parking is prohibited.
- Requiring preparation and approval of a truck routing plan describing the facility's hours of operation, types of items to be stored, and truck routing to and from the facility to designated truck routes that avoids passing sensitive receptors. The plan should include measures for preventing truck queuing, circling, stopping, and parking on public streets, such as signage, pavement markings, and queuing analysis and enforcement. The plan should hold facility operators responsible for violations of the truck routing plan, and a revised plan should be required from any new tenant that occupies the property before a business license

is issued. The approving agency should retain discretion to determine if changes to the plan are necessary, including any additional measures to alleviate truck routing and parking issues that may arise during the life of the facility.

- Constructing new or improved transit stops, sidewalks, bicycle lanes, and crosswalks, with special attention to ensuring safe routes to schools.
- Consulting with the local public transit agency and securing increased public transit service to the project area.
- Designating areas for employee pickup and drop-off.
- Implementing traffic control and safety measures, such as speed bumps, speed limits, or new traffic signs or signals.
- Placing facility entry and exit points on major streets that do not have adjacent sensitive receptors.
- Restricting the turns trucks can make entering and exiting the facility to route trucks away from sensitive receptors.
- Constructing roadway improvements to improve traffic flow.
- Preparing a construction traffic control plan prior to grading, detailing the locations of equipment staging areas, material stockpiles, proposed road closures, and hours of construction operations, and designing the plan to minimize impacts to roads frequented by passenger cars, pedestrians, bicyclists, and other non-truck traffic.

VIII. Other Significant Environmental Impacts Analysis and Mitigation

Warehouse projects may result in significant environmental impacts to other resources, such as to aesthetics, cultural resources, energy, geology, or hazardous materials. All significant adverse environmental impacts must be evaluated, disclosed and mitigated to the extent feasible under CEQA. Examples of best practices and mitigation measures to reduce environmental impacts that do not fall under any of the above categories include:

- Appointing a compliance officer who is responsible for implementing all mitigation measures, and providing contact information for the compliance officer to the lead agency, to be updated annually.
- Creating a fund to mitigate impacts on affected residents, schools, places of worship, and other community institutions by retrofitting their property. For example, retaining a contractor to retrofit/install HVAC and/or air filtration systems, doors, dual-paned windows, and sound- and vibration-deadening insulation and curtains.
- Sweeping surrounding streets on a daily basis during construction to remove any construction-related debris and dirt.
- Directing all lighting at the facility into the interior of the site.
- Using full cut-off light shields and/or anti-glare lighting.
- Requiring submission of a property maintenance program for agency review and approval providing for the regular maintenance of all building structures, landscaping, and paved surfaces.
- Using cool pavement to reduce heat island effects.

- Planting trees in parking areas to provide at least 35% shade cover of parking areas within fifteen years to reduce heat island impacts.
- Using light colored roofing materials with a solar reflective index of 78 or greater.
- Including on-site amenities, such as a truck operator lounge with restrooms, vending machines, and air conditioning, to reduce the need for truck operators to idle or travel offsite.
- Designing skylights to provide natural light to interior worker areas.
- Installing climate control and air filtration in the warehouse facility to promote worker well-being.

IX. Conclusion

California's world-class economy, ports, and transportation network position it at the center of the e-commerce and logistics industry boom. At the same time, California is a global leader in environmental protection and environmentally just development. The guidance in this document furthers these dual strengths, ensuring that all can access the benefits of economic development. The Bureau will continue to monitor proposed projects for compliance with CEQA and other laws. Lead agencies, developers, community advocates, and other interested parties should feel free to reach out to us as they consider how to guide warehouse development in their area.

Please do not hesitate to contact the Environmental Justice Bureau at ej@doj.ca.gov if you have any questions.

NOVEMBER 3, 2023

VIA EMAIL: TOLENTINOM@KERNCOUNTY.COM
KERN COUNTY PLANNING AND NATURAL RESOURCES DEPARTMENT
ATTN: MARK TOLENTINO
2700 "M" STREET, SUITE 100
BAKERSFIELD, CA 93301

Dear Mr. Tolentino:

NOTICE OF PREPARATION OF A DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE WESTSIDE INDUSTRIAL PROJECT, SCH# 2023100467

The Department of Conservation's (Department) Division of Land Resource Protection (Division) has reviewed the Notice of Preparation of a Draft Environmental Impact Report for the Westside Industrial Project (Project).

The Division monitors and maps farmland conversion on a statewide basis, provides technical assistance regarding the Williamson Act, and administers various agricultural land conservation programs. Public Resources Code, section 614, subdivision (b) authorizes the Department to provide soil conservation advisory services to local governments, including review of CEQA documents.

Protection of the state's agricultural land resources is part of the Department's mission and central to many of its programs. The CEQA process gives the Department an opportunity to acknowledge the value of the resource, identify areas of Department interest, and offer information on how to assess potential impacts or mitigation opportunities.

The Department respects local decision-making by informing the CEQA process, and is not taking a position or providing legal or policy interpretation.

We offer the following comments for consideration with respect to the project's potential impacts on agricultural land and resources within the Department's purview.

PROJECT ATTRIBUTES

The Westside Industrial Project is a proposal by Seefried Industrial Properties for the construction and operation of a warehouse and distribution facility. The proposed project would include the construction of an approximately 653,442-square-foot single-story warehouse and related site improvements, including but not limited to, perimeter security fencing and nighttime directional lighting at the on-site warehouse and

distribution facility, new pavement, curb and gutter, and sidewalk on frontage roads with associated signing and markings, office, break and ancillary space.

The proposed project located on an approximately 93.74-acre portion of an approximately 630 total-acre parcel, and is bounded by Wible Road (west), Houghton Road (north), and agricultural land (south and east). The project site is approximately 1.3 miles south of the City of Bakersfield, in unincorporated Kern County. The project site contains Prime Farmland, Farmland of Statewide Importance, and Unique Farmland as designated by DOC's Farmland Mapping and Monitoring Program.

PROJECT CONSIDERATIONS

The conversion of agricultural land represents a permanent reduction and impact to California's agricultural land resources. The Department generally advises discussion of the following in any environmental review for the loss or conversion of agricultural land:

- Type, amount, and location of farmland conversion resulting directly and indirectly from implementation of the proposed project.
- Impacts on any current and future agricultural operations in the vicinity; e.g., land-use conflicts, increases in land values and taxes, loss of agricultural support infrastructure such as processing facilities, etc.
- Incremental impacts leading to cumulative impacts on agricultural land. This would include impacts from the proposed project, as well as impacts from past, current, and likely future projects.
- Proposed mitigation measures for impacted agricultural lands within the proposed project area.

MITIGATING AGRICULTURAL LAND LOSS OR CONVERSION

Consistent with CEQA Guidelines, the Department advises that the environmental review address mitigation for the loss or conversion of agricultural land. An agricultural conservation easement is one potential method for mitigating loss or conversion of agricultural land. (*See* Cal. Code Regs., tit. 14, § 15370 [mitigation includes "compensating for the impact by replacing or providing substitute resources or environments, including through permanent protection of such resources in the form of conservation easements."]; *see also King and Gardiner Farms, LLC v. County of Kern* (2020) 45 Cal.App.5th 814.)

Mitigation through agricultural conservation easements can take at least two forms: the outright purchase of easements or the donation of mitigation fees to a local, regional, or statewide organization or agency whose purpose includes the acquisition and stewardship of agricultural easements. The conversion of agricultural land may be viewed as an impact of at least regional significance. Hence, the search for replacement lands may not need to be limited strictly to lands within the project's surrounding area. A helpful source for regional and statewide agricultural mitigation banks is the California Council of Land Trusts. They provide helpful insight into farmland

mitigation policies and implementation strategies, including a guidebook with model policies and a model local ordinance. The guidebook can be found at:

California Council of Land Trusts

Of course, the use of conservation easements is only one form of mitigation, and the Department urges consideration of any other feasible measures necessary to mitigate project impacts.

Thank you for giving us the opportunity to comment on the Notice of Preparation of a Draft Environmental Impact Report for the Westside Industrial Project. Please provide the Department with notices of any future hearing dates as well as any staff reports pertaining to this project. If you have any questions regarding our comments, please contact Farl Grundy, Associate Environmental Planner via email at Farl.Grundy@conservation.ca.gov.

Sincerely,

Monique Wilber

Monique Wilber

Conservation Program Support Supervisor

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California
Department of Conservation
Geologic Energy Management Division

Gavin Newsom, Governor
David Shabazian, Director
715 P Street, MS 1803
Sacramento, CA. 95814
T: (916) 445-5986

11/17/2023

Mark Tolentino
2700 M Street, Suite 100, Bakersfield, CA 93301, USA
TolentinoM@kerncounty.com

Construction Site Well Review (CSWR) ID: 1012905

Assessor Parcel Number(s): 18439108

Property Owner(s): Seefried Industrial Properties

Project Location Address: SE Corner of the Houghton Rd and Wible Rd intersection, Bakersfield, California 93313

Project Title: Westside Industrial Project

Public Resources Code (PRC) § 3208.1 establishes well reabandonment responsibility when a previously plugged and abandoned well will be impacted by planned property development or construction activities. Local permitting agencies, property owners, and/or developers should be aware of, and fully understand, that significant and potentially dangerous issues may be associated with development near oil, gas, and geothermal wells.

The California Geologic Energy Management Division (CalGEM) has received and reviewed the above referenced project dated 10/30/2023. To assist local permitting agencies, property owners, and developers in making wise land use decisions regarding potential development near oil, gas, or geothermal wells, the Division provides the following well evaluation.

The project is located in Kern County, within the boundaries of the following fields:

Fruitvale

Our records indicate there are 2 known oil or gas wells located within the project boundary as identified in the application.

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- Number of wells Not Abandoned to Current Division Requirements as Prescribed by Law and Projected to Be Built Over or Have Future Access Impeded by this project: 0

- Number of wells Not Abandoned to Current Division Requirements as Prescribed by Law and Not Projected to Be Built Over or Have Future Access Impeded by this project: 2

- Number of wells Abandoned to Current Division Requirements as Prescribed by Law and Projected to Be Built Over or Have Future Access Impeded by this project: 0

- Number of wells Abandoned to Current Division Requirements as Prescribed by Law and Not Projected to Be Built Over or Have Future Access Impeded by this project: 0

The Division categorically advises against building over, or in any way impeding access to, oil, gas, or geothermal wells. Impeding access to a well could result in the need to remove any structure or obstacle that prevents or impedes access including, but not limited to, buildings, housing, fencing, landscaping, trees, pools, patios, sidewalks, roadways, and decking. Maintaining sufficient access is considered the ability for a well servicing unit and associated necessary equipment to reach a well from a public street or access way, solely over the parcel on which the well is located. A well servicing unit, and any necessary equipment, should be able to pass unimpeded along and over the route, and should be able to access the well without disturbing the integrity of surrounding infrastructure.

There are no guarantees a well abandoned in compliance with current Division requirements as prescribed by law will not start leaking in the future. It always remains a possibility that any well may start to leak oil, gas, and/or water after abandonment, no matter how thoroughly the well was plugged and abandoned. The Division acknowledges wells plugged and abandoned to the most current Division requirements as prescribed by law have a lower probability of leaking in the future, however there is no guarantees that such abandonments will not leak.

The Division advises that all wells identified on the development parcel prior to, or during, development activities be tested for liquid and gas leakage. Surveyed locations should be provided to the Division in Latitude and Longitude, NAD 83 decimal format. The Division expects any wells found leaking to be reported to it immediately.

Failure to plug and reabandon the well may result in enforcement action, including an order to perform reabandonment well work, pursuant to PRC § 3208.1, and 3224.

PRC § 3208.1 give the Division the authority to order or permit the re-abandonment of any well where it has reason to question the integrity of the previous abandonment, or if the well is not accessible or visible. Responsibility for re-abandonment costs may be affected by the choices made by the local

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permitting agency, property owner, and/or developer in considering the general advice set forth in this letter. The PRC continues to define the person or entity responsible for reabandonment as:

1. The property owner - If the well was plugged and abandoned in conformance with Division requirements at the time of abandonment, and in its current condition does not pose an immediate danger to life, health, and property, but requires additional work solely because the owner of the property on which the well is located proposes construction on the property that would prevent or impede access to the well for purposes of remedying a currently perceived future problem, then the owner of the property on which the well is located shall obtain all rights necessary to reabandon the well and be responsible for the reabandonment.

2. The person or entity causing construction over or near the well - If the well was plugged and abandoned in conformance with Division requirements at the time of plugging and abandonment, and the property owner, developer, or local agency permitting the construction failed either to obtain an opinion from the supervisor or district deputy as to whether the previously abandoned well is required to be reabandoned, or to follow the advice of the supervisor or district deputy not to undertake the construction, then the person or entity causing the construction over or near the well shall obtain all rights necessary to reabandon the well and be responsible for the reabandonment.

3. The party or parties responsible for disturbing the integrity of the abandonment - If the well was plugged and abandoned in conformance with Division requirements at the time of plugging and abandonment, and after that time someone other than the operator or an affiliate of the operator disturbed the integrity of the abandonment in the course of developing the property, then the party or parties responsible for disturbing the integrity of the abandonment shall be responsible for the reabandonment.

No well work may be performed on any oil, gas, or geothermal well without written approval from the Division. Well work requiring approval includes, but is not limited to, mitigating leaking gas or other fluids from abandoned wells, modifications to well casings, and/or any other re-abandonment work. The Division also regulates the top of a plugged and abandoned well's minimum and maximum depth below final grade. CCR §1723.5 states well casings shall be cut off at least 5 feet but no more than 10 feet below grade. If any well needs to be lowered or raised (i.e. casing cut down or casing riser added) to meet this regulation, a permit from the Division is required before work can start.

The Division makes the following additional recommendations to the local permitting agency, property owner, and developer:

1. To ensure that present and future property owners are aware of (a) the existence of all wells located on the property, and (b) potentially significant issues associated with any improvements

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near oil or gas wells, the Division recommends that information regarding the above identified well(s), and any other pertinent information obtained after the issuance of this letter, be communicated to the appropriate county recorder for inclusion in the title information of the subject real property.

2. The Division recommends that any soil containing hydrocarbons be disposed of in accordance with local, state, and federal laws. Please notify the appropriate authorities if soil containing significant amounts of hydrocarbons is discovered during development.

As indicated in PRC § 3106, the Division has statutory authority over the drilling, operation, maintenance, and abandonment of oil, gas, and geothermal wells, and attendant facilities, to prevent, as far as possible, damage to life, health, property, and natural resources; damage to underground oil, gas, and geothermal deposits; and damage to underground and surface waters suitable for irrigation or domestic purposes. In addition to the Division's authority to order work on wells pursuant to PRC §§ 3208.1 and 3224, it has authority to issue civil and criminal penalties under PRC §§ 3236, 3236.5, and 3359 for violations within the Division's jurisdictional authority. The Division does not regulate grading, excavations, or other land use issues.

If during development activities, any wells are encountered that were not part of this review, the property owner is expected to immediately notify the Division's construction site well review engineer in the Inland district office, and file for Division review an amended site plan with well casing diagrams. The District office will send a follow-up well evaluation letter to the property owner and local permitting agency.

Should you have any questions, please contact me at (661) 201-8607 or via email at Victor.Medrano@conservation.ca.gov.

Sincerely, David Cookey-Gam
David Cookey-Gam for
Chris Jones
District Deputy

cc: Victor Medrano - Plan Checker
cc: Mark Tolentino - Submitter

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Wells Not Abandoned to Current Division Requirements as Prescribed by Law & Not Projected to be Built Over or Have Future Access Impeded

The wells listed below are not abandoned to current Division requirements as prescribed by law, and based upon information provided, are not projected to be built over or have future access impeded.

API	Well Designation	Operator	Well Evaluations
0403053329	Houge 1	Maranatha Petroleum, Inc.	According to our records, the well is Canceled.
0403053330	Houge 2	Maranatha Petroleum, Inc.	According to our records, the well is Canceled.

Office Memorandum

To: Lorelei Oviatt, Director
Planning and Natural Resources Department
Attn: Mark Tolentino, Planner II

October 25, 2023

From: PC for Cesar Ayon, Engineering Manager
Public Works Department/Development

Subject: 7-8.3.b Draft Supplemental Environmental Impact Report for Westside Industrial Project by Seefried Industrial Properties (Located at the southeast corner of Wible Road and Houghton Road)

Development Review Division

This Department has reviewed the subject project and has no comment.

Thank you for the opportunity to comment on this project. If you have any questions or comments, please contact Rodd Parke of this Division at (661) 862-8848.

Floodplain Management Division

This Department has reviewed the subject project and has the recommend the following:

The runoff of storm water from the site will be increased due to the increase in impervious surface generated by the proposed development.

Therefore, this section recommends the following be included as Conditions of Approval for this project:

The applicant shall provide a plan for the disposal of drainage waters originating on site and from adjacent road right-of-ways (if required), subject to approval of the Public Works Department, per the Kern County Development Standards.

Thank you for the opportunity to comment on this project. If you have any questions or comments, please contact Brian Blaise of this Division at (661) 862-5098.

KCSOS
Kern County Superintendent of Schools
Office of John G. Mendiburu, Ed.D.— Advocates For Children

October 27, 2023

Kern County Planning Department
Attn: Mark Tolentino
2700 M Street, Suite 100
Bakersfield, CA 93301

Our File No.: CO23-0111

RE: DEVELOPER FEES FOR: Draft EIR Westside Industrial Project, Map No.143-13
(Southwest corner of Houghton Rd. and Wible Rd.)

Dear Mr. Tolentino,

This office represents the General Shafter Elementary and Wasco Union High School Districts with regard to the imposition of school facility fees, and appreciates the opportunity to respond on behalf of the districts regarding the proposed project. This letter is limited to addressing the possible effects which the project might have on school facilities created by students attributable to the project. It is not intended to address other possible environmental concerns which might be identified by the district(s) after reviewing it.

It is our determination that the above-mentioned project regarding the Westside Industrial Project, allowing for the construction and operation of a 653,442-square foot single story warehouse and distribution facility may have significant effects on either of these district's facilities and mitigation of this project's impacts on public school facilities will be limited to the collection of statutory fees authorized under Education Code Section 17620 and Government Code Sections 65995 et seq. (all as amended with an operative date of November 4, 1998) at the time that building permits are issued. Currently these fees are set at $0.78 per square foot, an amount subject to COLA adjustment every two years.

Thank you for the opportunity to comment on the project. Should you have any questions, or if we can be of any further assistance in this matter, please contact me at 636-4599, or through e-mail at anwatson@kern.org.

Sincerely,

Awatson

Andrea Watson, Specialist
School District Facility Services

Cc: Districts

RECEIVED
OCT 31 2023
Kern County Planning & Natural Resources Dept.

Kern Audubon Society
Attn: Franklin Bedard
P.O. Box 3581
Bakersfield, CA 93385
mbedard@bak.rr.com

November 7, 2023 *submitted electronically*

Mark Tolentino, Planner ll
Kern County Planning and Natural Resources Department
2700 "M" Street, Suite 100
Bakersfield, CA 93301
TolentinoM@kerncounty.com

Subject: Notice of Preparation (NOP) of a Draft Environmental Impact Report (EIR) for the Westside Industrial Project by Seefried Industrial Properties

Dear Mr. Tolentino:

The Kern Audubon Society (KAS), an interested party, received a notice of availability concerning a Notice of Preparation (NOP) for the **Westside Industrial Project** Draft EIR.

KAS was founded in Bakersfield, CA in 1973 and incorporated in 1979. KAS is a thriving environmental organization in Kern County, and the chapter continually plans educational projects for the community. KAS conducts regular program meetings and field trips to both common and unique habitats in California. KAS would like to thank you for the opportunity to provide comments concerning the scope and content of the environmental analysis of the Project that may affect the diverse California wildlife within the Project's footprint and its cumulative impacts in the region.

The NOP for the proposed 93.74 acre project located in unincorporated Kern Count at the southeast corner of Houghton Road and Wible Road intersection, approximately 1.25 miles west of State Route 99, at the southern end of the San Joaquin Valley should identify and evaluate potential adverse impacts to protected species that may utilize the disturbed and peripheral scrub areas proposed for the Project activities. These areas have potential to support San Joaquin kit fox, American badger, and Western burrowing owl.

The biological site evaluation should be performed by qualified biological consultants using the appropriate survey protocols as established by both state and federal wildlife agencies. It is imperative that all biological surveys be performed during the appropriate time of year to discern species presence for this eco-region. Species presence or absence can be influenced by seasonal drought conditions so it is imperative that surveys be performed during years exhibiting average winter precipitation.

KAS appreciates the opportunity to comment on the NOP for the Westside Industrial Project and to assist the County in identifying Project impacts on sensitive biological resources endemic to this region of Kern County.

Sincerely,
Franklin Bedard
Conservation Chair
Kern Audubon Society

P: (626) 314-3821
F: (626) 389-5414
E: info@mitchtsailaw.com

Mitchell M. Tsai
Law Firm

139 South Hudson Avenue
Suite 200
Pasadena, California 91101

VIA E-MAIL

November 7, 2023

Mark Tolentino, Planner
Kern County Planning and Natural Resources Department
2700 "M" Street, Ste 100
Bakersfield, CA 93301
Em: TolentinoM@kerncounty.com

RE: County of Kern's Westside Industrial Project (SCH# 2023100467).

Dear Mark Tolentino,

On behalf of the Southwest Mountain States Regional Council of Carpenters ("**Southwest Carpenters**" or "**SWMSRCC**"), my Office is submitting these comments for the County of Kern's ("**County**") November 8, 2023 Scoping Meeting for the Westside Industrial Project ("**Project**").

The Southwest Carpenters is a labor union representing almost 90,000 union carpenters in 12 states, including California, and has a strong interest in well-ordered land use planning and in addressing the environmental impacts of development projects.

The Westside Industrial Project is a proposal by Seefried Industrial Properties for the construction and operation of a warehouse and distribution facility. The proposed project is located on an approximately 93.74-acre portion of an approximately 630 total-acre parcel, and is bounded by Wible Road (west), Houghton Road (north), and agricultural land (south and east).

Individual members of the Southwest Carpenters live, work, and recreate in the County and surrounding communities and would be directly affected by the Project's environmental impacts.

The Southwest Carpenters expressly reserves the right to supplement these comments at or prior to hearings on the Project, and at any later hearing and proceeding related to this Project. Gov. Code, § 65009, subd. (b); Pub. Res. Code, § 21177, subd. (a); see

Bakersfield Citizens for Local Control v. Bakersfield (2004) 124 Cal.App.4th 1184, 1199-1203; see also *Galante Vineyards v. Monterey Water Dist.* (1997) 60 Cal.App.4th 1109, 1121.

The Southwest Carpenters incorporates by reference all comments raising issues regarding the Environmental Impact Report (EIR) submitted prior to certification of the EIR for the Project. See *Citizens for Clean Energy v City of Woodland* (2014) 225 Cal.App.4th 173, 191 (finding that any party who has objected to the project's environmental documentation may assert any issue timely raised by other parties).

Moreover, the Southwest Carpenters requests that the County provide notice for any and all notices referring or related to the Project issued under the California Environmental Quality Act (**CEQA**) (Pub. Res. Code, § 21000 *et seq.*), and the California Planning and Zoning Law ("**Planning and Zoning Law**") (Gov. Code, §§ 65000–65010). California Public Resources Code Sections 21092.2, and 21167(f) and California Government Code Section 65092 require agencies to mail such notices to any person who has filed a written request for them with the clerk of the agency's governing body.

I. THE COUNTY SHOULD REQUIRE THE USE OF A LOCAL WORKFORCE TO BENEFIT THE COMMUNITY'S ECONOMIC DEVELOPMENT AND ENVIRONMENT

The County should require the Project to be built using a local workers who have graduated from a Joint Labor-Management Apprenticeship Program approved by the State of California, have at least as many hours of on-the-job experience in the applicable craft which would be required to graduate from such a state-approved apprenticeship training program, or who are registered apprentices in a state-approved apprenticeship training program.

Community benefits such as local hire can also be helpful to reduce environmental impacts and improve the positive economic impact of the Project. Local hire provisions requiring that a certain percentage of workers reside within 10 miles or less of the Project site can reduce the length of vendor trips, reduce greenhouse gas emissions, and provide localized economic benefits. As environmental consultants Matt Hagemann and Paul E. Rosenfeld note:

> [A]ny local hire requirement that results in a decreased worker trip length from the default value has the potential to result in a reduction of

> construction-related GHG emissions, though the significance of the reduction would vary based on the location and urbanization level of the project site.

March 8, 2021 SWAPE Letter to Mitchell M. Tsai re Local Hire Requirements and Considerations for Greenhouse Gas Modeling.

Workforce requirements promote the development of skilled trades that yield sustainable economic development. As the California Workforce Development Board and the University of California, Berkeley Center for Labor Research and Education concluded:

> [L]abor should be considered an investment rather than a cost—and investments in growing, diversifying, and upskilling California's workforce can positively affect returns on climate mitigation efforts. In other words, well-trained workers are key to delivering emissions reductions and moving California closer to its climate targets.[1]

Furthermore, workforce policies have significant environmental benefits given that they improve an area's jobs-housing balance, decreasing the amount and length of job commutes and the associated greenhouse gas (GHG) emissions. In fact, on May 7, 2021, the South Coast Air Quality Management District found that that the "[u]se of a local state-certified apprenticeship program" can result in air pollutant reductions.[2]

Locating jobs closer to residential areas can have significant environmental benefits. As the California Planning Roundtable noted in 2008:

> People who live and work in the same jurisdiction would be more likely to take transit, walk, or bicycle to work than residents of less balanced communities and their vehicle trips would be shorter. Benefits would

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[1] California Workforce Development Board (2020) Putting California on the High Road: A Jobs and Climate Action Plan for 2030 at p. ii, *available at* https://laborcenter.berkeley.edu/wp-content/uploads/2020/09/Putting-California-on-the-High-Road.pdf.

[2] South Coast Air Quality Management District (May 7, 2021) Certify Final Environmental Assessment and Adopt Proposed Rule 2305 – Warehouse Indirect Source Rule – Warehouse Actions and Investments to Reduce Emissions Program, and Proposed Rule 316 – Fees for Rule 2305, Submit Rule 2305 for Inclusion Into the SIP, and Approve Supporting Budget Actions, *available at* http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2021/2021-May7-027.pdf?sfvrsn=10.

> include potential reductions in both vehicle miles traveled and vehicle hours traveled.[3]

Moreover, local hire mandates and skill-training are critical facets of a strategy to reduce vehicle miles traveled (VMT). As planning experts Robert Cervero and Michael Duncan have noted, simply placing jobs near housing stock is insufficient to achieve VMT reductions given that the skill requirements of available local jobs must match those held by local residents.[4] Some municipalities have even tied local hire and other workforce policies to local development permits to address transportation issues. Cervero and Duncan note that:

> In nearly built-out Berkeley, CA, the approach to balancing jobs and housing is to create local jobs rather than to develop new housing. The city's First Source program encourages businesses to hire local residents, especially for entry- and intermediate-level jobs, and sponsors vocational training to ensure residents are employment-ready. While the program is voluntary, some 300 businesses have used it to date, placing more than 3,000 city residents in local jobs since it was launched in 1986. When needed, these carrots are matched by sticks, since the city is not shy about negotiating corporate participation in First Source as a condition of approval for development permits.

Recently, the State of California verified its commitment towards workforce development through the Affordable Housing and High Road Jobs Act of 2022, otherwise known as Assembly Bill No. 2011 ("**AB2011**"). AB2011 amended the Planning and Zoning Law to allow ministerial, by-right approval for projects being built alongside commercial corridors that meet affordability and labor requirements.

The County should consider utilizing local workforce policies and requirements to benefit the local area economically and to mitigate greenhouse gas, improve air quality, and reduce transportation impacts.

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[3] California Planning Roundtable (2008) Deconstructing Jobs-Housing Balance at p. 6, *available at* https://cproundtable.org/static/media/uploads/publications/cpr-jobs-housing.pdf

[4] Cervero, Robert and Duncan, Michael (2006) Which Reduces Vehicle Travel More: Jobs-Housing Balance or Retail-Housing Mixing? Journal of the American Planning Association 72 (4), 475-490, 482, *available at* http://reconnectingamerica.org/assets/Uploads/UTCT-825.pdf.

II. THE COUNTY SHOULD IMPOSE TRAINING REQUIREMENTS FOR THE PROJECT'S CONSTRUCTION ACTIVITIES TO PREVENT COMMUNITY SPREAD OF COVID-19 AND OTHER INFECTIOUS DISEASES

Construction work has been defined as a Lower to High-risk activity for COVID-19 spread by the Occupations Safety and Health Administration. Recently, several construction sites have been identified as sources of community spread of COVID-19.[5]

Southwest Carpenters recommend that the Lead Agency adopt additional requirements to mitigate public health risks from the Project's construction activities. Southwest Carpenters requests that the Lead Agency require safe on-site construction work practices as well as training and certification for any construction workers on the Project Site.

In particular, based upon Southwest Carpenters' experience with safe construction site work practices, Southwest Carpenters recommends that the Lead Agency require that while construction activities are being conducted at the Project Site:

Construction Site Design:

- The Project Site will be limited to two controlled entry points.
- Entry points will have temperature screening technicians taking temperature readings when the entry point is open.
- The Temperature Screening Site Plan shows details regarding access to the Project Site and Project Site logistics for conducting temperature screening.
- A 48-hour advance notice will be provided to all trades prior to the first day of temperature screening.
- The perimeter fence directly adjacent to the entry points will be clearly marked indicating the appropriate 6-foot social

[5] Santa Clara County Public Health (June 12, 2020) COVID-19 CASES AT CONSTRUCTION SITES HIGHLIGHT NEED FOR CONTINUED VIGILANCE IN SECTORS THAT HAVE REOPENED, *available at* https://www.sccgov.org/sites/covid19/Pages/press-release-06-12-2020-cases-at-construction-sites.aspx.

distancing position for when you approach the screening area. Please reference the Apex temperature screening site map for additional details.

- There will be clear signage posted at the project site directing you through temperature screening.
- Provide hand washing stations throughout the construction site.

Testing Procedures:

- The temperature screening being used are non-contact devices.
- Temperature readings will not be recorded.
- Personnel will be screened upon entering the testing center and should only take 1-2 seconds per individual.
- Hard hats, head coverings, sweat, dirt, sunscreen or any other cosmetics must be removed on the forehead before temperature screening.
- Anyone who refuses to submit to a temperature screening or does not answer the health screening questions will be refused access to the Project Site.
- Screening will be performed at both entrances from 5:30 am to 7:30 am.; main gate [ZONE 1] and personnel gate [ZONE 2]
- After 7:30 am only the main gate entrance [ZONE 1] will continue to be used for temperature testing for anybody gaining entry to the project site such as returning personnel, deliveries, and visitors.
- If the digital thermometer displays a temperature reading above 100.0 degrees Fahrenheit, a second reading will be taken to verify an accurate reading.
- If the second reading confirms an elevated temperature, DHS will instruct the individual that he/she will not be

allowed to enter the Project Site. DHS will also instruct the individual to promptly notify his/her supervisor and his/her human resources (HR) representative and provide them with a copy of Annex A.

Planning

- Require the development of an Infectious Disease Preparedness and Response Plan that will include basic infection prevention measures (requiring the use of personal protection equipment), policies and procedures for prompt identification and isolation of sick individuals, social distancing (prohibiting gatherings of no more than 10 people including all-hands meetings and all-hands lunches) communication and training and workplace controls that meet standards that may be promulgated by the Center for Disease Control, Occupational Safety and Health Administration, Cal/OSHA, California Department of Public Health or applicable local public health agencies.[6]

The United Brotherhood of Carpenters and Carpenters International Training Fund has developed COVID-19 Training and Certification to ensure that Carpenter union members and apprentices conduct safe work practices. The Agency should require that all construction workers undergo COVID-19 Training and Certification before being allowed to conduct construction activities at the Project Site.

Southwest Carpenters has also developed a rigorous Infection Control Risk Assessment ("**ICRA**") training program to ensure it delivers a workforce that understands how to identify and control infection risks by implementing protocols to

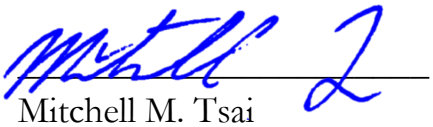
[6] *See also* The Center for Construction Research and Training, North America's Building Trades Unions (April 27 2020) NABTU and CPWR COVIC-19 Standards for U.S Constructions Sites, *available at* https://www.cpwr.com/sites/default/files/NABTU_CPWR_Standards_COVID-19.pdf; Los Angeles County Department of Public Works (2020) Guidelines for Construction Sites During COVID-19 Pandemic, *available at* https://dpw.lacounty.gov/building-and-safety/docs/pw_guidelines-construction-sites.pdf.

protect themselves and all others during renovation and construction projects in healthcare environments.[7]

ICRA protocols are intended to contain pathogens, control airflow, and protect patients during the construction, maintenance and renovation of healthcare facilities. ICRA protocols prevent cross contamination, minimizing the risk of secondary infections in patients at hospital facilities.

The County should require the Project to be built using a workforce trained in ICRA protocols.

Sincerely,



Mitchell M. Tsai
Attorneys for Southwest Mountain States
Regional Council of Carpenters

Attached:

March 8, 2021 SWAPE Letter to Mitchell M. Tsai re Local Hire Requirements and Considerations for Greenhouse Gas Modeling (Exhibit A);

Air Quality and GHG Expert Paul Rosenfeld CV (Exhibit B); and

Air Quality and GHG Expert Matt Hagemann CV (Exhibit C).

[7] For details concerning Southwest Carpenters' ICRA training program, *see* https://icrahealthcare.com/.

EXHIBIT A

SWAPE Technical Consultation, Data Analysis and Litigation Support for the Environment

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March 8, 2021

Mitchell M. Tsai
155 South El Molino, Suite 104
Pasadena, CA 91101

Subject: Local Hire Requirements and Considerations for Greenhouse Gas Modeling

Dear Mr. Tsai,

Soil Water Air Protection Enterprise ("SWAPE") is pleased to provide the following draft technical report explaining the significance of worker trips required for construction of land use development projects with respect to the estimation of greenhouse gas ("GHG") emissions. The report will also discuss the potential for local hire requirements to reduce the length of worker trips, and consequently, reduced or mitigate the potential GHG impacts.

Worker Trips and Greenhouse Gas Calculations

The California Emissions Estimator Model ("CalEEMod") is a "statewide land use emissions computer model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify potential criteria pollutant and greenhouse gas (GHG) emissions associated with both construction and operations from a variety of land use projects."[1] CalEEMod quantifies construction-related emissions associated with land use projects resulting from off-road construction equipment; on-road mobile equipment associated with workers, vendors, and hauling; fugitive dust associated with grading, demolition, truck loading, and on-road vehicles traveling along paved and unpaved roads; and architectural coating activities; and paving.[2]

The number, length, and vehicle class of worker trips are utilized by CalEEMod to calculate emissions associated with the on-road vehicle trips required to transport workers to and from the Project site during construction.[3]

[1] "California Emissions Estimator Model." CAPCOA, 2017, *available at:* http://www.aqmd.gov/caleemod/home.
[2] "California Emissions Estimator Model." CAPCOA, 2017, *available at:* http://www.aqmd.gov/caleemod/home.
[3] "CalEEMod User's Guide." CAPCOA, November 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/01_user-39-s-guide2016-3-2_15november2017.pdf?sfvrsn=4, p. 34.

Specifically, the number and length of vehicle trips is utilized to estimate the vehicle miles travelled ("VMT") associated with construction. Then, utilizing vehicle-class specific EMFAC 2014 emission factors, CalEEMod calculates the vehicle exhaust, evaporative, and dust emissions resulting from construction-related VMT, including personal vehicles for worker commuting.[4]

Specifically, in order to calculate VMT, CalEEMod multiplies the average daily trip rate by the average overall trip length (see excerpt below):

> "$VMT_d = \Sigma(\text{Average Daily Trip Rate}_i * \text{Average Overall Trip Length}_i)_n$
>
> Where:
>
> n = Number of land uses being modeled."[5]

Furthermore, to calculate the on-road emissions associated with worker trips, CalEEMod utilizes the following equation (see excerpt below):

> "$\text{Emissions}_{pollutant} = VMT * EF_{running,pollutant}$
>
> Where:
>
> $\text{Emissions}_{pollutant}$ = emissions from vehicle running for each pollutant
>
> VMT = vehicle miles traveled
>
> $EF_{running,pollutant}$ = emission factor for running emissions."[6]

Thus, there is a direct relationship between trip length and VMT, as well as a direct relationship between VMT and vehicle running emissions. In other words, when the trip length is increased, the VMT and vehicle running emissions increase as a result. Thus, vehicle running emissions can be reduced by decreasing the average overall trip length, by way of a local hire requirement or otherwise.

Default Worker Trip Parameters and Potential Local Hire Requirements

As previously discussed, the number, length, and vehicle class of worker trips are utilized by CalEEMod to calculate emissions associated with the on-road vehicle trips required to transport workers to and from the Project site during construction.[7] In order to understand how local hire requirements and associated worker trip length reductions impact GHG emissions calculations, it is important to consider the CalEEMod default worker trip parameters. CalEEMod provides recommended default values based on site-specific information, such as land use type, meteorological data, total lot acreage, project type and typical equipment associated with project type. If more specific project information is known, the user can change the default values and input project-specific values, but the California Environmental Quality Act ("CEQA") requires that such changes be justified by substantial evidence.[8] The default number of construction-related worker trips is calculated by multiplying the

[4] "Appendix A Calculation Details for CalEEMod." CAPCOA, October 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/02_appendix-a2016-3-2.pdf?sfvrsn=6, p. 14-15.
[5] "Appendix A Calculation Details for CalEEMod." CAPCOA, October 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/02_appendix-a2016-3-2.pdf?sfvrsn=6, p. 23.
[6] "Appendix A Calculation Details for CalEEMod." CAPCOA, October 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/02_appendix-a2016-3-2.pdf?sfvrsn=6, p. 15.
[7] "CalEEMod User's Guide." CAPCOA, November 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/01_user-39-s-guide2016-3-2_15november2017.pdf?sfvrsn=4, p. 34.
[8] CalEEMod User Guide, *available at:* http://www.caleemod.com/, p. 1, 9.

number of pieces of equipment for all phases by 1.25, with the exception of worker trips required for the building construction and architectural coating phases.[9] Furthermore, the worker trip vehicle class is a 50/25/25 percent mix of light duty autos, light duty truck class 1 and light duty truck class 2, respectively."[10] Finally, the default worker trip length is consistent with the length of the operational home-to-work vehicle trips.[11] The operational home-to-work vehicle trip lengths are:

> "[B]ased on the *location* and *urbanization* selected on the project characteristic screen. These values were *supplied by the air districts or use a default average for the state*. Each district (or county) also assigns trip lengths for urban and rural settings" (emphasis added). [12]

Thus, the default worker trip length is based on the location and urbanization level selected by the User when modeling emissions. The below table shows the CalEEMod default rural and urban worker trip lengths by air basin (see excerpt below and Attachment A).[13]

Worker Trip Length by Air Basin		
Air Basin	**Rural (miles)**	**Urban (miles)**
Great Basin Valleys	16.8	10.8
Lake County	16.8	10.8
Lake Tahoe	16.8	10.8
Mojave Desert	16.8	10.8
Mountain Counties	16.8	10.8
North Central Coast	17.1	12.3
North Coast	16.8	10.8
Northeast Plateau	16.8	10.8
Sacramento Valley	16.8	10.8
Salton Sea	14.6	11
San Diego	16.8	10.8
San Francisco Bay Area	10.8	10.8
San Joaquin Valley	16.8	10.8
South Central Coast	16.8	10.8
South Coast	19.8	14.7
Average	**16.47**	**11.17**
Minimum	**10.80**	**10.80**
Maximum	**19.80**	**14.70**
Range	**9.00**	**3.90**

[9] "CalEEMod User's Guide." CAPCOA, November 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/01_user-39-s-guide2016-3-2_15november2017.pdf?sfvrsn=4, p. 34.
[10] "Appendix A Calculation Details for CalEEMod." CAPCOA, October 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/02_appendix-a2016-3-2.pdf?sfvrsn=6, p. 15.
[11] "Appendix A Calculation Details for CalEEMod." CAPCOA, October 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/02_appendix-a2016-3-2.pdf?sfvrsn=6, p. 14.
[12] "Appendix A Calculation Details for CalEEMod." CAPCOA, October 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/02_appendix-a2016-3-2.pdf?sfvrsn=6, p. 21.
[13] "Appendix D Default Data Tables." CAPCOA, October 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/05_appendix-d2016-3-2.pdf?sfvrsn=4, p. D-84 – D-86.

As demonstrated above, default rural worker trip lengths for air basins in California vary from 10.8- to 19.8-miles, with an average of 16.47 miles. Furthermore, default urban worker trip lengths vary from 10.8- to 14.7-miles, with an average of 11.17 miles. Thus, while default worker trip lengths vary by location, default urban worker trip lengths tend to be shorter in length. Based on these trends evident in the CalEEMod default worker trip lengths, we can reasonably assume that the efficacy of a local hire requirement is especially dependent upon the urbanization of the project site, as well as the project location.

Practical Application of a Local Hire Requirement and Associated Impact

To provide an example of the potential impact of a local hire provision on construction-related GHG emissions, we estimated the significance of a local hire provision for the Village South Specific Plan ("Project") located in the City of Claremont ("City"). The Project proposed to construct 1,000 residential units, 100,000-SF of retail space, 45,000-SF of office space, as well as a 50-room hotel, on the 24-acre site. The Project location is classified as Urban and lies within the Los Angeles-South Coast County. As a result, the Project has a default worker trip length of 14.7 miles.[14] In an effort to evaluate the potential for a local hire provision to reduce the Project's construction-related GHG emissions, we prepared an updated model, reducing all worker trip lengths to 10 miles (see Attachment B). Our analysis estimates that if a local hire provision with a 10-mile radius were to be implemented, the GHG emissions associated with Project construction would decrease by approximately 17% (see table below and Attachment C).

Local Hire Provision Net Change	
Without Local Hire Provision	
Total Construction GHG Emissions (MT CO_2e)	3,623
Amortized Construction GHG Emissions (MT CO_2e/year)	120.77
With Local Hire Provision	
Total Construction GHG Emissions (MT CO2e)	3,024
Amortized Construction GHG Emissions (MT CO_2e/year)	100.80
% Decrease in Construction-related GHG Emissions	***17%***

As demonstrated above, by implementing a local hire provision requiring 10 mile worker trip lengths, the Project could reduce potential GHG emissions associated with construction worker trips. More broadly, any local hire requirement that results in a decreased worker trip length from the default value has the potential to result in a reduction of construction-related GHG emissions, though the significance of the reduction would vary based on the location and urbanization level of the project site.

This serves as an example of the potential impacts of local hire requirements on estimated project-level GHG emissions, though it does not indicate that local hire requirements would result in reduced construction-related GHG emission for all projects. As previously described, the significance of a local hire requirement depends on the worker trip length enforced and the default worker trip length for the project's urbanization level and location.

[14] "Appendix D Default Data Tables." CAPCOA, October 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/05_appendix-d2016-3-2.pdf?sfvrsn=4, p. D-85.

Disclaimer

SWAPE has received limited discovery. Additional information may become available in the future; thus, we retain the right to revise or amend this report when additional information becomes available. Our professional services have been performed using that degree of care and skill ordinarily exercised, under similar circumstances, by reputable environmental consultants practicing in this or similar localities at the time of service. No other warranty, expressed or implied, is made as to the scope of work, work methodologies and protocols, site conditions, analytical testing results, and findings presented. This report reflects efforts which were limited to information that was reasonably accessible at the time of the work, and may contain informational gaps, inconsistencies, or otherwise be incomplete due to the unavailability or uncertainty of information obtained or provided by third parties.

Sincerely,

Matt Hagemann, P.G., C.Hg.

Paul E. Rosenfeld, Ph.D.

Location Type	Location Name	Rural H-W (miles)	Urban H-W (miles)
Air Basin	Great Basin	16.8	10.8
Air Basin	Lake County	16.8	10.8
Air Basin	Lake Tahoe	16.8	10.8
Air Basin	Mojave Desert	16.8	10.8
Air Basin	Mountain	16.8	10.8
Air Basin	North Central	17.1	12.3
Air Basin	North Coast	16.8	10.8
Air Basin	Northeast	16.8	10.8
Air Basin	Sacramento	16.8	10.8
Air Basin	Salton Sea	14.6	11
Air Basin	San Diego	16.8	10.8
Air Basin	San Francisco	10.8	10.8
Air Basin	San Joaquin	16.8	10.8
Air Basin	South Central	16.8	10.8
Air Basin	South Coast	19.8	14.7
Air District	Amador County	16.8	10.8
Air District	Antelope Valley	16.8	10.8
Air District	Bay Area AQMD	10.8	10.8
Air District	Butte County	12.54	12.54
Air District	Calaveras	16.8	10.8
Air District	Colusa County	16.8	10.8
Air District	El Dorado	16.8	10.8
Air District	Feather River	16.8	10.8
Air District	Glenn County	16.8	10.8
Air District	Great Basin	16.8	10.8
Air District	Imperial County	10.2	7.3
Air District	Kern County	16.8	10.8
Air District	Lake County	16.8	10.8
Air District	Lassen County	16.8	10.8
Air District	Mariposa	16.8	10.8
Air District	Mendocino	16.8	10.8
Air District	Modoc County	16.8	10.8
Air District	Mojave Desert	16.8	10.8
Air District	Monterey Bay	16.8	10.8
Air District	North Coast	16.8	10.8
Air District	Northern Sierra	16.8	10.8
Air District	Northern	16.8	10.8
Air District	Placer County	16.8	10.8
Air District	Sacramento	15	10

Air District	San Diego	16.8	10.8
Air District	San Joaquin	16.8	10.8
Air District	San Luis Obispo	13	13
Air District	Santa Barbara	8.3	8.3
Air District	Shasta County	16.8	10.8
Air District	Siskiyou County	16.8	10.8
Air District	South Coast	19.8	14.7
Air District	Tehama County	16.8	10.8
Air District	Tuolumne	16.8	10.8
Air District	Ventura County	16.8	10.8
Air District	Yolo/Solano	15	10
County	Alameda	10.8	10.8
County	Alpine	16.8	10.8
County	Amador	16.8	10.8
County	Butte	12.54	12.54
County	Calaveras	16.8	10.8
County	Colusa	16.8	10.8
County	Contra Costa	10.8	10.8
County	Del Norte	16.8	10.8
County	El Dorado-Lake	16.8	10.8
County	El Dorado-	16.8	10.8
County	Fresno	16.8	10.8
County	Glenn	16.8	10.8
County	Humboldt	16.8	10.8
County	Imperial	10.2	7.3
County	Inyo	16.8	10.8
County	Kern-Mojave	16.8	10.8
County	Kern-San	16.8	10.8
County	Kings	16.8	10.8
County	Lake	16.8	10.8
County	Lassen	16.8	10.8
County	Los Angeles-	16.8	10.8
County	Los Angeles-	19.8	14.7
County	Madera	16.8	10.8
County	Marin	10.8	10.8
County	Mariposa	16.8	10.8
County	Mendocino-	16.8	10.8
County	Mendocino-	16.8	10.8
County	Mendocino-	16.8	10.8
County	Mendocino-	16.8	10.8
County	Merced	16.8	10.8
County	Modoc	16.8	10.8
County	Mono	16.8	10.8
County	Monterey	16.8	10.8
County	Napa	10.8	10.8

County	Nevada	16.8	10.8
County	Orange	19.8	14.7
County	Placer-Lake	16.8	10.8
County	Placer-Mountain	16.8	10.8
County	Placer-	16.8	10.8
County	Plumas	16.8	10.8
County	Riverside-	16.8	10.8
County	Riverside-	19.8	14.7
County	Riverside-Salton	14.6	11
County	Riverside-South	19.8	14.7
County	Sacramento	15	10
County	San Benito	16.8	10.8
County	San Bernardino-	16.8	10.8
County	San Bernardino-	19.8	14.7
County	San Diego	16.8	10.8
County	San Francisco	10.8	10.8
County	San Joaquin	16.8	10.8
County	San Luis Obispo	13	13
County	San Mateo	10.8	10.8
County	Santa Barbara-	8.3	8.3
County	Santa Barbara-	8.3	8.3
County	Santa Clara	10.8	10.8
County	Santa Cruz	16.8	10.8
County	Shasta	16.8	10.8
County	Sierra	16.8	10.8
County	Siskiyou	16.8	10.8
County	Solano-	15	10
County	Solano-San	16.8	10.8
County	Sonoma-North	16.8	10.8
County	Sonoma-San	10.8	10.8
County	Stanislaus	16.8	10.8
County	Sutter	16.8	10.8
County	Tehama	16.8	10.8
County	Trinity	16.8	10.8
County	Tulare	16.8	10.8
County	Tuolumne	16.8	10.8
County	Ventura	16.8	10.8
County	Yolo	15	10
County	Yuba	16.8	10.8
Statewide	Statewide	16.8	10.8

Worker Trip Length by Air Basin		
Air Basin	**Rural (miles)**	**Urban (miles)**
Great Basin Valleys	16.8	10.8
Lake County	16.8	10.8
Lake Tahoe	16.8	10.8
Mojave Desert	16.8	10.8
Mountain Counties	16.8	10.8
North Central Coast	17.1	12.3
North Coast	16.8	10.8
Northeast Plateau	16.8	10.8
Sacramento Valley	16.8	10.8
Salton Sea	14.6	11
San Diego	16.8	10.8
San Francisco Bay Area	10.8	10.8
San Joaquin Valley	16.8	10.8
South Central Coast	16.8	10.8
South Coast	19.8	14.7
Average	**16.47**	**11.17**
Mininum	**10.80**	**10.80**
Maximum	**19.80**	**14.70**
Range	**9.00**	**3.90**

Village South Specific Plan (Proposed)

Los Angeles-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	45.00	1000sqft	1.03	45,000.00	0
High Turnover (Sit Down Restaurant)	36.00	1000sqft	0.83	36,000.00	0
Hotel	50.00	Room	1.67	72,600.00	0
Quality Restaurant	8.00	1000sqft	0.18	8,000.00	0
Apartments Low Rise	25.00	Dwelling Unit	1.56	25,000.00	72
Apartments Mid Rise	975.00	Dwelling Unit	25.66	975,000.00	2789
Regional Shopping Center	56.00	1000sqft	1.29	56,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	9			**Operational Year**	2028
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Village South Specific Plan (Proposed) - Los Angeles-South Coast County, Annual

Project Characteristics - Consistent with the DEIR's model.

Land Use - See SWAPE comment regarding residential and retail land uses.

Construction Phase - See SWAPE comment regarding individual construction phase lengths.

Demolition - Consistent with the DEIR's model. See SWAPE comment regarding demolition.

Vehicle Trips - Saturday trips consistent with the DEIR's model. See SWAPE comment regarding weekday and Sunday trips.

Woodstoves - Woodstoves and wood-burning fireplaces consistent with the DEIR's model. See SWAPE comment regarding gas fireplaces.

Energy Use -

Construction Off-road Equipment Mitigation - See SWAPE comment on construction-related mitigation.

Area Mitigation - See SWAPE comment regarding operational mitigation measures.

Water Mitigation - See SWAPE comment regarding operational mitigation measures.

Table Name	Column Name	Default Value	New Value
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberWood	1.25	0.00
tblFireplaces	NumberWood	48.75	0.00
tblVehicleTrips	ST_TR	7.16	6.17
tblVehicleTrips	ST_TR	6.39	3.87
tblVehicleTrips	ST_TR	2.46	1.39
tblVehicleTrips	ST_TR	158.37	79.82
tblVehicleTrips	ST_TR	8.19	3.75
tblVehicleTrips	ST_TR	94.36	63.99
tblVehicleTrips	ST_TR	49.97	10.74
tblVehicleTrips	SU_TR	6.07	6.16
tblVehicleTrips	SU_TR	5.86	4.18
tblVehicleTrips	SU_TR	1.05	0.69
tblVehicleTrips	SU_TR	131.84	78.27

tblVehicleTrips	SU_TR	5.95	3.20
tblVehicleTrips	SU_TR	72.16	57.65
tblVehicleTrips	SU_TR	25.24	6.39
tblVehicleTrips	WD_TR	6.59	5.83
tblVehicleTrips	WD_TR	6.65	4.13
tblVehicleTrips	WD_TR	11.03	6.41
tblVehicleTrips	WD_TR	127.15	65.80
tblVehicleTrips	WD_TR	8.17	3.84
tblVehicleTrips	WD_TR	89.95	62.64
tblVehicleTrips	WD_TR	42.70	9.43
tblWoodstoves	NumberCatalytic	1.25	0.00
tblWoodstoves	NumberCatalytic	48.75	0.00
tblWoodstoves	NumberNoncatalytic	1.25	0.00
tblWoodstoves	NumberNoncatalytic	48.75	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.1713	1.8242	1.1662	2.4000e-003	0.4169	0.0817	0.4986	0.1795	0.0754	0.2549	0.0000	213.1969	213.1969	0.0601	0.0000	214.6993
2022	0.6904	4.1142	6.1625	0.0189	1.3058	0.1201	1.4259	0.3460	0.1128	0.4588	0.0000	1,721.6826	1,721.6826	0.1294	0.0000	1,724.9187
2023	0.6148	3.3649	5.6747	0.0178	1.1963	0.0996	1.2959	0.3203	0.0935	0.4138	0.0000	1,627.5295	1,627.5295	0.1185	0.0000	1,630.4925
2024	4.1619	0.1335	0.2810	5.9000e-004	0.0325	6.4700e-003	0.0390	8.6300e-003	6.0400e-003	0.0147	0.0000	52.9078	52.9078	8.0200e-003	0.0000	53.1082
Maximum	**4.1619**	**4.1142**	**6.1625**	**0.0189**	**1.3058**	**0.1201**	**1.4259**	**0.3460**	**0.1128**	**0.4588**	**0.0000**	**1,721.6826**	**1,721.6826**	**0.1294**	**0.0000**	**1,724.9187**

2.1 Overall Construction

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.1713	1.8242	1.1662	2.4000e-003	0.4169	0.0817	0.4986	0.1795	0.0754	0.2549	0.0000	213.1967	213.1967	0.0601	0.0000	214.6991
2022	0.6904	4.1142	6.1625	0.0189	1.3058	0.1201	1.4259	0.3460	0.1128	0.4588	0.0000	1,721.6823	1,721.6823	0.1294	0.0000	1,724.9183
2023	0.6148	3.3648	5.6747	0.0178	1.1963	0.0996	1.2959	0.3203	0.0935	0.4138	0.0000	1,627.5291	1,627.5291	0.1185	0.0000	1,630.4921
2024	4.1619	0.1335	0.2810	5.9000e-004	0.0325	6.4700e-003	0.0390	8.6300e-003	6.0400e-003	0.0147	0.0000	52.9077	52.9077	8.0200e-003	0.0000	53.1082
Maximum	**4.1619**	**4.1142**	**6.1625**	**0.0189**	**1.3058**	**0.1201**	**1.4259**	**0.3460**	**0.1128**	**0.4588**	**0.0000**	**1,721.6823**	**1,721.6823**	**0.1294**	**0.0000**	**1,724.9183**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**9-1-2021**	**11-30-2021**	1.4103	1.4103
2	**12-1-2021**	**2-28-2022**	1.3613	1.3613
3	**3-1-2022**	**5-31-2022**	1.1985	1.1985
4	**6-1-2022**	**8-31-2022**	1.1921	1.1921
5	**9-1-2022**	**11-30-2022**	1.1918	1.1918
6	**12-1-2022**	**2-28-2023**	1.0774	1.0774
7	**3-1-2023**	**5-31-2023**	1.0320	1.0320
8	**6-1-2023**	**8-31-2023**	1.0260	1.0260

9	**9-1-2023**	**11-30-2023**	1.0265	1.0265
10	**12-1-2023**	**2-29-2024**	2.8857	2.8857
11	**3-1-2024**	**5-31-2024**	1.6207	1.6207
		Highest	2.8857	2.8857

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	5.1437	0.2950	10.3804	1.6700e-003		0.0714	0.0714		0.0714	0.0714	0.0000	220.9670	220.9670	0.0201	3.7400e-003	222.5835
Energy	0.1398	1.2312	0.7770	7.6200e-003		0.0966	0.0966		0.0966	0.0966	0.0000	3,896.0732	3,896.0732	0.1303	0.0468	3,913.2833
Mobile	1.5857	7.9962	19.1834	0.0821	7.7979	0.0580	7.8559	2.0895	0.0539	2.1434	0.0000	7,620.4986	7,620.4986	0.3407	0.0000	7,629.0162
Waste						0.0000	0.0000		0.0000	0.0000	207.8079	0.0000	207.8079	12.2811	0.0000	514.8354
Water						0.0000	0.0000		0.0000	0.0000	29.1632	556.6420	585.8052	3.0183	0.0755	683.7567
Total	**6.8692**	**9.5223**	**30.3407**	**0.0914**	**7.7979**	**0.2260**	**8.0240**	**2.0895**	**0.2219**	**2.3114**	**236.9712**	**12,294.1807**	**12,531.1519**	**15.7904**	**0.1260**	**12,963.4751**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	5.1437	0.2950	10.3804	1.6700e-003		0.0714	0.0714		0.0714	0.0714	0.0000	220.9670	220.9670	0.0201	3.7400e-003	222.5835
Energy	0.1398	1.2312	0.7770	7.6200e-003		0.0966	0.0966		0.0966	0.0966	0.0000	3,896.0732	3,896.0732	0.1303	0.0468	3,913.2833
Mobile	1.5857	7.9962	19.1834	0.0821	7.7979	0.0580	7.8559	2.0895	0.0539	2.1434	0.0000	7,620.4986	7,620.4986	0.3407	0.0000	7,629.0162
Waste						0.0000	0.0000		0.0000	0.0000	207.8079	0.0000	207.8079	12.2811	0.0000	514.8354
Water						0.0000	0.0000		0.0000	0.0000	29.1632	556.6420	585.8052	3.0183	0.0755	683.7567
Total	**6.8692**	**9.5223**	**30.3407**	**0.0914**	**7.7979**	**0.2260**	**8.0240**	**2.0895**	**0.2219**	**2.3114**	**236.9712**	**12,294.1807**	**12,531.1519**	**15.7904**	**0.1260**	**12,963.4751**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Village South Specific Plan (Proposed) - Los Angeles-South Coast County, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	9/1/2021	10/12/2021	5	30	
2	Site Preparation	Site Preparation	10/13/2021	11/9/2021	5	20	
3	Grading	Grading	11/10/2021	1/11/2022	5	45	
4	Building Construction	Building Construction	1/12/2022	12/12/2023	5	500	
5	Paving	Paving	12/13/2023	1/30/2024	5	35	
6	Architectural Coating	Architectural Coating	1/31/2024	3/19/2024	5	35	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 112.5

Acres of Paving: 0

Residential Indoor: 2,025,000; Residential Outdoor: 675,000; Non-Residential Indoor: 326,400; Non-Residential Outdoor: 108,800; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	458.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	801.00	143.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	160.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0496	0.0000	0.0496	7.5100e-003	0.0000	7.5100e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0475	0.4716	0.3235	5.8000e-004		0.0233	0.0233		0.0216	0.0216	0.0000	51.0012	51.0012	0.0144	0.0000	51.3601
Total	**0.0475**	**0.4716**	**0.3235**	**5.8000e-004**	**0.0496**	**0.0233**	**0.0729**	**7.5100e-003**	**0.0216**	**0.0291**	**0.0000**	**51.0012**	**51.0012**	**0.0144**	**0.0000**	**51.3601**

3.2 Demolition - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.9300e-003	0.0634	0.0148	1.8000e-004	3.9400e-003	1.9000e-004	4.1300e-003	1.0800e-003	1.8000e-004	1.2600e-003	0.0000	17.4566	17.4566	1.2100e-003	0.0000	17.4869
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.7000e-004	7.5000e-004	8.5100e-003	2.0000e-005	2.4700e-003	2.0000e-005	2.4900e-003	6.5000e-004	2.0000e-005	6.7000e-004	0.0000	2.2251	2.2251	7.0000e-005	0.0000	2.2267
Total	**2.9000e-003**	**0.0641**	**0.0233**	**2.0000e-004**	**6.4100e-003**	**2.1000e-004**	**6.6200e-003**	**1.7300e-003**	**2.0000e-004**	**1.9300e-003**	**0.0000**	**19.6816**	**19.6816**	**1.2800e-003**	**0.0000**	**19.7136**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0496	0.0000	0.0496	7.5100e-003	0.0000	7.5100e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0475	0.4716	0.3235	5.8000e-004		0.0233	0.0233		0.0216	0.0216	0.0000	51.0011	51.0011	0.0144	0.0000	51.3600
Total	**0.0475**	**0.4716**	**0.3235**	**5.8000e-004**	**0.0496**	**0.0233**	**0.0729**	**7.5100e-003**	**0.0216**	**0.0291**	**0.0000**	**51.0011**	**51.0011**	**0.0144**	**0.0000**	**51.3600**

3.2 Demolition - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.9300e-003	0.0634	0.0148	1.8000e-004	3.9400e-003	1.9000e-004	4.1300e-003	1.0800e-003	1.8000e-004	1.2600e-003	0.0000	17.4566	17.4566	1.2100e-003	0.0000	17.4869
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.7000e-004	7.5000e-004	8.5100e-003	2.0000e-005	2.4700e-003	2.0000e-005	2.4900e-003	6.5000e-004	2.0000e-005	6.7000e-004	0.0000	2.2251	2.2251	7.0000e-005	0.0000	2.2267
Total	**2.9000e-003**	**0.0641**	**0.0233**	**2.0000e-004**	**6.4100e-003**	**2.1000e-004**	**6.6200e-003**	**1.7300e-003**	**2.0000e-004**	**1.9300e-003**	**0.0000**	**19.6816**	**19.6816**	**1.2800e-003**	**0.0000**	**19.7136**

3.3 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1807	0.0000	0.1807	0.0993	0.0000	0.0993	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0389	0.4050	0.2115	3.8000e-004		0.0204	0.0204		0.0188	0.0188	0.0000	33.4357	33.4357	0.0108	0.0000	33.7061
Total	**0.0389**	**0.4050**	**0.2115**	**3.8000e-004**	**0.1807**	**0.0204**	**0.2011**	**0.0993**	**0.0188**	**0.1181**	**0.0000**	**33.4357**	**33.4357**	**0.0108**	**0.0000**	**33.7061**

3.3 Site Preparation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.7000e-004	6.0000e-004	6.8100e-003	2.0000e-005	1.9700e-003	2.0000e-005	1.9900e-003	5.2000e-004	1.0000e-005	5.4000e-004	0.0000	1.7801	1.7801	5.0000e-005	0.0000	1.7814
Total	**7.7000e-004**	**6.0000e-004**	**6.8100e-003**	**2.0000e-005**	**1.9700e-003**	**2.0000e-005**	**1.9900e-003**	**5.2000e-004**	**1.0000e-005**	**5.4000e-004**	**0.0000**	**1.7801**	**1.7801**	**5.0000e-005**	**0.0000**	**1.7814**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1807	0.0000	0.1807	0.0993	0.0000	0.0993	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0389	0.4050	0.2115	3.8000e-004		0.0204	0.0204		0.0188	0.0188	0.0000	33.4357	33.4357	0.0108	0.0000	33.7060
Total	**0.0389**	**0.4050**	**0.2115**	**3.8000e-004**	**0.1807**	**0.0204**	**0.2011**	**0.0993**	**0.0188**	**0.1181**	**0.0000**	**33.4357**	**33.4357**	**0.0108**	**0.0000**	**33.7060**

3.3 Site Preparation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.7000e-004	6.0000e-004	6.8100e-003	2.0000e-005	1.9700e-003	2.0000e-005	1.9900e-003	5.2000e-004	1.0000e-005	5.4000e-004	0.0000	1.7801	1.7801	5.0000e-005	0.0000	1.7814
Total	**7.7000e-004**	**6.0000e-004**	**6.8100e-003**	**2.0000e-005**	**1.9700e-003**	**2.0000e-005**	**1.9900e-003**	**5.2000e-004**	**1.0000e-005**	**5.4000e-004**	**0.0000**	**1.7801**	**1.7801**	**5.0000e-005**	**0.0000**	**1.7814**

3.4 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1741	0.0000	0.1741	0.0693	0.0000	0.0693	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0796	0.8816	0.5867	1.1800e-003		0.0377	0.0377		0.0347	0.0347	0.0000	103.5405	103.5405	0.0335	0.0000	104.3776
Total	**0.0796**	**0.8816**	**0.5867**	**1.1800e-003**	**0.1741**	**0.0377**	**0.2118**	**0.0693**	**0.0347**	**0.1040**	**0.0000**	**103.5405**	**103.5405**	**0.0335**	**0.0000**	**104.3776**

3.4 Grading - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.6400e-003	1.2700e-003	0.0144	4.0000e-005	4.1600e-003	3.0000e-005	4.2000e-003	1.1100e-003	3.0000e-005	1.1400e-003	0.0000	3.7579	3.7579	1.1000e-004	0.0000	3.7607
Total	**1.6400e-003**	**1.2700e-003**	**0.0144**	**4.0000e-005**	**4.1600e-003**	**3.0000e-005**	**4.2000e-003**	**1.1100e-003**	**3.0000e-005**	**1.1400e-003**	**0.0000**	**3.7579**	**3.7579**	**1.1000e-004**	**0.0000**	**3.7607**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1741	0.0000	0.1741	0.0693	0.0000	0.0693	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0796	0.8816	0.5867	1.1800e-003		0.0377	0.0377		0.0347	0.0347	0.0000	103.5403	103.5403	0.0335	0.0000	104.3775
Total	**0.0796**	**0.8816**	**0.5867**	**1.1800e-003**	**0.1741**	**0.0377**	**0.2118**	**0.0693**	**0.0347**	**0.1040**	**0.0000**	**103.5403**	**103.5403**	**0.0335**	**0.0000**	**104.3775**

3.4 Grading - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.6400e-003	1.2700e-003	0.0144	4.0000e-005	4.1600e-003	3.0000e-005	4.2000e-003	1.1100e-003	3.0000e-005	1.1400e-003	0.0000	3.7579	3.7579	1.1000e-004	0.0000	3.7607
Total	**1.6400e-003**	**1.2700e-003**	**0.0144**	**4.0000e-005**	**4.1600e-003**	**3.0000e-005**	**4.2000e-003**	**1.1100e-003**	**3.0000e-005**	**1.1400e-003**	**0.0000**	**3.7579**	**3.7579**	**1.1000e-004**	**0.0000**	**3.7607**

3.4 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0807	0.0000	0.0807	0.0180	0.0000	0.0180	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0127	0.1360	0.1017	2.2000e-004		5.7200e-003	5.7200e-003		5.2600e-003	5.2600e-003	0.0000	19.0871	19.0871	6.1700e-003	0.0000	19.2414
Total	**0.0127**	**0.1360**	**0.1017**	**2.2000e-004**	**0.0807**	**5.7200e-003**	**0.0865**	**0.0180**	**5.2600e-003**	**0.0233**	**0.0000**	**19.0871**	**19.0871**	**6.1700e-003**	**0.0000**	**19.2414**

3.4 Grading - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e-004	2.1000e-004	2.4400e-003	1.0000e-005	7.7000e-004	1.0000e-005	7.7000e-004	2.0000e-004	1.0000e-005	2.1000e-004	0.0000	0.6679	0.6679	2.0000e-005	0.0000	0.6684
Total	**2.8000e-004**	**2.1000e-004**	**2.4400e-003**	**1.0000e-005**	**7.7000e-004**	**1.0000e-005**	**7.7000e-004**	**2.0000e-004**	**1.0000e-005**	**2.1000e-004**	**0.0000**	**0.6679**	**0.6679**	**2.0000e-005**	**0.0000**	**0.6684**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0807	0.0000	0.0807	0.0180	0.0000	0.0180	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0127	0.1360	0.1017	2.2000e-004		5.7200e-003	5.7200e-003		5.2600e-003	5.2600e-003	0.0000	19.0871	19.0871	6.1700e-003	0.0000	19.2414
Total	**0.0127**	**0.1360**	**0.1017**	**2.2000e-004**	**0.0807**	**5.7200e-003**	**0.0865**	**0.0180**	**5.2600e-003**	**0.0233**	**0.0000**	**19.0871**	**19.0871**	**6.1700e-003**	**0.0000**	**19.2414**

3.4 Grading - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e-004	2.1000e-004	2.4400e-003	1.0000e-005	7.7000e-004	1.0000e-005	7.7000e-004	2.0000e-004	1.0000e-005	2.1000e-004	0.0000	0.6679	0.6679	2.0000e-005	0.0000	0.6684
Total	**2.8000e-004**	**2.1000e-004**	**2.4400e-003**	**1.0000e-005**	**7.7000e-004**	**1.0000e-005**	**7.7000e-004**	**2.0000e-004**	**1.0000e-005**	**2.1000e-004**	**0.0000**	**0.6679**	**0.6679**	**2.0000e-005**	**0.0000**	**0.6684**

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2158	1.9754	2.0700	3.4100e-003		0.1023	0.1023		0.0963	0.0963	0.0000	293.1324	293.1324	0.0702	0.0000	294.8881
Total	**0.2158**	**1.9754**	**2.0700**	**3.4100e-003**		**0.1023**	**0.1023**		**0.0963**	**0.0963**	**0.0000**	**293.1324**	**293.1324**	**0.0702**	**0.0000**	**294.8881**

3.5 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0527	1.6961	0.4580	4.5500e-003	0.1140	3.1800e-003	0.1171	0.0329	3.0400e-003	0.0359	0.0000	441.9835	441.9835	0.0264	0.0000	442.6435
Worker	0.4088	0.3066	3.5305	0.0107	1.1103	8.8700e-003	1.1192	0.2949	8.1700e-003	0.3031	0.0000	966.8117	966.8117	0.0266	0.0000	967.4773
Total	**0.4616**	**2.0027**	**3.9885**	**0.0152**	**1.2243**	**0.0121**	**1.2363**	**0.3278**	**0.0112**	**0.3390**	**0.0000**	**1,408.7952**	**1,408.7952**	**0.0530**	**0.0000**	**1,410.1208**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2158	1.9754	2.0700	3.4100e-003		0.1023	0.1023		0.0963	0.0963	0.0000	293.1321	293.1321	0.0702	0.0000	294.8877
Total	**0.2158**	**1.9754**	**2.0700**	**3.4100e-003**		**0.1023**	**0.1023**		**0.0963**	**0.0963**	**0.0000**	**293.1321**	**293.1321**	**0.0702**	**0.0000**	**294.8877**

3.5 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0527	1.6961	0.4580	4.5500e-003	0.1140	3.1800e-003	0.1171	0.0329	3.0400e-003	0.0359	0.0000	441.9835	441.9835	0.0264	0.0000	442.6435
Worker	0.4088	0.3066	3.5305	0.0107	1.1103	8.8700e-003	1.1192	0.2949	8.1700e-003	0.3031	0.0000	966.8117	966.8117	0.0266	0.0000	967.4773
Total	**0.4616**	**2.0027**	**3.9885**	**0.0152**	**1.2243**	**0.0121**	**1.2363**	**0.3278**	**0.0112**	**0.3390**	**0.0000**	**1,408.7952**	**1,408.7952**	**0.0530**	**0.0000**	**1,410.1208**

3.5 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1942	1.7765	2.0061	3.3300e-003		0.0864	0.0864		0.0813	0.0813	0.0000	286.2789	286.2789	0.0681	0.0000	287.9814
Total	**0.1942**	**1.7765**	**2.0061**	**3.3300e-003**		**0.0864**	**0.0864**		**0.0813**	**0.0813**	**0.0000**	**286.2789**	**286.2789**	**0.0681**	**0.0000**	**287.9814**

3.5 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0382	1.2511	0.4011	4.3000e-003	0.1113	1.4600e-003	0.1127	0.0321	1.4000e-003	0.0335	0.0000	417.9930	417.9930	0.0228	0.0000	418.5624
Worker	0.3753	0.2708	3.1696	0.0101	1.0840	8.4100e-003	1.0924	0.2879	7.7400e-003	0.2957	0.0000	909.3439	909.3439	0.0234	0.0000	909.9291
Total	**0.4135**	**1.5218**	**3.5707**	**0.0144**	**1.1953**	**9.8700e-003**	**1.2051**	**0.3200**	**9.1400e-003**	**0.3292**	**0.0000**	**1,327.3369**	**1,327.3369**	**0.0462**	**0.0000**	**1,328.4916**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1942	1.7765	2.0061	3.3300e-003		0.0864	0.0864		0.0813	0.0813	0.0000	286.2785	286.2785	0.0681	0.0000	287.9811
Total	**0.1942**	**1.7765**	**2.0061**	**3.3300e-003**		**0.0864**	**0.0864**		**0.0813**	**0.0813**	**0.0000**	**286.2785**	**286.2785**	**0.0681**	**0.0000**	**287.9811**

3.5 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0382	1.2511	0.4011	4.3000e-003	0.1113	1.4600e-003	0.1127	0.0321	1.4000e-003	0.0335	0.0000	417.9930	417.9930	0.0228	0.0000	418.5624
Worker	0.3753	0.2708	3.1696	0.0101	1.0840	8.4100e-003	1.0924	0.2879	7.7400e-003	0.2957	0.0000	909.3439	909.3439	0.0234	0.0000	909.9291
Total	**0.4135**	**1.5218**	**3.5707**	**0.0144**	**1.1953**	**9.8700e-003**	**1.2051**	**0.3200**	**9.1400e-003**	**0.3292**	**0.0000**	**1,327.3369**	**1,327.3369**	**0.0462**	**0.0000**	**1,328.4916**

3.6 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.7100e-003	0.0663	0.0948	1.5000e-004		3.3200e-003	3.3200e-003		3.0500e-003	3.0500e-003	0.0000	13.0175	13.0175	4.2100e-003	0.0000	13.1227
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**6.7100e-003**	**0.0663**	**0.0948**	**1.5000e-004**		**3.3200e-003**	**3.3200e-003**		**3.0500e-003**	**3.0500e-003**	**0.0000**	**13.0175**	**13.0175**	**4.2100e-003**	**0.0000**	**13.1227**

3.6 Paving - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.7000e-004	2.7000e-004	3.1200e-003	1.0000e-005	1.0700e-003	1.0000e-005	1.0800e-003	2.8000e-004	1.0000e-005	2.9000e-004	0.0000	0.8963	0.8963	2.0000e-005	0.0000	0.8968
Total	**3.7000e-004**	**2.7000e-004**	**3.1200e-003**	**1.0000e-005**	**1.0700e-003**	**1.0000e-005**	**1.0800e-003**	**2.8000e-004**	**1.0000e-005**	**2.9000e-004**	**0.0000**	**0.8963**	**0.8963**	**2.0000e-005**	**0.0000**	**0.8968**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.7100e-003	0.0663	0.0948	1.5000e-004		3.3200e-003	3.3200e-003		3.0500e-003	3.0500e-003	0.0000	13.0175	13.0175	4.2100e-003	0.0000	13.1227
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**6.7100e-003**	**0.0663**	**0.0948**	**1.5000e-004**		**3.3200e-003**	**3.3200e-003**		**3.0500e-003**	**3.0500e-003**	**0.0000**	**13.0175**	**13.0175**	**4.2100e-003**	**0.0000**	**13.1227**

3.6 Paving - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.7000e-004	2.7000e-004	3.1200e-003	1.0000e-005	1.0700e-003	1.0000e-005	1.0800e-003	2.8000e-004	1.0000e-005	2.9000e-004	0.0000	0.8963	0.8963	2.0000e-005	0.0000	0.8968
Total	**3.7000e-004**	**2.7000e-004**	**3.1200e-003**	**1.0000e-005**	**1.0700e-003**	**1.0000e-005**	**1.0800e-003**	**2.8000e-004**	**1.0000e-005**	**2.9000e-004**	**0.0000**	**0.8963**	**0.8963**	**2.0000e-005**	**0.0000**	**0.8968**

3.6 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0109	0.1048	0.1609	2.5000e-004		5.1500e-003	5.1500e-003		4.7400e-003	4.7400e-003	0.0000	22.0292	22.0292	7.1200e-003	0.0000	22.2073
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0109**	**0.1048**	**0.1609**	**2.5000e-004**		**5.1500e-003**	**5.1500e-003**		**4.7400e-003**	**4.7400e-003**	**0.0000**	**22.0292**	**22.0292**	**7.1200e-003**	**0.0000**	**22.2073**

3.6 Paving - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.9000e-004	4.1000e-004	4.9200e-003	2.0000e-005	1.8100e-003	1.0000e-005	1.8200e-003	4.8000e-004	1.0000e-005	4.9000e-004	0.0000	1.4697	1.4697	4.0000e-005	0.0000	1.4706
Total	**5.9000e-004**	**4.1000e-004**	**4.9200e-003**	**2.0000e-005**	**1.8100e-003**	**1.0000e-005**	**1.8200e-003**	**4.8000e-004**	**1.0000e-005**	**4.9000e-004**	**0.0000**	**1.4697**	**1.4697**	**4.0000e-005**	**0.0000**	**1.4706**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0109	0.1048	0.1609	2.5000e-004		5.1500e-003	5.1500e-003		4.7400e-003	4.7400e-003	0.0000	22.0292	22.0292	7.1200e-003	0.0000	22.2073
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0109**	**0.1048**	**0.1609**	**2.5000e-004**		**5.1500e-003**	**5.1500e-003**		**4.7400e-003**	**4.7400e-003**	**0.0000**	**22.0292**	**22.0292**	**7.1200e-003**	**0.0000**	**22.2073**

3.6 Paving - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.9000e-004	4.1000e-004	4.9200e-003	2.0000e-005	1.8100e-003	1.0000e-005	1.8200e-003	4.8000e-004	1.0000e-005	4.9000e-004	0.0000	1.4697	1.4697	4.0000e-005	0.0000	1.4706
Total	**5.9000e-004**	**4.1000e-004**	**4.9200e-003**	**2.0000e-005**	**1.8100e-003**	**1.0000e-005**	**1.8200e-003**	**4.8000e-004**	**1.0000e-005**	**4.9000e-004**	**0.0000**	**1.4697**	**1.4697**	**4.0000e-005**	**0.0000**	**1.4706**

3.7 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	4.1372					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.1600e-003	0.0213	0.0317	5.0000e-005		1.0700e-003	1.0700e-003		1.0700e-003	1.0700e-003	0.0000	4.4682	4.4682	2.5000e-004	0.0000	4.4745
Total	**4.1404**	**0.0213**	**0.0317**	**5.0000e-005**		**1.0700e-003**	**1.0700e-003**		**1.0700e-003**	**1.0700e-003**	**0.0000**	**4.4682**	**4.4682**	**2.5000e-004**	**0.0000**	**4.4745**

3.7 Architectural Coating - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0101	6.9900e-003	0.0835	2.8000e-004	0.0307	2.3000e-004	0.0309	8.1500e-003	2.2000e-004	8.3700e-003	0.0000	24.9407	24.9407	6.1000e-004	0.0000	24.9558
Total	**0.0101**	**6.9900e-003**	**0.0835**	**2.8000e-004**	**0.0307**	**2.3000e-004**	**0.0309**	**8.1500e-003**	**2.2000e-004**	**8.3700e-003**	**0.0000**	**24.9407**	**24.9407**	**6.1000e-004**	**0.0000**	**24.9558**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	4.1372					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.1600e-003	0.0213	0.0317	5.0000e-005		1.0700e-003	1.0700e-003		1.0700e-003	1.0700e-003	0.0000	4.4682	4.4682	2.5000e-004	0.0000	4.4745
Total	**4.1404**	**0.0213**	**0.0317**	**5.0000e-005**		**1.0700e-003**	**1.0700e-003**		**1.0700e-003**	**1.0700e-003**	**0.0000**	**4.4682**	**4.4682**	**2.5000e-004**	**0.0000**	**4.4745**

3.7 Architectural Coating - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0101	6.9900e-003	0.0835	2.8000e-004	0.0307	2.3000e-004	0.0309	8.1500e-003	2.2000e-004	8.3700e-003	0.0000	24.9407	24.9407	6.1000e-004	0.0000	24.9558
Total	**0.0101**	**6.9900e-003**	**0.0835**	**2.8000e-004**	**0.0307**	**2.3000e-004**	**0.0309**	**8.1500e-003**	**2.2000e-004**	**8.3700e-003**	**0.0000**	**24.9407**	**24.9407**	**6.1000e-004**	**0.0000**	**24.9558**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.5857	7.9962	19.1834	0.0821	7.7979	0.0580	7.8559	2.0895	0.0539	2.1434	0.0000	7,620.4986	7,620.4986	0.3407	0.0000	7,629.0162
Unmitigated	1.5857	7.9962	19.1834	0.0821	7.7979	0.0580	7.8559	2.0895	0.0539	2.1434	0.0000	7,620.4986	7,620.4986	0.3407	0.0000	7,629.0162

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	145.75	154.25	154.00	506,227	506,227
Apartments Mid Rise	4,026.75	3,773.25	4075.50	13,660,065	13,660,065
General Office Building	288.45	62.55	31.05	706,812	706,812
High Turnover (Sit Down Restaurant)	2,368.80	2,873.52	2817.72	3,413,937	3,413,937
Hotel	192.00	187.50	160.00	445,703	445,703
Quality Restaurant	501.12	511.92	461.20	707,488	707,488
Regional Shopping Center	528.08	601.44	357.84	1,112,221	1,112,221
Total	8,050.95	8,164.43	8,057.31	20,552,452	20,552,452

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Apartments Mid Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4
High Turnover (Sit Down	16.60	8.40	6.90	8.50	72.50	19.00	37	20	43
Hotel	16.60	8.40	6.90	19.40	61.60	19.00	58	38	4
Quality Restaurant	16.60	8.40	6.90	12.00	69.00	19.00	38	18	44
Regional Shopping Center	16.60	8.40	6.90	16.30	64.70	19.00	54	35	11

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Apartments Mid Rise	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
General Office Building	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
High Turnover (Sit Down Restaurant)	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Hotel	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Quality Restaurant	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Regional Shopping Center	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Village South Specific Plan (Proposed) - Los Angeles-South Coast County, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	2,512.6465	2,512.6465	0.1037	0.0215	2,521.6356
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	2,512.6465	2,512.6465	0.1037	0.0215	2,521.6356
NaturalGas Mitigated	0.1398	1.2312	0.7770	7.6200e-003		0.0966	0.0966		0.0966	0.0966	0.0000	1,383.4267	1,383.4267	0.0265	0.0254	1,391.6478
NaturalGas Unmitigated	0.1398	1.2312	0.7770	7.6200e-003		0.0966	0.0966		0.0966	0.0966	0.0000	1,383.4267	1,383.4267	0.0265	0.0254	1,391.6478

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Low Rise	408494	2.2000e-003	0.0188	8.0100e-003	1.2000e-004		1.5200e-003	1.5200e-003		1.5200e-003	1.5200e-003	0.0000	21.7988	21.7988	4.2000e-004	4.0000e-004	21.9284
Apartments Mid Rise	1.30613e+007	0.0704	0.6018	0.2561	3.8400e-003		0.0487	0.0487		0.0487	0.0487	0.0000	696.9989	696.9989	0.0134	0.0128	701.1408
General Office Building	468450	2.5300e-003	0.0230	0.0193	1.4000e-004		1.7500e-003	1.7500e-003		1.7500e-003	1.7500e-003	0.0000	24.9983	24.9983	4.8000e-004	4.6000e-004	25.1468
High Turnover (Sit Down Restaurant)	8.30736e+006	0.0448	0.4072	0.3421	2.4400e-003		0.0310	0.0310		0.0310	0.0310	0.0000	443.3124	443.3124	8.5000e-003	8.1300e-003	445.9468
Hotel	1.74095e+006	9.3900e-003	0.0853	0.0717	5.1000e-004		6.4900e-003	6.4900e-003		6.4900e-003	6.4900e-003	0.0000	92.9036	92.9036	1.7800e-003	1.7000e-003	93.4557
Quality Restaurant	1.84608e+006	9.9500e-003	0.0905	0.0760	5.4000e-004		6.8800e-003	6.8800e-003		6.8800e-003	6.8800e-003	0.0000	98.5139	98.5139	1.8900e-003	1.8100e-003	99.0993
Regional Shopping Center	91840	5.0000e-004	4.5000e-003	3.7800e-003	3.0000e-005		3.4000e-004	3.4000e-004		3.4000e-004	3.4000e-004	0.0000	4.9009	4.9009	9.0000e-005	9.0000e-005	4.9301
Total		**0.1398**	**1.2312**	**0.7770**	**7.6200e-003**		**0.0966**	**0.0966**		**0.0966**	**0.0966**	**0.0000**	**1,383.4268**	**1,383.4268**	**0.0265**	**0.0254**	**1,391.6478**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Low Rise	408494	2.2000e-003	0.0188	8.0100e-003	1.2000e-004		1.5200e-003	1.5200e-003		1.5200e-003	1.5200e-003	0.0000	21.7988	21.7988	4.2000e-004	4.0000e-004	21.9284
Apartments Mid Rise	1.30613e+007	0.0704	0.6018	0.2561	3.8400e-003		0.0487	0.0487		0.0487	0.0487	0.0000	696.9989	696.9989	0.0134	0.0128	701.1408
General Office Building	468450	2.5300e-003	0.0230	0.0193	1.4000e-004		1.7500e-003	1.7500e-003		1.7500e-003	1.7500e-003	0.0000	24.9983	24.9983	4.8000e-004	4.6000e-004	25.1468
High Turnover (Sit Down Restaurant)	8.30736e+006	0.0448	0.4072	0.3421	2.4400e-003		0.0310	0.0310		0.0310	0.0310	0.0000	443.3124	443.3124	8.5000e-003	8.1300e-003	445.9468
Hotel	1.74095e+006	9.3900e-003	0.0853	0.0717	5.1000e-004		6.4900e-003	6.4900e-003		6.4900e-003	6.4900e-003	0.0000	92.9036	92.9036	1.7800e-003	1.7000e-003	93.4557
Quality Restaurant	1.84608e+006	9.9500e-003	0.0905	0.0760	5.4000e-004		6.8800e-003	6.8800e-003		6.8800e-003	6.8800e-003	0.0000	98.5139	98.5139	1.8900e-003	1.8100e-003	99.0993
Regional Shopping Center	91840	5.0000e-004	4.5000e-003	3.7800e-003	3.0000e-005		3.4000e-004	3.4000e-004		3.4000e-004	3.4000e-004	0.0000	4.9009	4.9009	9.0000e-005	9.0000e-005	4.9301
Total		**0.1398**	**1.2312**	**0.7770**	**7.6200e-003**		**0.0966**	**0.0966**		**0.0966**	**0.0966**	**0.0000**	**1,383.4268**	**1,383.4268**	**0.0265**	**0.0254**	**1,391.6478**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	106010	33.7770	1.3900e-003	2.9000e-004	33.8978
Apartments Mid Rise	3.94697e+006	1,257.5879	0.0519	0.0107	1,262.0869
General Office Building	584550	186.2502	7.6900e-003	1.5900e-003	186.9165
High Turnover (Sit Down Restaurant)	1.58904e+006	506.3022	0.0209	4.3200e-003	508.1135
Hotel	550308	175.3399	7.2400e-003	1.5000e-003	175.9672
Quality Restaurant	353120	112.5116	4.6500e-003	9.6000e-004	112.9141
Regional Shopping Center	756000	240.8778	9.9400e-003	2.0600e-003	241.7395
Total		**2,512.6465**	**0.1037**	**0.0215**	**2,521.6356**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	106010	33.7770	1.3900e-003	2.9000e-004	33.8978
Apartments Mid Rise	3.94697e+006	1,257.5879	0.0519	0.0107	1,262.0869
General Office Building	584550	186.2502	7.6900e-003	1.5900e-003	186.9165
High Turnover (Sit Down Restaurant)	1.58904e+006	506.3022	0.0209	4.3200e-003	508.1135
Hotel	550308	175.3399	7.2400e-003	1.5000e-003	175.9672
Quality Restaurant	353120	112.5116	4.6500e-003	9.6000e-004	112.9141
Regional Shopping Center	756000	240.8778	9.9400e-003	2.0600e-003	241.7395
Total		**2,512.6465**	**0.1037**	**0.0215**	**2,521.6356**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	5.1437	0.2950	10.3804	1.6700e-003		0.0714	0.0714		0.0714	0.0714	0.0000	220.9670	220.9670	0.0201	3.7400e-003	222.5835
Unmitigated	5.1437	0.2950	10.3804	1.6700e-003		0.0714	0.0714		0.0714	0.0714	0.0000	220.9670	220.9670	0.0201	3.7400e-003	222.5835

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.4137					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	4.3998					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0206	0.1763	0.0750	1.1200e-003		0.0143	0.0143		0.0143	0.0143	0.0000	204.1166	204.1166	3.9100e-003	3.7400e-003	205.3295
Landscaping	0.3096	0.1187	10.3054	5.4000e-004		0.0572	0.0572		0.0572	0.0572	0.0000	16.8504	16.8504	0.0161	0.0000	17.2540
Total	**5.1437**	**0.2950**	**10.3804**	**1.6600e-003**		**0.0714**	**0.0714**		**0.0714**	**0.0714**	**0.0000**	**220.9670**	**220.9670**	**0.0201**	**3.7400e-003**	**222.5835**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.4137					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	4.3998					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0206	0.1763	0.0750	1.1200e-003		0.0143	0.0143		0.0143	0.0143	0.0000	204.1166	204.1166	3.9100e-003	3.7400e-003	205.3295
Landscaping	0.3096	0.1187	10.3054	5.4000e-004		0.0572	0.0572		0.0572	0.0572	0.0000	16.8504	16.8504	0.0161	0.0000	17.2540
Total	**5.1437**	**0.2950**	**10.3804**	**1.6600e-003**		**0.0714**	**0.0714**		**0.0714**	**0.0714**	**0.0000**	**220.9670**	**220.9670**	**0.0201**	**3.7400e-003**	**222.5835**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	585.8052	3.0183	0.0755	683.7567
Unmitigated	585.8052	3.0183	0.0755	683.7567

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	1.62885 / 1.02688	10.9095	0.0535	1.3400e-003	12.6471
Apartments Mid Rise	63.5252 / 40.0485	425.4719	2.0867	0.0523	493.2363
General Office Building	7.99802 / 4.90201	53.0719	0.2627	6.5900e-003	61.6019
High Turnover (Sit Down Restaurant)	10.9272 / 0.697482	51.2702	0.3580	8.8200e-003	62.8482
Hotel	1.26834 / 0.140927	6.1633	0.0416	1.0300e-003	7.5079
Quality Restaurant	2.42827 / 0.154996	11.3934	0.0796	1.9600e-003	13.9663
Regional Shopping Center	4.14806 / 2.54236	27.5250	0.1363	3.4200e-003	31.9490
Total		**585.8052**	**3.0183**	**0.0755**	**683.7567**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	1.62885 / 1.02688	10.9095	0.0535	1.3400e-003	12.6471
Apartments Mid Rise	63.5252 / 40.0485	425.4719	2.0867	0.0523	493.2363
General Office Building	7.99802 / 4.90201	53.0719	0.2627	6.5900e-003	61.6019
High Turnover (Sit Down Restaurant)	10.9272 / 0.697482	51.2702	0.3580	8.8200e-003	62.8482
Hotel	1.26834 / 0.140927	6.1633	0.0416	1.0300e-003	7.5079
Quality Restaurant	2.42827 / 0.154996	11.3934	0.0796	1.9600e-003	13.9663
Regional Shopping Center	4.14806 / 2.54236	27.5250	0.1363	3.4200e-003	31.9490
Total		**585.8052**	**3.0183**	**0.0755**	**683.7567**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	207.8079	12.2811	0.0000	514.8354
Unmitigated	207.8079	12.2811	0.0000	514.8354

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	11.5	2.3344	0.1380	0.0000	5.7834
Apartments Mid Rise	448.5	91.0415	5.3804	0.0000	225.5513
General Office Building	41.85	8.4952	0.5021	0.0000	21.0464
High Turnover (Sit Down Restaurant)	428.4	86.9613	5.1393	0.0000	215.4430
Hotel	27.38	5.5579	0.3285	0.0000	13.7694
Quality Restaurant	7.3	1.4818	0.0876	0.0000	3.6712
Regional Shopping Center	58.8	11.9359	0.7054	0.0000	29.5706
Total		**207.8079**	**12.2811**	**0.0000**	**514.8354**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	11.5	2.3344	0.1380	0.0000	5.7834
Apartments Mid Rise	448.5	91.0415	5.3804	0.0000	225.5513
General Office Building	41.85	8.4952	0.5021	0.0000	21.0464
High Turnover (Sit Down Restaurant)	428.4	86.9613	5.1393	0.0000	215.4430
Hotel	27.38	5.5579	0.3285	0.0000	13.7694
Quality Restaurant	7.3	1.4818	0.0876	0.0000	3.6712
Regional Shopping Center	58.8	11.9359	0.7054	0.0000	29.5706
Total		**207.8079**	**12.2811**	**0.0000**	**514.8354**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Village South Specific Plan (Proposed)

Los Angeles-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	45.00	1000sqft	1.03	45,000.00	0
High Turnover (Sit Down Restaurant)	36.00	1000sqft	0.83	36,000.00	0
Hotel	50.00	Room	1.67	72,600.00	0
Quality Restaurant	8.00	1000sqft	0.18	8,000.00	0
Apartments Low Rise	25.00	Dwelling Unit	1.56	25,000.00	72
Apartments Mid Rise	975.00	Dwelling Unit	25.66	975,000.00	2789
Regional Shopping Center	56.00	1000sqft	1.29	56,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	9			**Operational Year**	2028
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Village South Specific Plan (Proposed) - Los Angeles-South Coast County, Summer

Project Characteristics - Consistent with the DEIR's model.

Land Use - See SWAPE comment regarding residential and retail land uses.

Construction Phase - See SWAPE comment regarding individual construction phase lengths.

Demolition - Consistent with the DEIR's model. See SWAPE comment regarding demolition.

Vehicle Trips - Saturday trips consistent with the DEIR's model. See SWAPE comment regarding weekday and Sunday trips.

Woodstoves - Woodstoves and wood-burning fireplaces consistent with the DEIR's model. See SWAPE comment regarding gas fireplaces.

Energy Use -

Construction Off-road Equipment Mitigation - See SWAPE comment on construction-related mitigation.

Area Mitigation - See SWAPE comment regarding operational mitigation measures.

Water Mitigation - See SWAPE comment regarding operational mitigation measures.

Table Name	Column Name	Default Value	New Value
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberWood	1.25	0.00
tblFireplaces	NumberWood	48.75	0.00
tblVehicleTrips	ST_TR	7.16	6.17
tblVehicleTrips	ST_TR	6.39	3.87
tblVehicleTrips	ST_TR	2.46	1.39
tblVehicleTrips	ST_TR	158.37	79.82
tblVehicleTrips	ST_TR	8.19	3.75
tblVehicleTrips	ST_TR	94.36	63.99
tblVehicleTrips	ST_TR	49.97	10.74
tblVehicleTrips	SU_TR	6.07	6.16
tblVehicleTrips	SU_TR	5.86	4.18
tblVehicleTrips	SU_TR	1.05	0.69
tblVehicleTrips	SU_TR	131.84	78.27

tblVehicleTrips	SU_TR	5.95	3.20
tblVehicleTrips	SU_TR	72.16	57.65
tblVehicleTrips	SU_TR	25.24	6.39
tblVehicleTrips	WD_TR	6.59	5.83
tblVehicleTrips	WD_TR	6.65	4.13
tblVehicleTrips	WD_TR	11.03	6.41
tblVehicleTrips	WD_TR	127.15	65.80
tblVehicleTrips	WD_TR	8.17	3.84
tblVehicleTrips	WD_TR	89.95	62.64
tblVehicleTrips	WD_TR	42.70	9.43
tblWoodstoves	NumberCatalytic	1.25	0.00
tblWoodstoves	NumberCatalytic	48.75	0.00
tblWoodstoves	NumberNoncatalytic	1.25	0.00
tblWoodstoves	NumberNoncatalytic	48.75	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	4.2769	46.4588	31.6840	0.0643	18.2675	2.0461	20.3135	9.9840	1.8824	11.8664	0.0000	6,234.7974	6,234.7974	1.9495	0.0000	6,283.5352
2022	5.3304	38.8967	49.5629	0.1517	9.8688	1.6366	10.7727	3.6558	1.5057	5.1615	0.0000	15,251.5674	15,251.5674	1.9503	0.0000	15,278.5288
2023	4.8957	26.3317	46.7567	0.1472	9.8688	0.7794	10.6482	2.6381	0.7322	3.3702	0.0000	14,807.5269	14,807.5269	1.0250	0.0000	14,833.1521
2024	237.1630	9.5575	15.1043	0.0244	1.7884	0.4698	1.8628	0.4743	0.4322	0.5476	0.0000	2,361.3989	2,361.3989	0.7177	0.0000	2,379.3421
Maximum	**237.1630**	**46.4588**	**49.5629**	**0.1517**	**18.2675**	**2.0461**	**20.3135**	**9.9840**	**1.8824**	**11.8664**	**0.0000**	**15,251.5674**	**15,251.5674**	**1.9503**	**0.0000**	**15,278.5288**

2.1 Overall Construction (Maximum Daily Emission)

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	4.2769	46.4588	31.6840	0.0643	18.2675	2.0461	20.3135	9.9840	1.8824	11.8664	0.0000	6,234.7974	6,234.7974	1.9495	0.0000	6,283.5352
2022	5.3304	38.8967	49.5629	0.1517	9.8688	1.6366	10.7727	3.6558	1.5057	5.1615	0.0000	15,251.5674	15,251.5674	1.9503	0.0000	15,278.5288
2023	4.8957	26.3317	46.7567	0.1472	9.8688	0.7794	10.6482	2.6381	0.7322	3.3702	0.0000	14,807.5269	14,807.5269	1.0250	0.0000	14,833.1520
2024	237.1630	9.5575	15.1043	0.0244	1.7884	0.4698	1.8628	0.4743	0.4322	0.5476	0.0000	2,361.3989	2,361.3989	0.7177	0.0000	2,379.3421
Maximum	**237.1630**	**46.4588**	**49.5629**	**0.1517**	**18.2675**	**2.0461**	**20.3135**	**9.9840**	**1.8824**	**11.8664**	**0.0000**	**15,251.5674**	**15,251.5674**	**1.9503**	**0.0000**	**15,278.5288**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	30.5020	15.0496	88.4430	0.0944		1.5974	1.5974		1.5974	1.5974	0.0000	18,148.5950	18,148.5950	0.4874	0.3300	18,259.1192
Energy	0.7660	6.7462	4.2573	0.0418		0.5292	0.5292		0.5292	0.5292		8,355.9832	8,355.9832	0.1602	0.1532	8,405.6387
Mobile	9.8489	45.4304	114.8495	0.4917	45.9592	0.3360	46.2951	12.2950	0.3119	12.6070		50,306.6034	50,306.6034	2.1807		50,361.1208
Total	**41.1168**	**67.2262**	**207.5497**	**0.6278**	**45.9592**	**2.4626**	**48.4217**	**12.2950**	**2.4385**	**14.7336**	**0.0000**	**76,811.1816**	**76,811.1816**	**2.8282**	**0.4832**	**77,025.8786**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	30.5020	15.0496	88.4430	0.0944		1.5974	1.5974		1.5974	1.5974	0.0000	18,148.5950	18,148.5950	0.4874	0.3300	18,259.1192
Energy	0.7660	6.7462	4.2573	0.0418		0.5292	0.5292		0.5292	0.5292		8,355.9832	8,355.9832	0.1602	0.1532	8,405.6387
Mobile	9.8489	45.4304	114.8495	0.4917	45.9592	0.3360	46.2951	12.2950	0.3119	12.6070		50,306.6034	50,306.6034	2.1807		50,361.1208
Total	**41.1168**	**67.2262**	**207.5497**	**0.6278**	**45.9592**	**2.4626**	**48.4217**	**12.2950**	**2.4385**	**14.7336**	**0.0000**	**76,811.1816**	**76,811.1816**	**2.8282**	**0.4832**	**77,025.8786**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	9/1/2021	10/12/2021	5	30	
2	Site Preparation	Site Preparation	10/13/2021	11/9/2021	5	20	
3	Grading	Grading	11/10/2021	1/11/2022	5	45	
4	Building Construction	Building Construction	1/12/2022	12/12/2023	5	500	
5	Paving	Paving	12/13/2023	1/30/2024	5	35	
6	Architectural Coating	Architectural Coating	1/31/2024	3/19/2024	5	35	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 112.5

Acres of Paving: 0

Residential Indoor: 2,025,000; Residential Outdoor: 675,000; Non-Residential Indoor: 326,400; Non-Residential Outdoor: 108,800; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Village South Specific Plan (Proposed) - Los Angeles-South Coast County, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	458.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	801.00	143.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	160.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.3074	0.0000	3.3074	0.5008	0.0000	0.5008			0.0000			0.0000
Off-Road	3.1651	31.4407	21.5650	0.0388		1.5513	1.5513		1.4411	1.4411		3,747.9449	3,747.9449	1.0549		3,774.3174
Total	**3.1651**	**31.4407**	**21.5650**	**0.0388**	**3.3074**	**1.5513**	**4.8588**	**0.5008**	**1.4411**	**1.9419**		**3,747.9449**	**3,747.9449**	**1.0549**		**3,774.3174**

3.2 Demolition - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1273	4.0952	0.9602	0.0119	0.2669	0.0126	0.2795	0.0732	0.0120	0.0852		1,292.2413	1,292.2413	0.0877		1,294.4337
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0643	0.0442	0.6042	1.7100e-003	0.1677	1.3500e-003	0.1690	0.0445	1.2500e-003	0.0457		170.8155	170.8155	5.0300e-003		170.9413
Total	**0.1916**	**4.1394**	**1.5644**	**0.0136**	**0.4346**	**0.0139**	**0.4485**	**0.1176**	**0.0133**	**0.1309**		**1,463.0568**	**1,463.0568**	**0.0927**		**1,465.3750**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.3074	0.0000	3.3074	0.5008	0.0000	0.5008			0.0000			0.0000
Off-Road	3.1651	31.4407	21.5650	0.0388		1.5513	1.5513		1.4411	1.4411	0.0000	3,747.9449	3,747.9449	1.0549		3,774.3174
Total	**3.1651**	**31.4407**	**21.5650**	**0.0388**	**3.3074**	**1.5513**	**4.8588**	**0.5008**	**1.4411**	**1.9419**	**0.0000**	**3,747.9449**	**3,747.9449**	**1.0549**		**3,774.3174**

3.2 Demolition - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1273	4.0952	0.9602	0.0119	0.2669	0.0126	0.2795	0.0732	0.0120	0.0852		1,292.2413	1,292.2413	0.0877		1,294.4337
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0643	0.0442	0.6042	1.7100e-003	0.1677	1.3500e-003	0.1690	0.0445	1.2500e-003	0.0457		170.8155	170.8155	5.0300e-003		170.9413
Total	**0.1916**	**4.1394**	**1.5644**	**0.0136**	**0.4346**	**0.0139**	**0.4485**	**0.1176**	**0.0133**	**0.1309**		**1,463.0568**	**1,463.0568**	**0.0927**		**1,465.3750**

3.3 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809		3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**3.8882**	**40.4971**	**21.1543**	**0.0380**	**18.0663**	**2.0445**	**20.1107**	**9.9307**	**1.8809**	**11.8116**		**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

3.3 Site Preparation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0772	0.0530	0.7250	2.0600e-003	0.2012	1.6300e-003	0.2028	0.0534	1.5000e-003	0.0549		204.9786	204.9786	6.0400e-003		205.1296
Total	**0.0772**	**0.0530**	**0.7250**	**2.0600e-003**	**0.2012**	**1.6300e-003**	**0.2028**	**0.0534**	**1.5000e-003**	**0.0549**		**204.9786**	**204.9786**	**6.0400e-003**		**205.1296**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809	0.0000	3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**3.8882**	**40.4971**	**21.1543**	**0.0380**	**18.0663**	**2.0445**	**20.1107**	**9.9307**	**1.8809**	**11.8116**	**0.0000**	**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

3.3 Site Preparation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0772	0.0530	0.7250	2.0600e-003	0.2012	1.6300e-003	0.2028	0.0534	1.5000e-003	0.0549		204.9786	204.9786	6.0400e-003		205.1296
Total	**0.0772**	**0.0530**	**0.7250**	**2.0600e-003**	**0.2012**	**1.6300e-003**	**0.2028**	**0.0534**	**1.5000e-003**	**0.0549**		**204.9786**	**204.9786**	**6.0400e-003**		**205.1296**

3.4 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	4.1912	46.3998	30.8785	0.0620		1.9853	1.9853		1.8265	1.8265		6,007.0434	6,007.0434	1.9428		6,055.6134
Total	**4.1912**	**46.3998**	**30.8785**	**0.0620**	**8.6733**	**1.9853**	**10.6587**	**3.5965**	**1.8265**	**5.4230**		**6,007.0434**	**6,007.0434**	**1.9428**		**6,055.6134**

3.4 Grading - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0857	0.0589	0.8056	2.2900e-003	0.2236	1.8100e-003	0.2254	0.0593	1.6600e-003	0.0610		227.7540	227.7540	6.7100e-003		227.9217
Total	**0.0857**	**0.0589**	**0.8056**	**2.2900e-003**	**0.2236**	**1.8100e-003**	**0.2254**	**0.0593**	**1.6600e-003**	**0.0610**		**227.7540**	**227.7540**	**6.7100e-003**		**227.9217**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	4.1912	46.3998	30.8785	0.0620		1.9853	1.9853		1.8265	1.8265	0.0000	6,007.0434	6,007.0434	1.9428		6,055.6134
Total	**4.1912**	**46.3998**	**30.8785**	**0.0620**	**8.6733**	**1.9853**	**10.6587**	**3.5965**	**1.8265**	**5.4230**	**0.0000**	**6,007.0434**	**6,007.0434**	**1.9428**		**6,055.6134**

3.4 Grading - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0857	0.0589	0.8056	2.2900e-003	0.2236	1.8100e-003	0.2254	0.0593	1.6600e-003	0.0610		227.7540	227.7540	6.7100e-003		227.9217
Total	**0.0857**	**0.0589**	**0.8056**	**2.2900e-003**	**0.2236**	**1.8100e-003**	**0.2254**	**0.0593**	**1.6600e-003**	**0.0610**		**227.7540**	**227.7540**	**6.7100e-003**		**227.9217**

3.4 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	3.6248	38.8435	29.0415	0.0621		1.6349	1.6349		1.5041	1.5041		6,011.4105	6,011.4105	1.9442		6,060.0158
Total	**3.6248**	**38.8435**	**29.0415**	**0.0621**	**8.6733**	**1.6349**	**10.3082**	**3.5965**	**1.5041**	**5.1006**		**6,011.4105**	**6,011.4105**	**1.9442**		**6,060.0158**

3.4 Grading - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0803	0.0532	0.7432	2.2100e-003	0.2236	1.7500e-003	0.2253	0.0593	1.6100e-003	0.0609		219.7425	219.7425	6.0600e-003		219.8941
Total	**0.0803**	**0.0532**	**0.7432**	**2.2100e-003**	**0.2236**	**1.7500e-003**	**0.2253**	**0.0593**	**1.6100e-003**	**0.0609**		**219.7425**	**219.7425**	**6.0600e-003**		**219.8941**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	3.6248	38.8435	29.0415	0.0621		1.6349	1.6349		1.5041	1.5041	0.0000	6,011.4105	6,011.4105	1.9442		6,060.0158
Total	**3.6248**	**38.8435**	**29.0415**	**0.0621**	**8.6733**	**1.6349**	**10.3082**	**3.5965**	**1.5041**	**5.1006**	**0.0000**	**6,011.4105**	**6,011.4105**	**1.9442**		**6,060.0158**

3.4 Grading - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0803	0.0532	0.7432	2.2100e-003	0.2236	1.7500e-003	0.2253	0.0593	1.6100e-003	0.0609		219.7425	219.7425	6.0600e-003		219.8941
Total	**0.0803**	**0.0532**	**0.7432**	**2.2100e-003**	**0.2236**	**1.7500e-003**	**0.2253**	**0.0593**	**1.6100e-003**	**0.0609**		**219.7425**	**219.7425**	**6.0600e-003**		**219.8941**

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**		**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

3.5 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4079	13.2032	3.4341	0.0364	0.9155	0.0248	0.9404	0.2636	0.0237	0.2873		3,896.5482	3,896.5482	0.2236		3,902.1384
Worker	3.2162	2.1318	29.7654	0.0883	8.9533	0.0701	9.0234	2.3745	0.0646	2.4390		8,800.6857	8,800.6857	0.2429		8,806.7582
Total	**3.6242**	**15.3350**	**33.1995**	**0.1247**	**9.8688**	**0.0949**	**9.9637**	**2.6381**	**0.0883**	**2.7263**		**12,697.2339**	**12,697.2339**	**0.4665**		**12,708.8966**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**	**0.0000**	**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

3.5 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4079	13.2032	3.4341	0.0364	0.9155	0.0248	0.9404	0.2636	0.0237	0.2873		3,896.5482	3,896.5482	0.2236		3,902.1384
Worker	3.2162	2.1318	29.7654	0.0883	8.9533	0.0701	9.0234	2.3745	0.0646	2.4390		8,800.6857	8,800.6857	0.2429		8,806.7582
Total	**3.6242**	**15.3350**	**33.1995**	**0.1247**	**9.8688**	**0.0949**	**9.9637**	**2.6381**	**0.0883**	**2.7263**		**12,697.2339**	**12,697.2339**	**0.4665**		**12,708.8966**

3.5 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**		**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

3.5 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3027	10.0181	3.1014	0.0352	0.9156	0.0116	0.9271	0.2636	0.0111	0.2747		3,773.8762	3,773.8762	0.1982		3,778.8300
Worker	3.0203	1.9287	27.4113	0.0851	8.9533	0.0681	9.0214	2.3745	0.0627	2.4372		8,478.4408	8,478.4408	0.2190		8,483.9160
Total	**3.3229**	**11.9468**	**30.5127**	**0.1203**	**9.8688**	**0.0797**	**9.9485**	**2.6381**	**0.0738**	**2.7118**		**12,252.3170**	**12,252.3170**	**0.4172**		**12,262.7460**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**	**0.0000**	**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

3.5 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3027	10.0181	3.1014	0.0352	0.9156	0.0116	0.9271	0.2636	0.0111	0.2747		3,773.8762	3,773.8762	0.1982		3,778.8300
Worker	3.0203	1.9287	27.4113	0.0851	8.9533	0.0681	9.0214	2.3745	0.0627	2.4372		8,478.4408	8,478.4408	0.2190		8,483.9160
Total	**3.3229**	**11.9468**	**30.5127**	**0.1203**	**9.8688**	**0.0797**	**9.9485**	**2.6381**	**0.0738**	**2.7118**		**12,252.3170**	**12,252.3170**	**0.4172**		**12,262.7460**

3.6 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694		2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0327**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**		**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

3.6 Paving - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0566	0.0361	0.5133	1.5900e-003	0.1677	1.2800e-003	0.1689	0.0445	1.1700e-003	0.0456		158.7723	158.7723	4.1000e-003		158.8748
Total	**0.0566**	**0.0361**	**0.5133**	**1.5900e-003**	**0.1677**	**1.2800e-003**	**0.1689**	**0.0445**	**1.1700e-003**	**0.0456**		**158.7723**	**158.7723**	**4.1000e-003**		**158.8748**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694	0.0000	2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0327**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**	**0.0000**	**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

3.6 Paving - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0566	0.0361	0.5133	1.5900e-003	0.1677	1.2800e-003	0.1689	0.0445	1.1700e-003	0.0456		158.7723	158.7723	4.1000e-003		158.8748
Total	**0.0566**	**0.0361**	**0.5133**	**1.5900e-003**	**0.1677**	**1.2800e-003**	**0.1689**	**0.0445**	**1.1700e-003**	**0.0456**		**158.7723**	**158.7723**	**4.1000e-003**		**158.8748**

3.6 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310		2,207.5472	2,207.5472	0.7140		2,225.3963
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9882**	**9.5246**	**14.6258**	**0.0228**		**0.4685**	**0.4685**		**0.4310**	**0.4310**		**2,207.5472**	**2,207.5472**	**0.7140**		**2,225.3963**

3.6 Paving - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0535	0.0329	0.4785	1.5400e-003	0.1677	1.2600e-003	0.1689	0.0445	1.1600e-003	0.0456		153.8517	153.8517	3.7600e-003		153.9458
Total	**0.0535**	**0.0329**	**0.4785**	**1.5400e-003**	**0.1677**	**1.2600e-003**	**0.1689**	**0.0445**	**1.1600e-003**	**0.0456**		**153.8517**	**153.8517**	**3.7600e-003**		**153.9458**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310	0.0000	2,207.5472	2,207.5472	0.7140		2,225.3963
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9882**	**9.5246**	**14.6258**	**0.0228**		**0.4685**	**0.4685**		**0.4310**	**0.4310**	**0.0000**	**2,207.5472**	**2,207.5472**	**0.7140**		**2,225.3963**

3.6 Paving - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0535	0.0329	0.4785	1.5400e-003	0.1677	1.2600e-003	0.1689	0.0445	1.1600e-003	0.0456		153.8517	153.8517	3.7600e-003		153.9458
Total	**0.0535**	**0.0329**	**0.4785**	**1.5400e-003**	**0.1677**	**1.2600e-003**	**0.1689**	**0.0445**	**1.1600e-003**	**0.0456**		**153.8517**	**153.8517**	**3.7600e-003**		**153.9458**

3.7 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	236.4115					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
Total	**236.5923**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**		**281.4481**	**281.4481**	**0.0159**		**281.8443**

3.7 Architectural Coating - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.5707	0.3513	5.1044	0.0165	1.7884	0.0134	1.8018	0.4743	0.0123	0.4866		1,641.0852	1,641.0852	0.0401		1,642.0886
Total	**0.5707**	**0.3513**	**5.1044**	**0.0165**	**1.7884**	**0.0134**	**1.8018**	**0.4743**	**0.0123**	**0.4866**		**1,641.0852**	**1,641.0852**	**0.0401**		**1,642.0886**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	236.4115					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609	0.0000	281.4481	281.4481	0.0159		281.8443
Total	**236.5923**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**	**0.0000**	**281.4481**	**281.4481**	**0.0159**		**281.8443**

3.7 Architectural Coating - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.5707	0.3513	5.1044	0.0165	1.7884	0.0134	1.8018	0.4743	0.0123	0.4866		1,641.0852	1,641.0852	0.0401		1,642.0886
Total	**0.5707**	**0.3513**	**5.1044**	**0.0165**	**1.7884**	**0.0134**	**1.8018**	**0.4743**	**0.0123**	**0.4866**		**1,641.0852**	**1,641.0852**	**0.0401**		**1,642.0886**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	9.8489	45.4304	114.8495	0.4917	45.9592	0.3360	46.2951	12.2950	0.3119	12.6070		50,306.6034	50,306.6034	2.1807		50,361.1208
Unmitigated	9.8489	45.4304	114.8495	0.4917	45.9592	0.3360	46.2951	12.2950	0.3119	12.6070		50,306.6034	50,306.6034	2.1807		50,361.1208

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	145.75	154.25	154.00	506,227	506,227
Apartments Mid Rise	4,026.75	3,773.25	4075.50	13,660,065	13,660,065
General Office Building	288.45	62.55	31.05	706,812	706,812
High Turnover (Sit Down Restaurant)	2,368.80	2,873.52	2817.72	3,413,937	3,413,937
Hotel	192.00	187.50	160.00	445,703	445,703
Quality Restaurant	501.12	511.92	461.20	707,488	707,488
Regional Shopping Center	528.08	601.44	357.84	1,112,221	1,112,221
Total	8,050.95	8,164.43	8,057.31	20,552,452	20,552,452

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Apartments Mid Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4
High Turnover (Sit Down	16.60	8.40	6.90	8.50	72.50	19.00	37	20	43
Hotel	16.60	8.40	6.90	19.40	61.60	19.00	58	38	4
Quality Restaurant	16.60	8.40	6.90	12.00	69.00	19.00	38	18	44
Regional Shopping Center	16.60	8.40	6.90	16.30	64.70	19.00	54	35	11

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Apartments Mid Rise	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
General Office Building	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
High Turnover (Sit Down Restaurant)	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Hotel	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Quality Restaurant	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Regional Shopping Center	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Village South Specific Plan (Proposed) - Los Angeles-South Coast County, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.7660	6.7462	4.2573	0.0418		0.5292	0.5292		0.5292	0.5292		8,355.9832	8,355.9832	0.1602	0.1532	8,405.6387
NaturalGas Unmitigated	0.7660	6.7462	4.2573	0.0418		0.5292	0.5292		0.5292	0.5292		8,355.9832	8,355.9832	0.1602	0.1532	8,405.6387

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	1119.16	0.0121	0.1031	0.0439	6.6000e-004		8.3400e-003	8.3400e-003		8.3400e-003	8.3400e-003		131.6662	131.6662	2.5200e-003	2.4100e-003	132.4486
Apartments Mid Rise	35784.3	0.3859	3.2978	1.4033	0.0211		0.2666	0.2666		0.2666	0.2666		4,209.9164	4,209.9164	0.0807	0.0772	4,234.9339
General Office Building	1283.42	0.0138	0.1258	0.1057	7.5000e-004		9.5600e-003	9.5600e-003		9.5600e-003	9.5600e-003		150.9911	150.9911	2.8900e-003	2.7700e-003	151.8884
High Turnover (Sit Down Restaurant)	22759.9	0.2455	2.2314	1.8743	0.0134		0.1696	0.1696		0.1696	0.1696		2,677.6342	2,677.6342	0.0513	0.0491	2,693.5460
Hotel	4769.72	0.0514	0.4676	0.3928	2.8100e-003		0.0355	0.0355		0.0355	0.0355		561.1436	561.1436	0.0108	0.0103	564.4782
Quality Restaurant	5057.75	0.0545	0.4959	0.4165	2.9800e-003		0.0377	0.0377		0.0377	0.0377		595.0298	595.0298	0.0114	0.0109	598.5658
Regional Shopping Center	251.616	2.7100e-003	0.0247	0.0207	1.5000e-004		1.8700e-003	1.8700e-003		1.8700e-003	1.8700e-003		29.6019	29.6019	5.7000e-004	5.4000e-004	29.7778
Total		**0.7660**	**6.7463**	**4.2573**	**0.0418**		**0.5292**	**0.5292**		**0.5292**	**0.5292**		**8,355.9832**	**8,355.9832**	**0.1602**	**0.1532**	**8,405.6387**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	1.11916	0.0121	0.1031	0.0439	6.6000e-004		8.3400e-003	8.3400e-003		8.3400e-003	8.3400e-003		131.6662	131.6662	2.5200e-003	2.4100e-003	132.4486
Apartments Mid Rise	35.7843	0.3859	3.2978	1.4033	0.0211		0.2666	0.2666		0.2666	0.2666		4,209.9164	4,209.9164	0.0807	0.0772	4,234.9339
General Office Building	1.28342	0.0138	0.1258	0.1057	7.5000e-004		9.5600e-003	9.5600e-003		9.5600e-003	9.5600e-003		150.9911	150.9911	2.8900e-003	2.7700e-003	151.8884
High Turnover (Sit Down Restaurant)	22.7599	0.2455	2.2314	1.8743	0.0134		0.1696	0.1696		0.1696	0.1696		2,677.6342	2,677.6342	0.0513	0.0491	2,693.5460
Hotel	4.76972	0.0514	0.4676	0.3928	2.8100e-003		0.0355	0.0355		0.0355	0.0355		561.1436	561.1436	0.0108	0.0103	564.4782
Quality Restaurant	5.05775	0.0545	0.4959	0.4165	2.9800e-003		0.0377	0.0377		0.0377	0.0377		595.0298	595.0298	0.0114	0.0109	598.5658
Regional Shopping Center	0.251616	2.7100e-003	0.0247	0.0207	1.5000e-004		1.8700e-003	1.8700e-003		1.8700e-003	1.8700e-003		29.6019	29.6019	5.7000e-004	5.4000e-004	29.7778
Total		**0.7660**	**6.7463**	**4.2573**	**0.0418**		**0.5292**	**0.5292**		**0.5292**	**0.5292**		**8,355.9832**	**8,355.9832**	**0.1602**	**0.1532**	**8,405.6387**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	30.5020	15.0496	88.4430	0.0944		1.5974	1.5974		1.5974	1.5974	0.0000	18,148.5950	18,148.5950	0.4874	0.3300	18,259.1192
Unmitigated	30.5020	15.0496	88.4430	0.0944		1.5974	1.5974		1.5974	1.5974	0.0000	18,148.5950	18,148.5950	0.4874	0.3300	18,259.1192

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.2670					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	24.1085					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	1.6500	14.1000	6.0000	0.0900		1.1400	1.1400		1.1400	1.1400	0.0000	18,000.0000	18,000.0000	0.3450	0.3300	18,106.9650
Landscaping	2.4766	0.9496	82.4430	4.3600e-003		0.4574	0.4574		0.4574	0.4574		148.5950	148.5950	0.1424		152.1542
Total	**30.5020**	**15.0496**	**88.4430**	**0.0944**		**1.5974**	**1.5974**		**1.5974**	**1.5974**	**0.0000**	**18,148.5950**	**18,148.5950**	**0.4874**	**0.3300**	**18,259.1192**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.2670					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	24.1085					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	1.6500	14.1000	6.0000	0.0900		1.1400	1.1400		1.1400	1.1400	0.0000	18,000.0000	18,000.0000	0.3450	0.3300	18,106.9650
Landscaping	2.4766	0.9496	82.4430	4.3600e-003		0.4574	0.4574		0.4574	0.4574		148.5950	148.5950	0.1424		152.1542
Total	**30.5020**	**15.0496**	**88.4430**	**0.0944**		**1.5974**	**1.5974**		**1.5974**	**1.5974**	**0.0000**	**18,148.5950**	**18,148.5950**	**0.4874**	**0.3300**	**18,259.1192**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Village South Specific Plan (Proposed)

Los Angeles-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	45.00	1000sqft	1.03	45,000.00	0
High Turnover (Sit Down Restaurant)	36.00	1000sqft	0.83	36,000.00	0
Hotel	50.00	Room	1.67	72,600.00	0
Quality Restaurant	8.00	1000sqft	0.18	8,000.00	0
Apartments Low Rise	25.00	Dwelling Unit	1.56	25,000.00	72
Apartments Mid Rise	975.00	Dwelling Unit	25.66	975,000.00	2789
Regional Shopping Center	56.00	1000sqft	1.29	56,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	9			**Operational Year**	2028
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Village South Specific Plan (Proposed) - Los Angeles-South Coast County, Winter

Project Characteristics - Consistent with the DEIR's model.

Land Use - See SWAPE comment regarding residential and retail land uses.

Construction Phase - See SWAPE comment regarding individual construction phase lengths.

Demolition - Consistent with the DEIR's model. See SWAPE comment regarding demolition.

Vehicle Trips - Saturday trips consistent with the DEIR's model. See SWAPE comment regarding weekday and Sunday trips.

Woodstoves - Woodstoves and wood-burning fireplaces consistent with the DEIR's model. See SWAPE comment regarding gas fireplaces.

Energy Use -

Construction Off-road Equipment Mitigation - See SWAPE comment on construction-related mitigation.

Area Mitigation - See SWAPE comment regarding operational mitigation measures.

Water Mitigation - See SWAPE comment regarding operational mitigation measures.

Table Name	Column Name	Default Value	New Value
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberWood	1.25	0.00
tblFireplaces	NumberWood	48.75	0.00
tblVehicleTrips	ST_TR	7.16	6.17
tblVehicleTrips	ST_TR	6.39	3.87
tblVehicleTrips	ST_TR	2.46	1.39
tblVehicleTrips	ST_TR	158.37	79.82
tblVehicleTrips	ST_TR	8.19	3.75
tblVehicleTrips	ST_TR	94.36	63.99
tblVehicleTrips	ST_TR	49.97	10.74
tblVehicleTrips	SU_TR	6.07	6.16
tblVehicleTrips	SU_TR	5.86	4.18
tblVehicleTrips	SU_TR	1.05	0.69
tblVehicleTrips	SU_TR	131.84	78.27

tblVehicleTrips	SU_TR	5.95	3.20
tblVehicleTrips	SU_TR	72.16	57.65
tblVehicleTrips	SU_TR	25.24	6.39
tblVehicleTrips	WD_TR	6.59	5.83
tblVehicleTrips	WD_TR	6.65	4.13
tblVehicleTrips	WD_TR	11.03	6.41
tblVehicleTrips	WD_TR	127.15	65.80
tblVehicleTrips	WD_TR	8.17	3.84
tblVehicleTrips	WD_TR	89.95	62.64
tblVehicleTrips	WD_TR	42.70	9.43
tblWoodstoves	NumberCatalytic	1.25	0.00
tblWoodstoves	NumberCatalytic	48.75	0.00
tblWoodstoves	NumberNoncatalytic	1.25	0.00
tblWoodstoves	NumberNoncatalytic	48.75	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	4.2865	46.4651	31.6150	0.0642	18.2675	2.0461	20.3135	9.9840	1.8824	11.8664	0.0000	6,221.4937	6,221.4937	1.9491	0.0000	6,270.2214
2022	5.7218	38.9024	47.3319	0.1455	9.8688	1.6366	10.7736	3.6558	1.5057	5.1615	0.0000	14,630.3099	14,630.3099	1.9499	0.0000	14,657.2663
2023	5.2705	26.4914	44.5936	0.1413	9.8688	0.7800	10.6488	2.6381	0.7328	3.3708	0.0000	14,210.3424	14,210.3424	1.0230	0.0000	14,235.9160
2024	237.2328	9.5610	15.0611	0.0243	1.7884	0.4698	1.8628	0.4743	0.4322	0.5476	0.0000	2,352.4178	2,352.4178	0.7175	0.0000	2,370.3550
Maximum	**237.2328**	**46.4651**	**47.3319**	**0.1455**	**18.2675**	**2.0461**	**20.3135**	**9.9840**	**1.8824**	**11.8664**	**0.0000**	**14,630.3099**	**14,630.3099**	**1.9499**	**0.0000**	**14,657.2663**

2.1 Overall Construction (Maximum Daily Emission)

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	4.2865	46.4651	31.6150	0.0642	18.2675	2.0461	20.3135	9.9840	1.8824	11.8664	0.0000	6,221.4937	6,221.4937	1.9491	0.0000	6,270.2214
2022	5.7218	38.9024	47.3319	0.1455	9.8688	1.6366	10.7736	3.6558	1.5057	5.1615	0.0000	14,630.3099	14,630.3099	1.9499	0.0000	14,657.2663
2023	5.2705	26.4914	44.5936	0.1413	9.8688	0.7800	10.6488	2.6381	0.7328	3.3708	0.0000	14,210.3424	14,210.3424	1.0230	0.0000	14,235.9160
2024	237.2328	9.5610	15.0611	0.0243	1.7884	0.4698	1.8628	0.4743	0.4322	0.5476	0.0000	2,352.4178	2,352.4178	0.7175	0.0000	2,370.3550
Maximum	**237.2328**	**46.4651**	**47.3319**	**0.1455**	**18.2675**	**2.0461**	**20.3135**	**9.9840**	**1.8824**	**11.8664**	**0.0000**	**14,630.3099**	**14,630.3099**	**1.9499**	**0.0000**	**14,657.2663**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	30.5020	15.0496	88.4430	0.0944		1.5974	1.5974		1.5974	1.5974	0.0000	18,148.5950	18,148.5950	0.4874	0.3300	18,259.1192
Energy	0.7660	6.7462	4.2573	0.0418		0.5292	0.5292		0.5292	0.5292		8,355.9832	8,355.9832	0.1602	0.1532	8,405.6387
Mobile	9.5233	45.9914	110.0422	0.4681	45.9592	0.3373	46.2965	12.2950	0.3132	12.6083		47,917.8005	47,917.8005	2.1953		47,972.6839
Total	**40.7912**	**67.7872**	**202.7424**	**0.6043**	**45.9592**	**2.4640**	**48.4231**	**12.2950**	**2.4399**	**14.7349**	**0.0000**	**74,422.3787**	**74,422.3787**	**2.8429**	**0.4832**	**74,637.4417**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	30.5020	15.0496	88.4430	0.0944		1.5974	1.5974		1.5974	1.5974	0.0000	18,148.5950	18,148.5950	0.4874	0.3300	18,259.1192
Energy	0.7660	6.7462	4.2573	0.0418		0.5292	0.5292		0.5292	0.5292		8,355.9832	8,355.9832	0.1602	0.1532	8,405.6387
Mobile	9.5233	45.9914	110.0422	0.4681	45.9592	0.3373	46.2965	12.2950	0.3132	12.6083		47,917.8005	47,917.8005	2.1953		47,972.6839
Total	**40.7912**	**67.7872**	**202.7424**	**0.6043**	**45.9592**	**2.4640**	**48.4231**	**12.2950**	**2.4399**	**14.7349**	**0.0000**	**74,422.3787**	**74,422.3787**	**2.8429**	**0.4832**	**74,637.4417**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	9/1/2021	10/12/2021	5	30	
2	Site Preparation	Site Preparation	10/13/2021	11/9/2021	5	20	
3	Grading	Grading	11/10/2021	1/11/2022	5	45	
4	Building Construction	Building Construction	1/12/2022	12/12/2023	5	500	
5	Paving	Paving	12/13/2023	1/30/2024	5	35	
6	Architectural Coating	Architectural Coating	1/31/2024	3/19/2024	5	35	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 112.5

Acres of Paving: 0

Residential Indoor: 2,025,000; Residential Outdoor: 675,000; Non-Residential Indoor: 326,400; Non-Residential Outdoor: 108,800; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Village South Specific Plan (Proposed) - Los Angeles-South Coast County, Winter

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	458.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	801.00	143.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	160.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.3074	0.0000	3.3074	0.5008	0.0000	0.5008			0.0000			0.0000
Off-Road	3.1651	31.4407	21.5650	0.0388		1.5513	1.5513		1.4411	1.4411		3,747.9449	3,747.9449	1.0549		3,774.3174
Total	**3.1651**	**31.4407**	**21.5650**	**0.0388**	**3.3074**	**1.5513**	**4.8588**	**0.5008**	**1.4411**	**1.9419**		**3,747.9449**	**3,747.9449**	**1.0549**		**3,774.3174**

3.2 Demolition - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1304	4.1454	1.0182	0.0117	0.2669	0.0128	0.2797	0.0732	0.0122	0.0854		1,269.8555	1,269.8555	0.0908		1,272.1252
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0715	0.0489	0.5524	1.6100e-003	0.1677	1.3500e-003	0.1690	0.0445	1.2500e-003	0.0457		160.8377	160.8377	4.7300e-003		160.9560
Total	**0.2019**	**4.1943**	**1.5706**	**0.0133**	**0.4346**	**0.0141**	**0.4487**	**0.1176**	**0.0135**	**0.1311**		**1,430.6932**	**1,430.6932**	**0.0955**		**1,433.0812**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.3074	0.0000	3.3074	0.5008	0.0000	0.5008			0.0000			0.0000
Off-Road	3.1651	31.4407	21.5650	0.0388		1.5513	1.5513		1.4411	1.4411	0.0000	3,747.9449	3,747.9449	1.0549		3,774.3174
Total	**3.1651**	**31.4407**	**21.5650**	**0.0388**	**3.3074**	**1.5513**	**4.8588**	**0.5008**	**1.4411**	**1.9419**	**0.0000**	**3,747.9449**	**3,747.9449**	**1.0549**		**3,774.3174**

3.2 Demolition - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1304	4.1454	1.0182	0.0117	0.2669	0.0128	0.2797	0.0732	0.0122	0.0854		1,269.8555	1,269.8555	0.0908		1,272.1252
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0715	0.0489	0.5524	1.6100e-003	0.1677	1.3500e-003	0.1690	0.0445	1.2500e-003	0.0457		160.8377	160.8377	4.7300e-003		160.9560
Total	**0.2019**	**4.1943**	**1.5706**	**0.0133**	**0.4346**	**0.0141**	**0.4487**	**0.1176**	**0.0135**	**0.1311**		**1,430.6932**	**1,430.6932**	**0.0955**		**1,433.0812**

3.3 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809		3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**3.8882**	**40.4971**	**21.1543**	**0.0380**	**18.0663**	**2.0445**	**20.1107**	**9.9307**	**1.8809**	**11.8116**		**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

3.3 Site Preparation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0858	0.0587	0.6629	1.9400e-003	0.2012	1.6300e-003	0.2028	0.0534	1.5000e-003	0.0549		193.0052	193.0052	5.6800e-003		193.1472
Total	**0.0858**	**0.0587**	**0.6629**	**1.9400e-003**	**0.2012**	**1.6300e-003**	**0.2028**	**0.0534**	**1.5000e-003**	**0.0549**		**193.0052**	**193.0052**	**5.6800e-003**		**193.1472**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809	0.0000	3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**3.8882**	**40.4971**	**21.1543**	**0.0380**	**18.0663**	**2.0445**	**20.1107**	**9.9307**	**1.8809**	**11.8116**	**0.0000**	**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

3.3 Site Preparation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0858	0.0587	0.6629	1.9400e-003	0.2012	1.6300e-003	0.2028	0.0534	1.5000e-003	0.0549		193.0052	193.0052	5.6800e-003		193.1472
Total	**0.0858**	**0.0587**	**0.6629**	**1.9400e-003**	**0.2012**	**1.6300e-003**	**0.2028**	**0.0534**	**1.5000e-003**	**0.0549**		**193.0052**	**193.0052**	**5.6800e-003**		**193.1472**

3.4 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	4.1912	46.3998	30.8785	0.0620		1.9853	1.9853		1.8265	1.8265		6,007.0434	6,007.0434	1.9428		6,055.6134
Total	**4.1912**	**46.3998**	**30.8785**	**0.0620**	**8.6733**	**1.9853**	**10.6587**	**3.5965**	**1.8265**	**5.4230**		**6,007.0434**	**6,007.0434**	**1.9428**		**6,055.6134**

3.4 Grading - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0954	0.0652	0.7365	2.1500e-003	0.2236	1.8100e-003	0.2254	0.0593	1.6600e-003	0.0610		214.4502	214.4502	6.3100e-003		214.6080
Total	**0.0954**	**0.0652**	**0.7365**	**2.1500e-003**	**0.2236**	**1.8100e-003**	**0.2254**	**0.0593**	**1.6600e-003**	**0.0610**		**214.4502**	**214.4502**	**6.3100e-003**		**214.6080**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	4.1912	46.3998	30.8785	0.0620		1.9853	1.9853		1.8265	1.8265	0.0000	6,007.0434	6,007.0434	1.9428		6,055.6134
Total	**4.1912**	**46.3998**	**30.8785**	**0.0620**	**8.6733**	**1.9853**	**10.6587**	**3.5965**	**1.8265**	**5.4230**	**0.0000**	**6,007.0434**	**6,007.0434**	**1.9428**		**6,055.6134**

3.4 Grading - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0954	0.0652	0.7365	2.1500e-003	0.2236	1.8100e-003	0.2254	0.0593	1.6600e-003	0.0610		214.4502	214.4502	6.3100e-003		214.6080
Total	**0.0954**	**0.0652**	**0.7365**	**2.1500e-003**	**0.2236**	**1.8100e-003**	**0.2254**	**0.0593**	**1.6600e-003**	**0.0610**		**214.4502**	**214.4502**	**6.3100e-003**		**214.6080**

3.4 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	3.6248	38.8435	29.0415	0.0621		1.6349	1.6349		1.5041	1.5041		6,011.4105	6,011.4105	1.9442		6,060.0158
Total	**3.6248**	**38.8435**	**29.0415**	**0.0621**	**8.6733**	**1.6349**	**10.3082**	**3.5965**	**1.5041**	**5.1006**		**6,011.4105**	**6,011.4105**	**1.9442**		**6,060.0158**

3.4 Grading - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0896	0.0589	0.6784	2.0800e-003	0.2236	1.7500e-003	0.2253	0.0593	1.6100e-003	0.0609		206.9139	206.9139	5.7000e-003		207.0563
Total	**0.0896**	**0.0589**	**0.6784**	**2.0800e-003**	**0.2236**	**1.7500e-003**	**0.2253**	**0.0593**	**1.6100e-003**	**0.0609**		**206.9139**	**206.9139**	**5.7000e-003**		**207.0563**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	3.6248	38.8435	29.0415	0.0621		1.6349	1.6349		1.5041	1.5041	0.0000	6,011.4105	6,011.4105	1.9442		6,060.0158
Total	**3.6248**	**38.8435**	**29.0415**	**0.0621**	**8.6733**	**1.6349**	**10.3082**	**3.5965**	**1.5041**	**5.1006**	**0.0000**	**6,011.4105**	**6,011.4105**	**1.9442**		**6,060.0158**

3.4 Grading - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0896	0.0589	0.6784	2.0800e-003	0.2236	1.7500e-003	0.2253	0.0593	1.6100e-003	0.0609		206.9139	206.9139	5.7000e-003		207.0563
Total	**0.0896**	**0.0589**	**0.6784**	**2.0800e-003**	**0.2236**	**1.7500e-003**	**0.2253**	**0.0593**	**1.6100e-003**	**0.0609**		**206.9139**	**206.9139**	**5.7000e-003**		**207.0563**

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**		**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

3.5 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4284	13.1673	3.8005	0.0354	0.9155	0.0256	0.9412	0.2636	0.0245	0.2881		3,789.0750	3,789.0750	0.2381		3,795.0283
Worker	3.5872	2.3593	27.1680	0.0832	8.9533	0.0701	9.0234	2.3745	0.0646	2.4390		8,286.9013	8,286.9013	0.2282		8,292.6058
Total	**4.0156**	**15.5266**	**30.9685**	**0.1186**	**9.8688**	**0.0957**	**9.9645**	**2.6381**	**0.0891**	**2.7271**		**12,075.9763**	**12,075.9763**	**0.4663**		**12,087.6341**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**	**0.0000**	**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

3.5 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4284	13.1673	3.8005	0.0354	0.9155	0.0256	0.9412	0.2636	0.0245	0.2881		3,789.0750	3,789.0750	0.2381		3,795.0283
Worker	3.5872	2.3593	27.1680	0.0832	8.9533	0.0701	9.0234	2.3745	0.0646	2.4390		8,286.9013	8,286.9013	0.2282		8,292.6058
Total	**4.0156**	**15.5266**	**30.9685**	**0.1186**	**9.8688**	**0.0957**	**9.9645**	**2.6381**	**0.0891**	**2.7271**		**12,075.9763**	**12,075.9763**	**0.4663**		**12,087.6341**

3.5 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**		**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

3.5 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3183	9.9726	3.3771	0.0343	0.9156	0.0122	0.9277	0.2636	0.0116	0.2752		3,671.4007	3,671.4007	0.2096		3,676.6417
Worker	3.3795	2.1338	24.9725	0.0801	8.9533	0.0681	9.0214	2.3745	0.0627	2.4372		7,983.7318	7,983.7318	0.2055		7,988.8683
Total	**3.6978**	**12.1065**	**28.3496**	**0.1144**	**9.8688**	**0.0803**	**9.9491**	**2.6381**	**0.0743**	**2.7124**		**11,655.1325**	**11,655.1325**	**0.4151**		**11,665.5099**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**	**0.0000**	**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

3.5 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3183	9.9726	3.3771	0.0343	0.9156	0.0122	0.9277	0.2636	0.0116	0.2752		3,671.4007	3,671.4007	0.2096		3,676.6417
Worker	3.3795	2.1338	24.9725	0.0801	8.9533	0.0681	9.0214	2.3745	0.0627	2.4372		7,983.7318	7,983.7318	0.2055		7,988.8683
Total	**3.6978**	**12.1065**	**28.3496**	**0.1144**	**9.8688**	**0.0803**	**9.9491**	**2.6381**	**0.0743**	**2.7124**		**11,655.1325**	**11,655.1325**	**0.4151**		**11,665.5099**

3.6 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694		2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0327**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**		**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

3.6 Paving - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0633	0.0400	0.4677	1.5000e-003	0.1677	1.2800e-003	0.1689	0.0445	1.1700e-003	0.0456		149.5081	149.5081	3.8500e-003		149.6043
Total	**0.0633**	**0.0400**	**0.4677**	**1.5000e-003**	**0.1677**	**1.2800e-003**	**0.1689**	**0.0445**	**1.1700e-003**	**0.0456**		**149.5081**	**149.5081**	**3.8500e-003**		**149.6043**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694	0.0000	2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0327**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**	**0.0000**	**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

3.6 Paving - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0633	0.0400	0.4677	1.5000e-003	0.1677	1.2800e-003	0.1689	0.0445	1.1700e-003	0.0456		149.5081	149.5081	3.8500e-003		149.6043
Total	**0.0633**	**0.0400**	**0.4677**	**1.5000e-003**	**0.1677**	**1.2800e-003**	**0.1689**	**0.0445**	**1.1700e-003**	**0.0456**		**149.5081**	**149.5081**	**3.8500e-003**		**149.6043**

3.6 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310		2,207.5472	2,207.5472	0.7140		2,225.3963
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9882**	**9.5246**	**14.6258**	**0.0228**		**0.4685**	**0.4685**		**0.4310**	**0.4310**		**2,207.5472**	**2,207.5472**	**0.7140**		**2,225.3963**

3.6 Paving - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0601	0.0364	0.4354	1.4500e-003	0.1677	1.2600e-003	0.1689	0.0445	1.1600e-003	0.0456		144.8706	144.8706	3.5300e-003		144.9587
Total	**0.0601**	**0.0364**	**0.4354**	**1.4500e-003**	**0.1677**	**1.2600e-003**	**0.1689**	**0.0445**	**1.1600e-003**	**0.0456**		**144.8706**	**144.8706**	**3.5300e-003**		**144.9587**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310	0.0000	2,207.5472	2,207.5472	0.7140		2,225.3963
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9882**	**9.5246**	**14.6258**	**0.0228**		**0.4685**	**0.4685**		**0.4310**	**0.4310**	**0.0000**	**2,207.5472**	**2,207.5472**	**0.7140**		**2,225.3963**

3.6 Paving - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0601	0.0364	0.4354	1.4500e-003	0.1677	1.2600e-003	0.1689	0.0445	1.1600e-003	0.0456		144.8706	144.8706	3.5300e-003		144.9587
Total	**0.0601**	**0.0364**	**0.4354**	**1.4500e-003**	**0.1677**	**1.2600e-003**	**0.1689**	**0.0445**	**1.1600e-003**	**0.0456**		**144.8706**	**144.8706**	**3.5300e-003**		**144.9587**

3.7 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	236.4115					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
Total	**236.5923**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**		**281.4481**	**281.4481**	**0.0159**		**281.8443**

3.7 Architectural Coating - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.6406	0.3886	4.6439	0.0155	1.7884	0.0134	1.8018	0.4743	0.0123	0.4866		1,545.2860	1,545.2860	0.0376		1,546.2262
Total	**0.6406**	**0.3886**	**4.6439**	**0.0155**	**1.7884**	**0.0134**	**1.8018**	**0.4743**	**0.0123**	**0.4866**		**1,545.2860**	**1,545.2860**	**0.0376**		**1,546.2262**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	236.4115					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609	0.0000	281.4481	281.4481	0.0159		281.8443
Total	**236.5923**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**	**0.0000**	**281.4481**	**281.4481**	**0.0159**		**281.8443**

3.7 Architectural Coating - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.6406	0.3886	4.6439	0.0155	1.7884	0.0134	1.8018	0.4743	0.0123	0.4866		1,545.2860	1,545.2860	0.0376		1,546.2262
Total	**0.6406**	**0.3886**	**4.6439**	**0.0155**	**1.7884**	**0.0134**	**1.8018**	**0.4743**	**0.0123**	**0.4866**		**1,545.2860**	**1,545.2860**	**0.0376**		**1,546.2262**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	9.5233	45.9914	110.0422	0.4681	45.9592	0.3373	46.2965	12.2950	0.3132	12.6083		47,917.8005	47,917.8005	2.1953		47,972.6839
Unmitigated	9.5233	45.9914	110.0422	0.4681	45.9592	0.3373	46.2965	12.2950	0.3132	12.6083		47,917.8005	47,917.8005	2.1953		47,972.6839

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	145.75	154.25	154.00	506,227	506,227
Apartments Mid Rise	4,026.75	3,773.25	4075.50	13,660,065	13,660,065
General Office Building	288.45	62.55	31.05	706,812	706,812
High Turnover (Sit Down Restaurant)	2,368.80	2,873.52	2817.72	3,413,937	3,413,937
Hotel	192.00	187.50	160.00	445,703	445,703
Quality Restaurant	501.12	511.92	461.20	707,488	707,488
Regional Shopping Center	528.08	601.44	357.84	1,112,221	1,112,221
Total	8,050.95	8,164.43	8,057.31	20,552,452	20,552,452

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Apartments Mid Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4
High Turnover (Sit Down	16.60	8.40	6.90	8.50	72.50	19.00	37	20	43
Hotel	16.60	8.40	6.90	19.40	61.60	19.00	58	38	4
Quality Restaurant	16.60	8.40	6.90	12.00	69.00	19.00	38	18	44
Regional Shopping Center	16.60	8.40	6.90	16.30	64.70	19.00	54	35	11

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Apartments Mid Rise	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
General Office Building	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
High Turnover (Sit Down Restaurant)	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Hotel	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Quality Restaurant	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Regional Shopping Center	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Village South Specific Plan (Proposed) - Los Angeles-South Coast County, Winter

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.7660	6.7462	4.2573	0.0418		0.5292	0.5292		0.5292	0.5292		8,355.9832	8,355.9832	0.1602	0.1532	8,405.6387
NaturalGas Unmitigated	0.7660	6.7462	4.2573	0.0418		0.5292	0.5292		0.5292	0.5292		8,355.9832	8,355.9832	0.1602	0.1532	8,405.6387

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	1119.16	0.0121	0.1031	0.0439	6.6000e-004		8.3400e-003	8.3400e-003		8.3400e-003	8.3400e-003		131.6662	131.6662	2.5200e-003	2.4100e-003	132.4486
Apartments Mid Rise	35784.3	0.3859	3.2978	1.4033	0.0211		0.2666	0.2666		0.2666	0.2666		4,209.9164	4,209.9164	0.0807	0.0772	4,234.9339
General Office Building	1283.42	0.0138	0.1258	0.1057	7.5000e-004		9.5600e-003	9.5600e-003		9.5600e-003	9.5600e-003		150.9911	150.9911	2.8900e-003	2.7700e-003	151.8884
High Turnover (Sit Down Restaurant)	22759.9	0.2455	2.2314	1.8743	0.0134		0.1696	0.1696		0.1696	0.1696		2,677.6342	2,677.6342	0.0513	0.0491	2,693.5460
Hotel	4769.72	0.0514	0.4676	0.3928	2.8100e-003		0.0355	0.0355		0.0355	0.0355		561.1436	561.1436	0.0108	0.0103	564.4782
Quality Restaurant	5057.75	0.0545	0.4959	0.4165	2.9800e-003		0.0377	0.0377		0.0377	0.0377		595.0298	595.0298	0.0114	0.0109	598.5658
Regional Shopping Center	251.616	2.7100e-003	0.0247	0.0207	1.5000e-004		1.8700e-003	1.8700e-003		1.8700e-003	1.8700e-003		29.6019	29.6019	5.7000e-004	5.4000e-004	29.7778
Total		**0.7660**	**6.7463**	**4.2573**	**0.0418**		**0.5292**	**0.5292**		**0.5292**	**0.5292**		**8,355.9832**	**8,355.9832**	**0.1602**	**0.1532**	**8,405.6387**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	1.11916	0.0121	0.1031	0.0439	6.6000e-004		8.3400e-003	8.3400e-003		8.3400e-003	8.3400e-003		131.6662	131.6662	2.5200e-003	2.4100e-003	132.4486
Apartments Mid Rise	35.7843	0.3859	3.2978	1.4033	0.0211		0.2666	0.2666		0.2666	0.2666		4,209.9164	4,209.9164	0.0807	0.0772	4,234.9339
General Office Building	1.28342	0.0138	0.1258	0.1057	7.5000e-004		9.5600e-003	9.5600e-003		9.5600e-003	9.5600e-003		150.9911	150.9911	2.8900e-003	2.7700e-003	151.8884
High Turnover (Sit Down Restaurant)	22.7599	0.2455	2.2314	1.8743	0.0134		0.1696	0.1696		0.1696	0.1696		2,677.6342	2,677.6342	0.0513	0.0491	2,693.5460
Hotel	4.76972	0.0514	0.4676	0.3928	2.8100e-003		0.0355	0.0355		0.0355	0.0355		561.1436	561.1436	0.0108	0.0103	564.4782
Quality Restaurant	5.05775	0.0545	0.4959	0.4165	2.9800e-003		0.0377	0.0377		0.0377	0.0377		595.0298	595.0298	0.0114	0.0109	598.5658
Regional Shopping Center	0.251616	2.7100e-003	0.0247	0.0207	1.5000e-004		1.8700e-003	1.8700e-003		1.8700e-003	1.8700e-003		29.6019	29.6019	5.7000e-004	5.4000e-004	29.7778
Total		**0.7660**	**6.7463**	**4.2573**	**0.0418**		**0.5292**	**0.5292**		**0.5292**	**0.5292**		**8,355.9832**	**8,355.9832**	**0.1602**	**0.1532**	**8,405.6387**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	30.5020	15.0496	88.4430	0.0944		1.5974	1.5974		1.5974	1.5974	0.0000	18,148.5950	18,148.5950	0.4874	0.3300	18,259.1192
Unmitigated	30.5020	15.0496	88.4430	0.0944		1.5974	1.5974		1.5974	1.5974	0.0000	18,148.5950	18,148.5950	0.4874	0.3300	18,259.1192

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.2670					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	24.1085					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	1.6500	14.1000	6.0000	0.0900		1.1400	1.1400		1.1400	1.1400	0.0000	18,000.0000	18,000.0000	0.3450	0.3300	18,106.9650
Landscaping	2.4766	0.9496	82.4430	4.3600e-003		0.4574	0.4574		0.4574	0.4574		148.5950	148.5950	0.1424		152.1542
Total	**30.5020**	**15.0496**	**88.4430**	**0.0944**		**1.5974**	**1.5974**		**1.5974**	**1.5974**	**0.0000**	**18,148.5950**	**18,148.5950**	**0.4874**	**0.3300**	**18,259.1192**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.2670					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	24.1085					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	1.6500	14.1000	6.0000	0.0900		1.1400	1.1400		1.1400	1.1400	0.0000	18,000.0000	18,000.0000	0.3450	0.3300	18,106.9650
Landscaping	2.4766	0.9496	82.4430	4.3600e-003		0.4574	0.4574		0.4574	0.4574		148.5950	148.5950	0.1424		152.1542
Total	**30.5020**	**15.0496**	**88.4430**	**0.0944**		**1.5974**	**1.5974**		**1.5974**	**1.5974**	**0.0000**	**18,148.5950**	**18,148.5950**	**0.4874**	**0.3300**	**18,259.1192**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Village South Specific Plan (Proposed)

Los Angeles-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	45.00	1000sqft	1.03	45,000.00	0
High Turnover (Sit Down Restaurant)	36.00	1000sqft	0.83	36,000.00	0
Hotel	50.00	Room	1.67	72,600.00	0
Quality Restaurant	8.00	1000sqft	0.18	8,000.00	0
Apartments Low Rise	25.00	Dwelling Unit	1.56	25,000.00	72
Apartments Mid Rise	975.00	Dwelling Unit	25.66	975,000.00	2789
Regional Shopping Center	56.00	1000sqft	1.29	56,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	9			**Operational Year**	2028
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Village South Specific Plan (Proposed) - Los Angeles-South Coast County, Annual

Project Characteristics - Consistent with the DEIR's model.

Land Use - See SWAPE comment regarding residential and retail land uses.

Construction Phase - See SWAPE comment regarding individual construction phase lengths.

Demolition - Consistent with the DEIR's model. See SWAPE comment regarding demolition.

Vehicle Trips - Saturday trips consistent with the DEIR's model. See SWAPE comment regarding weekday and Sunday trips.

Woodstoves - Woodstoves and wood-burning fireplaces consistent with the DEIR's model. See SWAPE comment regarding gas fireplaces.

Energy Use -

Construction Off-road Equipment Mitigation - See SWAPE comment on construction-related mitigation.

Area Mitigation - See SWAPE comment regarding operational mitigation measures.

Water Mitigation - See SWAPE comment regarding operational mitigation measures.

Trips and VMT - Local hire provision

Table Name	Column Name	Default Value	New Value
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberWood	1.25	0.00
tblFireplaces	NumberWood	48.75	0.00
tblTripsAndVMT	WorkerTripLength	14.70	10.00
tblTripsAndVMT	WorkerTripLength	14.70	10.00
tblTripsAndVMT	WorkerTripLength	14.70	10.00
tblTripsAndVMT	WorkerTripLength	14.70	10.00
tblTripsAndVMT	WorkerTripLength	14.70	10.00
tblTripsAndVMT	WorkerTripLength	14.70	10.00
tblVehicleTrips	ST_TR	7.16	6.17
tblVehicleTrips	ST_TR	6.39	3.87
tblVehicleTrips	ST_TR	2.46	1.39
tblVehicleTrips	ST_TR	158.37	79.82

tblVehicleTrips	ST_TR	8.19	3.75
tblVehicleTrips	ST_TR	94.36	63.99
tblVehicleTrips	ST_TR	49.97	10.74
tblVehicleTrips	SU_TR	6.07	6.16
tblVehicleTrips	SU_TR	5.86	4.18
tblVehicleTrips	SU_TR	1.05	0.69
tblVehicleTrips	SU_TR	131.84	78.27
tblVehicleTrips	SU_TR	5.95	3.20
tblVehicleTrips	SU_TR	72.16	57.65
tblVehicleTrips	SU_TR	25.24	6.39
tblVehicleTrips	WD_TR	6.59	5.83
tblVehicleTrips	WD_TR	6.65	4.13
tblVehicleTrips	WD_TR	11.03	6.41
tblVehicleTrips	WD_TR	127.15	65.80
tblVehicleTrips	WD_TR	8.17	3.84
tblVehicleTrips	WD_TR	89.95	62.64
tblVehicleTrips	WD_TR	42.70	9.43
tblWoodstoves	NumberCatalytic	1.25	0.00
tblWoodstoves	NumberCatalytic	48.75	0.00
tblWoodstoves	NumberNoncatalytic	1.25	0.00
tblWoodstoves	NumberNoncatalytic	48.75	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.1704	1.8234	1.1577	2.3800e-003	0.4141	0.0817	0.4958	0.1788	0.0754	0.2542	0.0000	210.7654	210.7654	0.0600	0.0000	212.2661
2022	0.5865	4.0240	5.1546	0.0155	0.9509	0.1175	1.0683	0.2518	0.1103	0.3621	0.0000	1,418.6554	1,418.6554	0.1215	0.0000	1,421.6925
2023	0.5190	3.2850	4.7678	0.0147	0.8497	0.0971	0.9468	0.2283	0.0912	0.3195	0.0000	1,342.4412	1,342.4412	0.1115	0.0000	1,345.2291
2024	4.1592	0.1313	0.2557	5.0000e-004	0.0221	6.3900e-003	0.0285	5.8700e-003	5.9700e-003	0.0118	0.0000	44.6355	44.6355	7.8300e-003	0.0000	44.8311
Maximum	**4.1592**	**4.0240**	**5.1546**	**0.0155**	**0.9509**	**0.1175**	**1.0683**	**0.2518**	**0.1103**	**0.3621**	**0.0000**	**1,418.6554**	**1,418.6554**	**0.1215**	**0.0000**	**1,421.6925**

2.1 Overall Construction

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.1704	1.8234	1.1577	2.3800e-003	0.4141	0.0817	0.4958	0.1788	0.0754	0.2542	0.0000	210.7651	210.7651	0.0600	0.0000	212.2658
2022	0.5865	4.0240	5.1546	0.0155	0.9509	0.1175	1.0683	0.2518	0.1103	0.3621	0.0000	1,418.6550	1,418.6550	0.1215	0.0000	1,421.6921
2023	0.5190	3.2850	4.7678	0.0147	0.8497	0.0971	0.9468	0.2283	0.0912	0.3195	0.0000	1,342.4409	1,342.4409	0.1115	0.0000	1,345.2287
2024	4.1592	0.1313	0.2557	5.0000e-004	0.0221	6.3900e-003	0.0285	5.8700e-003	5.9700e-003	0.0118	0.0000	44.6354	44.6354	7.8300e-003	0.0000	44.8311
Maximum	**4.1592**	**4.0240**	**5.1546**	**0.0155**	**0.9509**	**0.1175**	**1.0683**	**0.2518**	**0.1103**	**0.3621**	**0.0000**	**1,418.6550**	**1,418.6550**	**0.1215**	**0.0000**	**1,421.6921**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**9-1-2021**	**11-30-2021**	1.4091	1.4091
2	**12-1-2021**	**2-28-2022**	1.3329	1.3329
3	**3-1-2022**	**5-31-2022**	1.1499	1.1499
4	**6-1-2022**	**8-31-2022**	1.1457	1.1457
5	**9-1-2022**	**11-30-2022**	1.1415	1.1415
6	**12-1-2022**	**2-28-2023**	1.0278	1.0278
7	**3-1-2023**	**5-31-2023**	0.9868	0.9868
8	**6-1-2023**	**8-31-2023**	0.9831	0.9831

9	**9-1-2023**	**11-30-2023**	0.9798	0.9798
10	**12-1-2023**	**2-29-2024**	2.8757	2.8757
11	**3-1-2024**	**5-31-2024**	1.6188	1.6188
		Highest	2.8757	2.8757

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	5.1437	0.2950	10.3804	1.6700e-003		0.0714	0.0714		0.0714	0.0714	0.0000	220.9670	220.9670	0.0201	3.7400e-003	222.5835
Energy	0.1398	1.2312	0.7770	7.6200e-003		0.0966	0.0966		0.0966	0.0966	0.0000	3,896.0732	3,896.0732	0.1303	0.0468	3,913.2833
Mobile	1.5857	7.9962	19.1834	0.0821	7.7979	0.0580	7.8559	2.0895	0.0539	2.1434	0.0000	7,620.4986	7,620.4986	0.3407	0.0000	7,629.0162
Waste						0.0000	0.0000		0.0000	0.0000	207.8079	0.0000	207.8079	12.2811	0.0000	514.8354
Water						0.0000	0.0000		0.0000	0.0000	29.1632	556.6420	585.8052	3.0183	0.0755	683.7567
Total	**6.8692**	**9.5223**	**30.3407**	**0.0914**	**7.7979**	**0.2260**	**8.0240**	**2.0895**	**0.2219**	**2.3114**	**236.9712**	**12,294.1807**	**12,531.1519**	**15.7904**	**0.1260**	**12,963.4751**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	5.1437	0.2950	10.3804	1.6700e-003		0.0714	0.0714		0.0714	0.0714	0.0000	220.9670	220.9670	0.0201	3.7400e-003	222.5835
Energy	0.1398	1.2312	0.7770	7.6200e-003		0.0966	0.0966		0.0966	0.0966	0.0000	3,896.0732	3,896.0732	0.1303	0.0468	3,913.2833
Mobile	1.5857	7.9962	19.1834	0.0821	7.7979	0.0580	7.8559	2.0895	0.0539	2.1434	0.0000	7,620.4986	7,620.4986	0.3407	0.0000	7,629.0162
Waste						0.0000	0.0000		0.0000	0.0000	207.8079	0.0000	207.8079	12.2811	0.0000	514.8354
Water						0.0000	0.0000		0.0000	0.0000	29.1632	556.6420	585.8052	3.0183	0.0755	683.7567
Total	**6.8692**	**9.5223**	**30.3407**	**0.0914**	**7.7979**	**0.2260**	**8.0240**	**2.0895**	**0.2219**	**2.3114**	**236.9712**	**12,294.1807**	**12,531.1519**	**15.7904**	**0.1260**	**12,963.4751**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Village South Specific Plan (Proposed) - Los Angeles-South Coast County, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	9/1/2021	10/12/2021	5	30	
2	Site Preparation	Site Preparation	10/13/2021	11/9/2021	5	20	
3	Grading	Grading	11/10/2021	1/11/2022	5	45	
4	Building Construction	Building Construction	1/12/2022	12/12/2023	5	500	
5	Paving	Paving	12/13/2023	1/30/2024	5	35	
6	Architectural Coating	Architectural Coating	1/31/2024	3/19/2024	5	35	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 112.5

Acres of Paving: 0

Residential Indoor: 2,025,000; Residential Outdoor: 675,000; Non-Residential Indoor: 326,400; Non-Residential Outdoor: 108,800; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Village South Specific Plan (Proposed) - Los Angeles-South Coast County, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	458.00	10.00	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.00	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.00	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	801.00	143.00	0.00	10.00	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	160.00	0.00	0.00	10.00	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0496	0.0000	0.0496	7.5100e-003	0.0000	7.5100e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0475	0.4716	0.3235	5.8000e-004		0.0233	0.0233		0.0216	0.0216	0.0000	51.0012	51.0012	0.0144	0.0000	51.3601
Total	**0.0475**	**0.4716**	**0.3235**	**5.8000e-004**	**0.0496**	**0.0233**	**0.0729**	**7.5100e-003**	**0.0216**	**0.0291**	**0.0000**	**51.0012**	**51.0012**	**0.0144**	**0.0000**	**51.3601**

3.2 Demolition - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.9300e-003	0.0634	0.0148	1.8000e-004	3.9400e-003	1.9000e-004	4.1300e-003	1.0800e-003	1.8000e-004	1.2600e-003	0.0000	17.4566	17.4566	1.2100e-003	0.0000	17.4869
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.2000e-004	5.3000e-004	6.0900e-003	2.0000e-005	1.6800e-003	1.0000e-005	1.6900e-003	4.5000e-004	1.0000e-005	4.6000e-004	0.0000	1.5281	1.5281	5.0000e-005	0.0000	1.5293
Total	**2.6500e-003**	**0.0639**	**0.0209**	**2.0000e-004**	**5.6200e-003**	**2.0000e-004**	**5.8200e-003**	**1.5300e-003**	**1.9000e-004**	**1.7200e-003**	**0.0000**	**18.9847**	**18.9847**	**1.2600e-003**	**0.0000**	**19.0161**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0496	0.0000	0.0496	7.5100e-003	0.0000	7.5100e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0475	0.4716	0.3235	5.8000e-004		0.0233	0.0233		0.0216	0.0216	0.0000	51.0011	51.0011	0.0144	0.0000	51.3600
Total	**0.0475**	**0.4716**	**0.3235**	**5.8000e-004**	**0.0496**	**0.0233**	**0.0729**	**7.5100e-003**	**0.0216**	**0.0291**	**0.0000**	**51.0011**	**51.0011**	**0.0144**	**0.0000**	**51.3600**

3.2 Demolition - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.9300e-003	0.0634	0.0148	1.8000e-004	3.9400e-003	1.9000e-004	4.1300e-003	1.0800e-003	1.8000e-004	1.2600e-003	0.0000	17.4566	17.4566	1.2100e-003	0.0000	17.4869
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.2000e-004	5.3000e-004	6.0900e-003	2.0000e-005	1.6800e-003	1.0000e-005	1.6900e-003	4.5000e-004	1.0000e-005	4.6000e-004	0.0000	1.5281	1.5281	5.0000e-005	0.0000	1.5293
Total	**2.6500e-003**	**0.0639**	**0.0209**	**2.0000e-004**	**5.6200e-003**	**2.0000e-004**	**5.8200e-003**	**1.5300e-003**	**1.9000e-004**	**1.7200e-003**	**0.0000**	**18.9847**	**18.9847**	**1.2600e-003**	**0.0000**	**19.0161**

3.3 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1807	0.0000	0.1807	0.0993	0.0000	0.0993	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0389	0.4050	0.2115	3.8000e-004		0.0204	0.0204		0.0188	0.0188	0.0000	33.4357	33.4357	0.0108	0.0000	33.7061
Total	**0.0389**	**0.4050**	**0.2115**	**3.8000e-004**	**0.1807**	**0.0204**	**0.2011**	**0.0993**	**0.0188**	**0.1181**	**0.0000**	**33.4357**	**33.4357**	**0.0108**	**0.0000**	**33.7061**

3.3 Site Preparation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.8000e-004	4.3000e-004	4.8700e-003	1.0000e-005	1.3400e-003	1.0000e-005	1.3500e-003	3.6000e-004	1.0000e-005	3.7000e-004	0.0000	1.2225	1.2225	4.0000e-005	0.0000	1.2234
Total	**5.8000e-004**	**4.3000e-004**	**4.8700e-003**	**1.0000e-005**	**1.3400e-003**	**1.0000e-005**	**1.3500e-003**	**3.6000e-004**	**1.0000e-005**	**3.7000e-004**	**0.0000**	**1.2225**	**1.2225**	**4.0000e-005**	**0.0000**	**1.2234**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1807	0.0000	0.1807	0.0993	0.0000	0.0993	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0389	0.4050	0.2115	3.8000e-004		0.0204	0.0204		0.0188	0.0188	0.0000	33.4357	33.4357	0.0108	0.0000	33.7060
Total	**0.0389**	**0.4050**	**0.2115**	**3.8000e-004**	**0.1807**	**0.0204**	**0.2011**	**0.0993**	**0.0188**	**0.1181**	**0.0000**	**33.4357**	**33.4357**	**0.0108**	**0.0000**	**33.7060**

3.3 Site Preparation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.8000e-004	4.3000e-004	4.8700e-003	1.0000e-005	1.3400e-003	1.0000e-005	1.3500e-003	3.6000e-004	1.0000e-005	3.7000e-004	0.0000	1.2225	1.2225	4.0000e-005	0.0000	1.2234
Total	**5.8000e-004**	**4.3000e-004**	**4.8700e-003**	**1.0000e-005**	**1.3400e-003**	**1.0000e-005**	**1.3500e-003**	**3.6000e-004**	**1.0000e-005**	**3.7000e-004**	**0.0000**	**1.2225**	**1.2225**	**4.0000e-005**	**0.0000**	**1.2234**

3.4 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1741	0.0000	0.1741	0.0693	0.0000	0.0693	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0796	0.8816	0.5867	1.1800e-003		0.0377	0.0377		0.0347	0.0347	0.0000	103.5405	103.5405	0.0335	0.0000	104.3776
Total	**0.0796**	**0.8816**	**0.5867**	**1.1800e-003**	**0.1741**	**0.0377**	**0.2118**	**0.0693**	**0.0347**	**0.1040**	**0.0000**	**103.5405**	**103.5405**	**0.0335**	**0.0000**	**104.3776**

3.4 Grading - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2200e-003	9.0000e-004	0.0103	3.0000e-005	2.8300e-003	2.0000e-005	2.8600e-003	7.5000e-004	2.0000e-005	7.8000e-004	0.0000	2.5808	2.5808	8.0000e-005	0.0000	2.5828
Total	**1.2200e-003**	**9.0000e-004**	**0.0103**	**3.0000e-005**	**2.8300e-003**	**2.0000e-005**	**2.8600e-003**	**7.5000e-004**	**2.0000e-005**	**7.8000e-004**	**0.0000**	**2.5808**	**2.5808**	**8.0000e-005**	**0.0000**	**2.5828**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1741	0.0000	0.1741	0.0693	0.0000	0.0693	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0796	0.8816	0.5867	1.1800e-003		0.0377	0.0377		0.0347	0.0347	0.0000	103.5403	103.5403	0.0335	0.0000	104.3775
Total	**0.0796**	**0.8816**	**0.5867**	**1.1800e-003**	**0.1741**	**0.0377**	**0.2118**	**0.0693**	**0.0347**	**0.1040**	**0.0000**	**103.5403**	**103.5403**	**0.0335**	**0.0000**	**104.3775**

3.4 Grading - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2200e-003	9.0000e-004	0.0103	3.0000e-005	2.8300e-003	2.0000e-005	2.8600e-003	7.5000e-004	2.0000e-005	7.8000e-004	0.0000	2.5808	2.5808	8.0000e-005	0.0000	2.5828
Total	**1.2200e-003**	**9.0000e-004**	**0.0103**	**3.0000e-005**	**2.8300e-003**	**2.0000e-005**	**2.8600e-003**	**7.5000e-004**	**2.0000e-005**	**7.8000e-004**	**0.0000**	**2.5808**	**2.5808**	**8.0000e-005**	**0.0000**	**2.5828**

3.4 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0807	0.0000	0.0807	0.0180	0.0000	0.0180	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0127	0.1360	0.1017	2.2000e-004		5.7200e-003	5.7200e-003		5.2600e-003	5.2600e-003	0.0000	19.0871	19.0871	6.1700e-003	0.0000	19.2414
Total	**0.0127**	**0.1360**	**0.1017**	**2.2000e-004**	**0.0807**	**5.7200e-003**	**0.0865**	**0.0180**	**5.2600e-003**	**0.0233**	**0.0000**	**19.0871**	**19.0871**	**6.1700e-003**	**0.0000**	**19.2414**

3.4 Grading - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.1000e-004	1.5000e-004	1.7400e-003	1.0000e-005	5.2000e-004	0.0000	5.3000e-004	1.4000e-004	0.0000	1.4000e-004	0.0000	0.4587	0.4587	1.0000e-005	0.0000	0.4590
Total	**2.1000e-004**	**1.5000e-004**	**1.7400e-003**	**1.0000e-005**	**5.2000e-004**	**0.0000**	**5.3000e-004**	**1.4000e-004**	**0.0000**	**1.4000e-004**	**0.0000**	**0.4587**	**0.4587**	**1.0000e-005**	**0.0000**	**0.4590**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0807	0.0000	0.0807	0.0180	0.0000	0.0180	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0127	0.1360	0.1017	2.2000e-004		5.7200e-003	5.7200e-003		5.2600e-003	5.2600e-003	0.0000	19.0871	19.0871	6.1700e-003	0.0000	19.2414
Total	**0.0127**	**0.1360**	**0.1017**	**2.2000e-004**	**0.0807**	**5.7200e-003**	**0.0865**	**0.0180**	**5.2600e-003**	**0.0233**	**0.0000**	**19.0871**	**19.0871**	**6.1700e-003**	**0.0000**	**19.2414**

3.4 Grading - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.1000e-004	1.5000e-004	1.7400e-003	1.0000e-005	5.2000e-004	0.0000	5.3000e-004	1.4000e-004	0.0000	1.4000e-004	0.0000	0.4587	0.4587	1.0000e-005	0.0000	0.4590
Total	**2.1000e-004**	**1.5000e-004**	**1.7400e-003**	**1.0000e-005**	**5.2000e-004**	**0.0000**	**5.3000e-004**	**1.4000e-004**	**0.0000**	**1.4000e-004**	**0.0000**	**0.4587**	**0.4587**	**1.0000e-005**	**0.0000**	**0.4590**

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2158	1.9754	2.0700	3.4100e-003		0.1023	0.1023		0.0963	0.0963	0.0000	293.1324	293.1324	0.0702	0.0000	294.8881
Total	**0.2158**	**1.9754**	**2.0700**	**3.4100e-003**		**0.1023**	**0.1023**		**0.0963**	**0.0963**	**0.0000**	**293.1324**	**293.1324**	**0.0702**	**0.0000**	**294.8881**

3.5 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0527	1.6961	0.4580	4.5500e-003	0.1140	3.1800e-003	0.1171	0.0329	3.0400e-003	0.0359	0.0000	441.9835	441.9835	0.0264	0.0000	442.6435
Worker	0.3051	0.2164	2.5233	7.3500e-003	0.7557	6.2300e-003	0.7619	0.2007	5.7400e-003	0.2065	0.0000	663.9936	663.9936	0.0187	0.0000	664.4604
Total	**0.3578**	**1.9125**	**2.9812**	**0.0119**	**0.8696**	**9.4100e-003**	**0.8790**	**0.2336**	**8.7800e-003**	**0.2424**	**0.0000**	**1,105.9771**	**1,105.9771**	**0.0451**	**0.0000**	**1,107.1039**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2158	1.9754	2.0700	3.4100e-003		0.1023	0.1023		0.0963	0.0963	0.0000	293.1321	293.1321	0.0702	0.0000	294.8877
Total	**0.2158**	**1.9754**	**2.0700**	**3.4100e-003**		**0.1023**	**0.1023**		**0.0963**	**0.0963**	**0.0000**	**293.1321**	**293.1321**	**0.0702**	**0.0000**	**294.8877**

3.5 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0527	1.6961	0.4580	4.5500e-003	0.1140	3.1800e-003	0.1171	0.0329	3.0400e-003	0.0359	0.0000	441.9835	441.9835	0.0264	0.0000	442.6435
Worker	0.3051	0.2164	2.5233	7.3500e-003	0.7557	6.2300e-003	0.7619	0.2007	5.7400e-003	0.2065	0.0000	663.9936	663.9936	0.0187	0.0000	664.4604
Total	**0.3578**	**1.9125**	**2.9812**	**0.0119**	**0.8696**	**9.4100e-003**	**0.8790**	**0.2336**	**8.7800e-003**	**0.2424**	**0.0000**	**1,105.9771**	**1,105.9771**	**0.0451**	**0.0000**	**1,107.1039**

3.5 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1942	1.7765	2.0061	3.3300e-003		0.0864	0.0864		0.0813	0.0813	0.0000	286.2789	286.2789	0.0681	0.0000	287.9814
Total	**0.1942**	**1.7765**	**2.0061**	**3.3300e-003**		**0.0864**	**0.0864**		**0.0813**	**0.0813**	**0.0000**	**286.2789**	**286.2789**	**0.0681**	**0.0000**	**287.9814**

3.5 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0382	1.2511	0.4011	4.3000e-003	0.1113	1.4600e-003	0.1127	0.0321	1.4000e-003	0.0335	0.0000	417.9930	417.9930	0.0228	0.0000	418.5624
Worker	0.2795	0.1910	2.2635	6.9100e-003	0.7377	5.9100e-003	0.7436	0.1960	5.4500e-003	0.2014	0.0000	624.5363	624.5363	0.0164	0.0000	624.9466
Total	**0.3177**	**1.4420**	**2.6646**	**0.0112**	**0.8490**	**7.3700e-003**	**0.8564**	**0.2281**	**6.8500e-003**	**0.2349**	**0.0000**	**1,042.5294**	**1,042.5294**	**0.0392**	**0.0000**	**1,043.5090**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1942	1.7765	2.0061	3.3300e-003		0.0864	0.0864		0.0813	0.0813	0.0000	286.2785	286.2785	0.0681	0.0000	287.9811
Total	**0.1942**	**1.7765**	**2.0061**	**3.3300e-003**		**0.0864**	**0.0864**		**0.0813**	**0.0813**	**0.0000**	**286.2785**	**286.2785**	**0.0681**	**0.0000**	**287.9811**

3.5 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0382	1.2511	0.4011	4.3000e-003	0.1113	1.4600e-003	0.1127	0.0321	1.4000e-003	0.0335	0.0000	417.9930	417.9930	0.0228	0.0000	418.5624
Worker	0.2795	0.1910	2.2635	6.9100e-003	0.7377	5.9100e-003	0.7436	0.1960	5.4500e-003	0.2014	0.0000	624.5363	624.5363	0.0164	0.0000	624.9466
Total	**0.3177**	**1.4420**	**2.6646**	**0.0112**	**0.8490**	**7.3700e-003**	**0.8564**	**0.2281**	**6.8500e-003**	**0.2349**	**0.0000**	**1,042.5294**	**1,042.5294**	**0.0392**	**0.0000**	**1,043.5090**

3.6 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.7100e-003	0.0663	0.0948	1.5000e-004		3.3200e-003	3.3200e-003		3.0500e-003	3.0500e-003	0.0000	13.0175	13.0175	4.2100e-003	0.0000	13.1227
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**6.7100e-003**	**0.0663**	**0.0948**	**1.5000e-004**		**3.3200e-003**	**3.3200e-003**		**3.0500e-003**	**3.0500e-003**	**0.0000**	**13.0175**	**13.0175**	**4.2100e-003**	**0.0000**	**13.1227**

3.6 Paving - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e-004	1.9000e-004	2.2300e-003	1.0000e-005	7.3000e-004	1.0000e-005	7.3000e-004	1.9000e-004	1.0000e-005	2.0000e-004	0.0000	0.6156	0.6156	2.0000e-005	0.0000	0.6160
Total	**2.8000e-004**	**1.9000e-004**	**2.2300e-003**	**1.0000e-005**	**7.3000e-004**	**1.0000e-005**	**7.3000e-004**	**1.9000e-004**	**1.0000e-005**	**2.0000e-004**	**0.0000**	**0.6156**	**0.6156**	**2.0000e-005**	**0.0000**	**0.6160**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.7100e-003	0.0663	0.0948	1.5000e-004		3.3200e-003	3.3200e-003		3.0500e-003	3.0500e-003	0.0000	13.0175	13.0175	4.2100e-003	0.0000	13.1227
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**6.7100e-003**	**0.0663**	**0.0948**	**1.5000e-004**		**3.3200e-003**	**3.3200e-003**		**3.0500e-003**	**3.0500e-003**	**0.0000**	**13.0175**	**13.0175**	**4.2100e-003**	**0.0000**	**13.1227**

3.6 Paving - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e-004	1.9000e-004	2.2300e-003	1.0000e-005	7.3000e-004	1.0000e-005	7.3000e-004	1.9000e-004	1.0000e-005	2.0000e-004	0.0000	0.6156	0.6156	2.0000e-005	0.0000	0.6160
Total	**2.8000e-004**	**1.9000e-004**	**2.2300e-003**	**1.0000e-005**	**7.3000e-004**	**1.0000e-005**	**7.3000e-004**	**1.9000e-004**	**1.0000e-005**	**2.0000e-004**	**0.0000**	**0.6156**	**0.6156**	**2.0000e-005**	**0.0000**	**0.6160**

3.6 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0109	0.1048	0.1609	2.5000e-004		5.1500e-003	5.1500e-003		4.7400e-003	4.7400e-003	0.0000	22.0292	22.0292	7.1200e-003	0.0000	22.2073
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0109**	**0.1048**	**0.1609**	**2.5000e-004**		**5.1500e-003**	**5.1500e-003**		**4.7400e-003**	**4.7400e-003**	**0.0000**	**22.0292**	**22.0292**	**7.1200e-003**	**0.0000**	**22.2073**

3.6 Paving - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.4000e-004	2.9000e-004	3.5100e-003	1.0000e-005	1.2300e-003	1.0000e-005	1.2400e-003	3.3000e-004	1.0000e-005	3.4000e-004	0.0000	1.0094	1.0094	3.0000e-005	0.0000	1.0100
Total	**4.4000e-004**	**2.9000e-004**	**3.5100e-003**	**1.0000e-005**	**1.2300e-003**	**1.0000e-005**	**1.2400e-003**	**3.3000e-004**	**1.0000e-005**	**3.4000e-004**	**0.0000**	**1.0094**	**1.0094**	**3.0000e-005**	**0.0000**	**1.0100**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0109	0.1048	0.1609	2.5000e-004		5.1500e-003	5.1500e-003		4.7400e-003	4.7400e-003	0.0000	22.0292	22.0292	7.1200e-003	0.0000	22.2073
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0109**	**0.1048**	**0.1609**	**2.5000e-004**		**5.1500e-003**	**5.1500e-003**		**4.7400e-003**	**4.7400e-003**	**0.0000**	**22.0292**	**22.0292**	**7.1200e-003**	**0.0000**	**22.2073**

3.6 Paving - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.4000e-004	2.9000e-004	3.5100e-003	1.0000e-005	1.2300e-003	1.0000e-005	1.2400e-003	3.3000e-004	1.0000e-005	3.4000e-004	0.0000	1.0094	1.0094	3.0000e-005	0.0000	1.0100
Total	**4.4000e-004**	**2.9000e-004**	**3.5100e-003**	**1.0000e-005**	**1.2300e-003**	**1.0000e-005**	**1.2400e-003**	**3.3000e-004**	**1.0000e-005**	**3.4000e-004**	**0.0000**	**1.0094**	**1.0094**	**3.0000e-005**	**0.0000**	**1.0100**

3.7 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	4.1372					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.1600e-003	0.0213	0.0317	5.0000e-005		1.0700e-003	1.0700e-003		1.0700e-003	1.0700e-003	0.0000	4.4682	4.4682	2.5000e-004	0.0000	4.4745
Total	**4.1404**	**0.0213**	**0.0317**	**5.0000e-005**		**1.0700e-003**	**1.0700e-003**		**1.0700e-003**	**1.0700e-003**	**0.0000**	**4.4682**	**4.4682**	**2.5000e-004**	**0.0000**	**4.4745**

3.7 Architectural Coating - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.4800e-003	4.9300e-003	0.0596	1.9000e-004	0.0209	1.6000e-004	0.0211	5.5500e-003	1.5000e-004	5.7000e-003	0.0000	17.1287	17.1287	4.3000e-004	0.0000	17.1394
Total	**7.4800e-003**	**4.9300e-003**	**0.0596**	**1.9000e-004**	**0.0209**	**1.6000e-004**	**0.0211**	**5.5500e-003**	**1.5000e-004**	**5.7000e-003**	**0.0000**	**17.1287**	**17.1287**	**4.3000e-004**	**0.0000**	**17.1394**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	4.1372					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.1600e-003	0.0213	0.0317	5.0000e-005		1.0700e-003	1.0700e-003		1.0700e-003	1.0700e-003	0.0000	4.4682	4.4682	2.5000e-004	0.0000	4.4745
Total	**4.1404**	**0.0213**	**0.0317**	**5.0000e-005**		**1.0700e-003**	**1.0700e-003**		**1.0700e-003**	**1.0700e-003**	**0.0000**	**4.4682**	**4.4682**	**2.5000e-004**	**0.0000**	**4.4745**

3.7 Architectural Coating - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.4800e-003	4.9300e-003	0.0596	1.9000e-004	0.0209	1.6000e-004	0.0211	5.5500e-003	1.5000e-004	5.7000e-003	0.0000	17.1287	17.1287	4.3000e-004	0.0000	17.1394
Total	**7.4800e-003**	**4.9300e-003**	**0.0596**	**1.9000e-004**	**0.0209**	**1.6000e-004**	**0.0211**	**5.5500e-003**	**1.5000e-004**	**5.7000e-003**	**0.0000**	**17.1287**	**17.1287**	**4.3000e-004**	**0.0000**	**17.1394**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.5857	7.9962	19.1834	0.0821	7.7979	0.0580	7.8559	2.0895	0.0539	2.1434	0.0000	7,620.4986	7,620.4986	0.3407	0.0000	7,629.0162
Unmitigated	1.5857	7.9962	19.1834	0.0821	7.7979	0.0580	7.8559	2.0895	0.0539	2.1434	0.0000	7,620.4986	7,620.4986	0.3407	0.0000	7,629.0162

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	145.75	154.25	154.00	506,227	506,227
Apartments Mid Rise	4,026.75	3,773.25	4075.50	13,660,065	13,660,065
General Office Building	288.45	62.55	31.05	706,812	706,812
High Turnover (Sit Down Restaurant)	2,368.80	2,873.52	2817.72	3,413,937	3,413,937
Hotel	192.00	187.50	160.00	445,703	445,703
Quality Restaurant	501.12	511.92	461.20	707,488	707,488
Regional Shopping Center	528.08	601.44	357.84	1,112,221	1,112,221
Total	8,050.95	8,164.43	8,057.31	20,552,452	20,552,452

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Apartments Mid Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4
High Turnover (Sit Down	16.60	8.40	6.90	8.50	72.50	19.00	37	20	43
Hotel	16.60	8.40	6.90	19.40	61.60	19.00	58	38	4
Quality Restaurant	16.60	8.40	6.90	12.00	69.00	19.00	38	18	44
Regional Shopping Center	16.60	8.40	6.90	16.30	64.70	19.00	54	35	11

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Apartments Mid Rise	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
General Office Building	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
High Turnover (Sit Down Restaurant)	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Hotel	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Quality Restaurant	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Regional Shopping Center	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Village South Specific Plan (Proposed) - Los Angeles-South Coast County, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	2,512.6465	2,512.6465	0.1037	0.0215	2,521.6356
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	2,512.6465	2,512.6465	0.1037	0.0215	2,521.6356
NaturalGas Mitigated	0.1398	1.2312	0.7770	7.6200e-003		0.0966	0.0966		0.0966	0.0966	0.0000	1,383.4267	1,383.4267	0.0265	0.0254	1,391.6478
NaturalGas Unmitigated	0.1398	1.2312	0.7770	7.6200e-003		0.0966	0.0966		0.0966	0.0966	0.0000	1,383.4267	1,383.4267	0.0265	0.0254	1,391.6478

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Low Rise	408494	2.2000e-003	0.0188	8.0100e-003	1.2000e-004		1.5200e-003	1.5200e-003		1.5200e-003	1.5200e-003	0.0000	21.7988	21.7988	4.2000e-004	4.0000e-004	21.9284
Apartments Mid Rise	1.30613e+007	0.0704	0.6018	0.2561	3.8400e-003		0.0487	0.0487		0.0487	0.0487	0.0000	696.9989	696.9989	0.0134	0.0128	701.1408
General Office Building	468450	2.5300e-003	0.0230	0.0193	1.4000e-004		1.7500e-003	1.7500e-003		1.7500e-003	1.7500e-003	0.0000	24.9983	24.9983	4.8000e-004	4.6000e-004	25.1468
High Turnover (Sit Down Restaurant)	8.30736e+006	0.0448	0.4072	0.3421	2.4400e-003		0.0310	0.0310		0.0310	0.0310	0.0000	443.3124	443.3124	8.5000e-003	8.1300e-003	445.9468
Hotel	1.74095e+006	9.3900e-003	0.0853	0.0717	5.1000e-004		6.4900e-003	6.4900e-003		6.4900e-003	6.4900e-003	0.0000	92.9036	92.9036	1.7800e-003	1.7000e-003	93.4557
Quality Restaurant	1.84608e+006	9.9500e-003	0.0905	0.0760	5.4000e-004		6.8800e-003	6.8800e-003		6.8800e-003	6.8800e-003	0.0000	98.5139	98.5139	1.8900e-003	1.8100e-003	99.0993
Regional Shopping Center	91840	5.0000e-004	4.5000e-003	3.7800e-003	3.0000e-005		3.4000e-004	3.4000e-004		3.4000e-004	3.4000e-004	0.0000	4.9009	4.9009	9.0000e-005	9.0000e-005	4.9301
Total		**0.1398**	**1.2312**	**0.7770**	**7.6200e-003**		**0.0966**	**0.0966**		**0.0966**	**0.0966**	**0.0000**	**1,383.4268**	**1,383.4268**	**0.0265**	**0.0254**	**1,391.6478**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Low Rise	408494	2.2000e-003	0.0188	8.0100e-003	1.2000e-004		1.5200e-003	1.5200e-003		1.5200e-003	1.5200e-003	0.0000	21.7988	21.7988	4.2000e-004	4.0000e-004	21.9284
Apartments Mid Rise	1.30613e+007	0.0704	0.6018	0.2561	3.8400e-003		0.0487	0.0487		0.0487	0.0487	0.0000	696.9989	696.9989	0.0134	0.0128	701.1408
General Office Building	468450	2.5300e-003	0.0230	0.0193	1.4000e-004		1.7500e-003	1.7500e-003		1.7500e-003	1.7500e-003	0.0000	24.9983	24.9983	4.8000e-004	4.6000e-004	25.1468
High Turnover (Sit Down Restaurant)	8.30736e+006	0.0448	0.4072	0.3421	2.4400e-003		0.0310	0.0310		0.0310	0.0310	0.0000	443.3124	443.3124	8.5000e-003	8.1300e-003	445.9468
Hotel	1.74095e+006	9.3900e-003	0.0853	0.0717	5.1000e-004		6.4900e-003	6.4900e-003		6.4900e-003	6.4900e-003	0.0000	92.9036	92.9036	1.7800e-003	1.7000e-003	93.4557
Quality Restaurant	1.84608e+006	9.9500e-003	0.0905	0.0760	5.4000e-004		6.8800e-003	6.8800e-003		6.8800e-003	6.8800e-003	0.0000	98.5139	98.5139	1.8900e-003	1.8100e-003	99.0993
Regional Shopping Center	91840	5.0000e-004	4.5000e-003	3.7800e-003	3.0000e-005		3.4000e-004	3.4000e-004		3.4000e-004	3.4000e-004	0.0000	4.9009	4.9009	9.0000e-005	9.0000e-005	4.9301
Total		**0.1398**	**1.2312**	**0.7770**	**7.6200e-003**		**0.0966**	**0.0966**		**0.0966**	**0.0966**	**0.0000**	**1,383.4268**	**1,383.4268**	**0.0265**	**0.0254**	**1,391.6478**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	106010	33.7770	1.3900e-003	2.9000e-004	33.8978
Apartments Mid Rise	3.94697e+006	1,257.5879	0.0519	0.0107	1,262.0869
General Office Building	584550	186.2502	7.6900e-003	1.5900e-003	186.9165
High Turnover (Sit Down Restaurant)	1.58904e+006	506.3022	0.0209	4.3200e-003	508.1135
Hotel	550308	175.3399	7.2400e-003	1.5000e-003	175.9672
Quality Restaurant	353120	112.5116	4.6500e-003	9.6000e-004	112.9141
Regional Shopping Center	756000	240.8778	9.9400e-003	2.0600e-003	241.7395
Total		**2,512.6465**	**0.1037**	**0.0215**	**2,521.6356**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	106010	33.7770	1.3900e-003	2.9000e-004	33.8978
Apartments Mid Rise	3.94697e+006	1,257.5879	0.0519	0.0107	1,262.0869
General Office Building	584550	186.2502	7.6900e-003	1.5900e-003	186.9165
High Turnover (Sit Down Restaurant)	1.58904e+006	506.3022	0.0209	4.3200e-003	508.1135
Hotel	550308	175.3399	7.2400e-003	1.5000e-003	175.9672
Quality Restaurant	353120	112.5116	4.6500e-003	9.6000e-004	112.9141
Regional Shopping Center	756000	240.8778	9.9400e-003	2.0600e-003	241.7395
Total		**2,512.6465**	**0.1037**	**0.0215**	**2,521.6356**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	5.1437	0.2950	10.3804	1.6700e-003		0.0714	0.0714		0.0714	0.0714	0.0000	220.9670	220.9670	0.0201	3.7400e-003	222.5835
Unmitigated	5.1437	0.2950	10.3804	1.6700e-003		0.0714	0.0714		0.0714	0.0714	0.0000	220.9670	220.9670	0.0201	3.7400e-003	222.5835

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.4137					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	4.3998					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0206	0.1763	0.0750	1.1200e-003		0.0143	0.0143		0.0143	0.0143	0.0000	204.1166	204.1166	3.9100e-003	3.7400e-003	205.3295
Landscaping	0.3096	0.1187	10.3054	5.4000e-004		0.0572	0.0572		0.0572	0.0572	0.0000	16.8504	16.8504	0.0161	0.0000	17.2540
Total	**5.1437**	**0.2950**	**10.3804**	**1.6600e-003**		**0.0714**	**0.0714**		**0.0714**	**0.0714**	**0.0000**	**220.9670**	**220.9670**	**0.0201**	**3.7400e-003**	**222.5835**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.4137					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	4.3998					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0206	0.1763	0.0750	1.1200e-003		0.0143	0.0143		0.0143	0.0143	0.0000	204.1166	204.1166	3.9100e-003	3.7400e-003	205.3295
Landscaping	0.3096	0.1187	10.3054	5.4000e-004		0.0572	0.0572		0.0572	0.0572	0.0000	16.8504	16.8504	0.0161	0.0000	17.2540
Total	**5.1437**	**0.2950**	**10.3804**	**1.6600e-003**		**0.0714**	**0.0714**		**0.0714**	**0.0714**	**0.0000**	**220.9670**	**220.9670**	**0.0201**	**3.7400e-003**	**222.5835**

7.0 Water Detail

7.1 Mitigation Measures Water

Village South Specific Plan (Proposed) - Los Angeles-South Coast County, Annual

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	585.8052	3.0183	0.0755	683.7567
Unmitigated	585.8052	3.0183	0.0755	683.7567

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	1.62885 / 1.02688	10.9095	0.0535	1.3400e-003	12.6471
Apartments Mid Rise	63.5252 / 40.0485	425.4719	2.0867	0.0523	493.2363
General Office Building	7.99802 / 4.90201	53.0719	0.2627	6.5900e-003	61.6019
High Turnover (Sit Down Restaurant)	10.9272 / 0.697482	51.2702	0.3580	8.8200e-003	62.8482
Hotel	1.26834 / 0.140927	6.1633	0.0416	1.0300e-003	7.5079
Quality Restaurant	2.42827 / 0.154996	11.3934	0.0796	1.9600e-003	13.9663
Regional Shopping Center	4.14806 / 2.54236	27.5250	0.1363	3.4200e-003	31.9490
Total		**585.8052**	**3.0183**	**0.0755**	**683.7567**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	1.62885 / 1.02688	10.9095	0.0535	1.3400e-003	12.6471
Apartments Mid Rise	63.5252 / 40.0485	425.4719	2.0867	0.0523	493.2363
General Office Building	7.99802 / 4.90201	53.0719	0.2627	6.5900e-003	61.6019
High Turnover (Sit Down Restaurant)	10.9272 / 0.697482	51.2702	0.3580	8.8200e-003	62.8482
Hotel	1.26834 / 0.140927	6.1633	0.0416	1.0300e-003	7.5079
Quality Restaurant	2.42827 / 0.154996	11.3934	0.0796	1.9600e-003	13.9663
Regional Shopping Center	4.14806 / 2.54236	27.5250	0.1363	3.4200e-003	31.9490
Total		**585.8052**	**3.0183**	**0.0755**	**683.7567**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	207.8079	12.2811	0.0000	514.8354
Unmitigated	207.8079	12.2811	0.0000	514.8354

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	11.5	2.3344	0.1380	0.0000	5.7834
Apartments Mid Rise	448.5	91.0415	5.3804	0.0000	225.5513
General Office Building	41.85	8.4952	0.5021	0.0000	21.0464
High Turnover (Sit Down Restaurant)	428.4	86.9613	5.1393	0.0000	215.4430
Hotel	27.38	5.5579	0.3285	0.0000	13.7694
Quality Restaurant	7.3	1.4818	0.0876	0.0000	3.6712
Regional Shopping Center	58.8	11.9359	0.7054	0.0000	29.5706
Total		**207.8079**	**12.2811**	**0.0000**	**514.8354**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	11.5	2.3344	0.1380	0.0000	5.7834
Apartments Mid Rise	448.5	91.0415	5.3804	0.0000	225.5513
General Office Building	41.85	8.4952	0.5021	0.0000	21.0464
High Turnover (Sit Down Restaurant)	428.4	86.9613	5.1393	0.0000	215.4430
Hotel	27.38	5.5579	0.3285	0.0000	13.7694
Quality Restaurant	7.3	1.4818	0.0876	0.0000	3.6712
Regional Shopping Center	58.8	11.9359	0.7054	0.0000	29.5706
Total		**207.8079**	**12.2811**	**0.0000**	**514.8354**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Village South Specific Plan (Proposed)

Los Angeles-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	45.00	1000sqft	1.03	45,000.00	0
High Turnover (Sit Down Restaurant)	36.00	1000sqft	0.83	36,000.00	0
Hotel	50.00	Room	1.67	72,600.00	0
Quality Restaurant	8.00	1000sqft	0.18	8,000.00	0
Apartments Low Rise	25.00	Dwelling Unit	1.56	25,000.00	72
Apartments Mid Rise	975.00	Dwelling Unit	25.66	975,000.00	2789
Regional Shopping Center	56.00	1000sqft	1.29	56,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	9			**Operational Year**	2028
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Village South Specific Plan (Proposed) - Los Angeles-South Coast County, Summer

Project Characteristics - Consistent with the DEIR's model.

Land Use - See SWAPE comment regarding residential and retail land uses.

Construction Phase - See SWAPE comment regarding individual construction phase lengths.

Demolition - Consistent with the DEIR's model. See SWAPE comment regarding demolition.

Vehicle Trips - Saturday trips consistent with the DEIR's model. See SWAPE comment regarding weekday and Sunday trips.

Woodstoves - Woodstoves and wood-burning fireplaces consistent with the DEIR's model. See SWAPE comment regarding gas fireplaces.

Energy Use -

Construction Off-road Equipment Mitigation - See SWAPE comment on construction-related mitigation.

Area Mitigation - See SWAPE comment regarding operational mitigation measures.

Water Mitigation - See SWAPE comment regarding operational mitigation measures.

Trips and VMT - Local hire provision

Table Name	Column Name	Default Value	New Value
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberWood	1.25	0.00
tblFireplaces	NumberWood	48.75	0.00
tblTripsAndVMT	WorkerTripLength	14.70	10.00
tblTripsAndVMT	WorkerTripLength	14.70	10.00
tblTripsAndVMT	WorkerTripLength	14.70	10.00
tblTripsAndVMT	WorkerTripLength	14.70	10.00
tblTripsAndVMT	WorkerTripLength	14.70	10.00
tblTripsAndVMT	WorkerTripLength	14.70	10.00
tblVehicleTrips	ST_TR	7.16	6.17
tblVehicleTrips	ST_TR	6.39	3.87
tblVehicleTrips	ST_TR	2.46	1.39
tblVehicleTrips	ST_TR	158.37	79.82

tblVehicleTrips	ST_TR	8.19	3.75
tblVehicleTrips	ST_TR	94.36	63.99
tblVehicleTrips	ST_TR	49.97	10.74
tblVehicleTrips	SU_TR	6.07	6.16
tblVehicleTrips	SU_TR	5.86	4.18
tblVehicleTrips	SU_TR	1.05	0.69
tblVehicleTrips	SU_TR	131.84	78.27
tblVehicleTrips	SU_TR	5.95	3.20
tblVehicleTrips	SU_TR	72.16	57.65
tblVehicleTrips	SU_TR	25.24	6.39
tblVehicleTrips	WD_TR	6.59	5.83
tblVehicleTrips	WD_TR	6.65	4.13
tblVehicleTrips	WD_TR	11.03	6.41
tblVehicleTrips	WD_TR	127.15	65.80
tblVehicleTrips	WD_TR	8.17	3.84
tblVehicleTrips	WD_TR	89.95	62.64
tblVehicleTrips	WD_TR	42.70	9.43
tblWoodstoves	NumberCatalytic	1.25	0.00
tblWoodstoves	NumberCatalytic	48.75	0.00
tblWoodstoves	NumberNoncatalytic	1.25	0.00
tblWoodstoves	NumberNoncatalytic	48.75	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	4.2561	46.4415	31.4494	0.0636	18.2032	2.0456	20.2488	9.9670	1.8820	11.8490	0.0000	6,163.4166	6,163.4166	1.9475	0.0000	6,212.1039
2022	4.5441	38.8811	40.8776	0.1240	8.8255	1.6361	10.4616	3.6369	1.5052	5.1421	0.0000	12,493.4403	12,493.4403	1.9485	0.0000	12,518.5707
2023	4.1534	25.7658	38.7457	0.1206	7.0088	0.7592	7.7679	1.8799	0.7136	2.5935	0.0000	12,150.4890	12,150.4890	0.9589	0.0000	12,174.4615
2024	237.0219	9.5478	14.9642	0.0239	1.2171	0.4694	1.2875	0.3229	0.4319	0.4621	0.0000	2,313.1808	2,313.1808	0.7166	0.0000	2,331.0956
Maximum	**237.0219**	**46.4415**	**40.8776**	**0.1240**	**18.2032**	**2.0456**	**20.2488**	**9.9670**	**1.8820**	**11.8490**	**0.0000**	**12,493.4403**	**12,493.4403**	**1.9485**	**0.0000**	**12,518.5707**

2.1 Overall Construction (Maximum Daily Emission)

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	4.2561	46.4415	31.4494	0.0636	18.2032	2.0456	20.2488	9.9670	1.8820	11.8490	0.0000	6,163.4166	6,163.4166	1.9475	0.0000	6,212.1039
2022	4.5441	38.8811	40.8776	0.1240	8.8255	1.6361	10.4616	3.6369	1.5052	5.1421	0.0000	12,493.4403	12,493.4403	1.9485	0.0000	12,518.5707
2023	4.1534	25.7658	38.7457	0.1206	7.0088	0.7592	7.7679	1.8799	0.7136	2.5935	0.0000	12,150.4890	12,150.4890	0.9589	0.0000	12,174.4615
2024	237.0219	9.5478	14.9642	0.0239	1.2171	0.4694	1.2875	0.3229	0.4319	0.4621	0.0000	2,313.1808	2,313.1808	0.7166	0.0000	2,331.0955
Maximum	**237.0219**	**46.4415**	**40.8776**	**0.1240**	**18.2032**	**2.0456**	**20.2488**	**9.9670**	**1.8820**	**11.8490**	**0.0000**	**12,493.4403**	**12,493.4403**	**1.9485**	**0.0000**	**12,518.5707**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	30.5020	15.0496	88.4430	0.0944		1.5974	1.5974		1.5974	1.5974	0.0000	18,148.5950	18,148.5950	0.4874	0.3300	18,259.1192
Energy	0.7660	6.7462	4.2573	0.0418		0.5292	0.5292		0.5292	0.5292		8,355.9832	8,355.9832	0.1602	0.1532	8,405.6387
Mobile	9.8489	45.4304	114.8495	0.4917	45.9592	0.3360	46.2951	12.2950	0.3119	12.6070		50,306.6034	50,306.6034	2.1807		50,361.1208
Total	**41.1168**	**67.2262**	**207.5497**	**0.6278**	**45.9592**	**2.4626**	**48.4217**	**12.2950**	**2.4385**	**14.7336**	**0.0000**	**76,811.1816**	**76,811.1816**	**2.8282**	**0.4832**	**77,025.8786**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	30.5020	15.0496	88.4430	0.0944		1.5974	1.5974		1.5974	1.5974	0.0000	18,148.5950	18,148.5950	0.4874	0.3300	18,259.1192
Energy	0.7660	6.7462	4.2573	0.0418		0.5292	0.5292		0.5292	0.5292		8,355.9832	8,355.9832	0.1602	0.1532	8,405.6387
Mobile	9.8489	45.4304	114.8495	0.4917	45.9592	0.3360	46.2951	12.2950	0.3119	12.6070		50,306.6034	50,306.6034	2.1807		50,361.1208
Total	**41.1168**	**67.2262**	**207.5497**	**0.6278**	**45.9592**	**2.4626**	**48.4217**	**12.2950**	**2.4385**	**14.7336**	**0.0000**	**76,811.1816**	**76,811.1816**	**2.8282**	**0.4832**	**77,025.8786**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	9/1/2021	10/12/2021	5	30	
2	Site Preparation	Site Preparation	10/13/2021	11/9/2021	5	20	
3	Grading	Grading	11/10/2021	1/11/2022	5	45	
4	Building Construction	Building Construction	1/12/2022	12/12/2023	5	500	
5	Paving	Paving	12/13/2023	1/30/2024	5	35	
6	Architectural Coating	Architectural Coating	1/31/2024	3/19/2024	5	35	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 112.5

Acres of Paving: 0

Residential Indoor: 2,025,000; Residential Outdoor: 675,000; Non-Residential Indoor: 326,400; Non-Residential Outdoor: 108,800; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Village South Specific Plan (Proposed) - Los Angeles-South Coast County, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	458.00	10.00	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.00	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.00	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	801.00	143.00	0.00	10.00	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	160.00	0.00	0.00	10.00	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.3074	0.0000	3.3074	0.5008	0.0000	0.5008			0.0000			0.0000
Off-Road	3.1651	31.4407	21.5650	0.0388		1.5513	1.5513		1.4411	1.4411		3,747.9449	3,747.9449	1.0549		3,774.3174
Total	**3.1651**	**31.4407**	**21.5650**	**0.0388**	**3.3074**	**1.5513**	**4.8588**	**0.5008**	**1.4411**	**1.9419**		**3,747.9449**	**3,747.9449**	**1.0549**		**3,774.3174**

3.2 Demolition - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1273	4.0952	0.9602	0.0119	0.2669	0.0126	0.2795	0.0732	0.0120	0.0852		1,292.2413	1,292.2413	0.0877		1,294.4337
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0487	0.0313	0.4282	1.1800e-003	0.1141	9.5000e-004	0.1151	0.0303	8.8000e-004	0.0311		117.2799	117.2799	3.5200e-003		117.3678
Total	**0.1760**	**4.1265**	**1.3884**	**0.0131**	**0.3810**	**0.0135**	**0.3946**	**0.1034**	**0.0129**	**0.1163**		**1,409.5212**	**1,409.5212**	**0.0912**		**1,411.8015**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.3074	0.0000	3.3074	0.5008	0.0000	0.5008			0.0000			0.0000
Off-Road	3.1651	31.4407	21.5650	0.0388		1.5513	1.5513		1.4411	1.4411	0.0000	3,747.9449	3,747.9449	1.0549		3,774.3174
Total	**3.1651**	**31.4407**	**21.5650**	**0.0388**	**3.3074**	**1.5513**	**4.8588**	**0.5008**	**1.4411**	**1.9419**	**0.0000**	**3,747.9449**	**3,747.9449**	**1.0549**		**3,774.3174**

3.2 Demolition - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1273	4.0952	0.9602	0.0119	0.2669	0.0126	0.2795	0.0732	0.0120	0.0852		1,292.2413	1,292.2413	0.0877		1,294.4337
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0487	0.0313	0.4282	1.1800e-003	0.1141	9.5000e-004	0.1151	0.0303	8.8000e-004	0.0311		117.2799	117.2799	3.5200e-003		117.3678
Total	**0.1760**	**4.1265**	**1.3884**	**0.0131**	**0.3810**	**0.0135**	**0.3946**	**0.1034**	**0.0129**	**0.1163**		**1,409.5212**	**1,409.5212**	**0.0912**		**1,411.8015**

3.3 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809		3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**3.8882**	**40.4971**	**21.1543**	**0.0380**	**18.0663**	**2.0445**	**20.1107**	**9.9307**	**1.8809**	**11.8116**		**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

3.3 Site Preparation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0584	0.0375	0.5139	1.4100e-003	0.1369	1.1400e-003	0.1381	0.0363	1.0500e-003	0.0374		140.7359	140.7359	4.2200e-003		140.8414
Total	**0.0584**	**0.0375**	**0.5139**	**1.4100e-003**	**0.1369**	**1.1400e-003**	**0.1381**	**0.0363**	**1.0500e-003**	**0.0374**		**140.7359**	**140.7359**	**4.2200e-003**		**140.8414**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809	0.0000	3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**3.8882**	**40.4971**	**21.1543**	**0.0380**	**18.0663**	**2.0445**	**20.1107**	**9.9307**	**1.8809**	**11.8116**	**0.0000**	**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

3.3 Site Preparation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0584	0.0375	0.5139	1.4100e-003	0.1369	1.1400e-003	0.1381	0.0363	1.0500e-003	0.0374		140.7359	140.7359	4.2200e-003		140.8414
Total	**0.0584**	**0.0375**	**0.5139**	**1.4100e-003**	**0.1369**	**1.1400e-003**	**0.1381**	**0.0363**	**1.0500e-003**	**0.0374**		**140.7359**	**140.7359**	**4.2200e-003**		**140.8414**

3.4 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	4.1912	46.3998	30.8785	0.0620		1.9853	1.9853		1.8265	1.8265		6,007.0434	6,007.0434	1.9428		6,055.6134
Total	**4.1912**	**46.3998**	**30.8785**	**0.0620**	**8.6733**	**1.9853**	**10.6587**	**3.5965**	**1.8265**	**5.4230**		**6,007.0434**	**6,007.0434**	**1.9428**		**6,055.6134**

3.4 Grading - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0649	0.0417	0.5710	1.5700e-003	0.1521	1.2700e-003	0.1534	0.0404	1.1700e-003	0.0415		156.3732	156.3732	4.6900e-003		156.4904
Total	**0.0649**	**0.0417**	**0.5710**	**1.5700e-003**	**0.1521**	**1.2700e-003**	**0.1534**	**0.0404**	**1.1700e-003**	**0.0415**		**156.3732**	**156.3732**	**4.6900e-003**		**156.4904**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	4.1912	46.3998	30.8785	0.0620		1.9853	1.9853		1.8265	1.8265	0.0000	6,007.0434	6,007.0434	1.9428		6,055.6134
Total	**4.1912**	**46.3998**	**30.8785**	**0.0620**	**8.6733**	**1.9853**	**10.6587**	**3.5965**	**1.8265**	**5.4230**	**0.0000**	**6,007.0434**	**6,007.0434**	**1.9428**		**6,055.6134**

3.4 Grading - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0649	0.0417	0.5710	1.5700e-003	0.1521	1.2700e-003	0.1534	0.0404	1.1700e-003	0.0415		156.3732	156.3732	4.6900e-003		156.4904
Total	**0.0649**	**0.0417**	**0.5710**	**1.5700e-003**	**0.1521**	**1.2700e-003**	**0.1534**	**0.0404**	**1.1700e-003**	**0.0415**		**156.3732**	**156.3732**	**4.6900e-003**		**156.4904**

3.4 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	3.6248	38.8435	29.0415	0.0621		1.6349	1.6349		1.5041	1.5041		6,011.4105	6,011.4105	1.9442		6,060.0158
Total	**3.6248**	**38.8435**	**29.0415**	**0.0621**	**8.6733**	**1.6349**	**10.3082**	**3.5965**	**1.5041**	**5.1006**		**6,011.4105**	**6,011.4105**	**1.9442**		**6,060.0158**

3.4 Grading - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0607	0.0376	0.5263	1.5100e-003	0.1521	1.2300e-003	0.1534	0.0404	1.1300e-003	0.0415		150.8754	150.8754	4.2400e-003		150.9813
Total	**0.0607**	**0.0376**	**0.5263**	**1.5100e-003**	**0.1521**	**1.2300e-003**	**0.1534**	**0.0404**	**1.1300e-003**	**0.0415**		**150.8754**	**150.8754**	**4.2400e-003**		**150.9813**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	3.6248	38.8435	29.0415	0.0621		1.6349	1.6349		1.5041	1.5041	0.0000	6,011.4105	6,011.4105	1.9442		6,060.0158
Total	**3.6248**	**38.8435**	**29.0415**	**0.0621**	**8.6733**	**1.6349**	**10.3082**	**3.5965**	**1.5041**	**5.1006**	**0.0000**	**6,011.4105**	**6,011.4105**	**1.9442**		**6,060.0158**

3.4 Grading - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0607	0.0376	0.5263	1.5100e-003	0.1521	1.2300e-003	0.1534	0.0404	1.1300e-003	0.0415		150.8754	150.8754	4.2400e-003		150.9813
Total	**0.0607**	**0.0376**	**0.5263**	**1.5100e-003**	**0.1521**	**1.2300e-003**	**0.1534**	**0.0404**	**1.1300e-003**	**0.0415**		**150.8754**	**150.8754**	**4.2400e-003**		**150.9813**

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**		**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

3.5 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4079	13.2032	3.4341	0.0364	0.9155	0.0248	0.9404	0.2636	0.0237	0.2873		3,896.5482	3,896.5482	0.2236		3,902.1384
Worker	2.4299	1.5074	21.0801	0.0607	6.0932	0.0493	6.1425	1.6163	0.0454	1.6617		6,042.5585	6,042.5585	0.1697		6,046.8000
Total	**2.8378**	**14.7106**	**24.5142**	**0.0971**	**7.0087**	**0.0741**	**7.0828**	**1.8799**	**0.0691**	**1.9490**		**9,939.1067**	**9,939.1067**	**0.3933**		**9,948.9384**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**	**0.0000**	**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

3.5 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4079	13.2032	3.4341	0.0364	0.9155	0.0248	0.9404	0.2636	0.0237	0.2873		3,896.5482	3,896.5482	0.2236		3,902.1384
Worker	2.4299	1.5074	21.0801	0.0607	6.0932	0.0493	6.1425	1.6163	0.0454	1.6617		6,042.5585	6,042.5585	0.1697		6,046.8000
Total	**2.8378**	**14.7106**	**24.5142**	**0.0971**	**7.0087**	**0.0741**	**7.0828**	**1.8799**	**0.0691**	**1.9490**		**9,939.1067**	**9,939.1067**	**0.3933**		**9,948.9384**

3.5 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**		**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

3.5 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3027	10.0181	3.1014	0.0352	0.9156	0.0116	0.9271	0.2636	0.0111	0.2747		3,773.8762	3,773.8762	0.1982		3,778.8300
Worker	2.2780	1.3628	19.4002	0.0584	6.0932	0.0479	6.1411	1.6163	0.0441	1.6604		5,821.4028	5,821.4028	0.1529		5,825.2254
Total	**2.5807**	**11.3809**	**22.5017**	**0.0936**	**7.0088**	**0.0595**	**7.0682**	**1.8799**	**0.0552**	**1.9350**		**9,595.2790**	**9,595.2790**	**0.3511**		**9,604.0554**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**	**0.0000**	**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

3.5 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3027	10.0181	3.1014	0.0352	0.9156	0.0116	0.9271	0.2636	0.0111	0.2747		3,773.8762	3,773.8762	0.1982		3,778.8300
Worker	2.2780	1.3628	19.4002	0.0584	6.0932	0.0479	6.1411	1.6163	0.0441	1.6604		5,821.4028	5,821.4028	0.1529		5,825.2254
Total	**2.5807**	**11.3809**	**22.5017**	**0.0936**	**7.0088**	**0.0595**	**7.0682**	**1.8799**	**0.0552**	**1.9350**		**9,595.2790**	**9,595.2790**	**0.3511**		**9,604.0554**

3.6 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694		2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0327**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**		**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

3.6 Paving - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0427	0.0255	0.3633	1.0900e-003	0.1141	9.0000e-004	0.1150	0.0303	8.3000e-004	0.0311		109.0150	109.0150	2.8600e-003		109.0866
Total	**0.0427**	**0.0255**	**0.3633**	**1.0900e-003**	**0.1141**	**9.0000e-004**	**0.1150**	**0.0303**	**8.3000e-004**	**0.0311**		**109.0150**	**109.0150**	**2.8600e-003**		**109.0866**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694	0.0000	2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0327**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**	**0.0000**	**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

3.6 Paving - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0427	0.0255	0.3633	1.0900e-003	0.1141	9.0000e-004	0.1150	0.0303	8.3000e-004	0.0311		109.0150	109.0150	2.8600e-003		109.0866
Total	**0.0427**	**0.0255**	**0.3633**	**1.0900e-003**	**0.1141**	**9.0000e-004**	**0.1150**	**0.0303**	**8.3000e-004**	**0.0311**		**109.0150**	**109.0150**	**2.8600e-003**		**109.0866**

3.6 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310		2,207.5472	2,207.5472	0.7140		2,225.3963
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9882**	**9.5246**	**14.6258**	**0.0228**		**0.4685**	**0.4685**		**0.4310**	**0.4310**		**2,207.5472**	**2,207.5472**	**0.7140**		**2,225.3963**

3.6 Paving - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0403	0.0233	0.3384	1.0600e-003	0.1141	8.8000e-004	0.1150	0.0303	8.1000e-004	0.0311		105.6336	105.6336	2.6300e-003		105.6992
Total	**0.0403**	**0.0233**	**0.3384**	**1.0600e-003**	**0.1141**	**8.8000e-004**	**0.1150**	**0.0303**	**8.1000e-004**	**0.0311**		**105.6336**	**105.6336**	**2.6300e-003**		**105.6992**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310	0.0000	2,207.5472	2,207.5472	0.7140		2,225.3963
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9882**	**9.5246**	**14.6258**	**0.0228**		**0.4685**	**0.4685**		**0.4310**	**0.4310**	**0.0000**	**2,207.5472**	**2,207.5472**	**0.7140**		**2,225.3963**

3.6 Paving - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0403	0.0233	0.3384	1.0600e-003	0.1141	8.8000e-004	0.1150	0.0303	8.1000e-004	0.0311		105.6336	105.6336	2.6300e-003		105.6992
Total	**0.0403**	**0.0233**	**0.3384**	**1.0600e-003**	**0.1141**	**8.8000e-004**	**0.1150**	**0.0303**	**8.1000e-004**	**0.0311**		**105.6336**	**105.6336**	**2.6300e-003**		**105.6992**

3.7 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	236.4115					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
Total	**236.5923**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**		**281.4481**	**281.4481**	**0.0159**		**281.8443**

3.7 Architectural Coating - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.4296	0.2481	3.6098	0.0113	1.2171	9.4300e-003	1.2266	0.3229	8.6800e-003	0.3315		1,126.7583	1,126.7583	0.0280		1,127.4583
Total	**0.4296**	**0.2481**	**3.6098**	**0.0113**	**1.2171**	**9.4300e-003**	**1.2266**	**0.3229**	**8.6800e-003**	**0.3315**		**1,126.7583**	**1,126.7583**	**0.0280**		**1,127.4583**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	236.4115					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609	0.0000	281.4481	281.4481	0.0159		281.8443
Total	**236.5923**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**	**0.0000**	**281.4481**	**281.4481**	**0.0159**		**281.8443**

3.7 Architectural Coating - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.4296	0.2481	3.6098	0.0113	1.2171	9.4300e-003	1.2266	0.3229	8.6800e-003	0.3315		1,126.7583	1,126.7583	0.0280		1,127.4583
Total	**0.4296**	**0.2481**	**3.6098**	**0.0113**	**1.2171**	**9.4300e-003**	**1.2266**	**0.3229**	**8.6800e-003**	**0.3315**		**1,126.7583**	**1,126.7583**	**0.0280**		**1,127.4583**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	9.8489	45.4304	114.8495	0.4917	45.9592	0.3360	46.2951	12.2950	0.3119	12.6070		50,306.6034	50,306.6034	2.1807		50,361.1208
Unmitigated	9.8489	45.4304	114.8495	0.4917	45.9592	0.3360	46.2951	12.2950	0.3119	12.6070		50,306.6034	50,306.6034	2.1807		50,361.1208

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	145.75	154.25	154.00	506,227	506,227
Apartments Mid Rise	4,026.75	3,773.25	4075.50	13,660,065	13,660,065
General Office Building	288.45	62.55	31.05	706,812	706,812
High Turnover (Sit Down Restaurant)	2,368.80	2,873.52	2817.72	3,413,937	3,413,937
Hotel	192.00	187.50	160.00	445,703	445,703
Quality Restaurant	501.12	511.92	461.20	707,488	707,488
Regional Shopping Center	528.08	601.44	357.84	1,112,221	1,112,221
Total	8,050.95	8,164.43	8,057.31	20,552,452	20,552,452

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Apartments Mid Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4
High Turnover (Sit Down	16.60	8.40	6.90	8.50	72.50	19.00	37	20	43
Hotel	16.60	8.40	6.90	19.40	61.60	19.00	58	38	4
Quality Restaurant	16.60	8.40	6.90	12.00	69.00	19.00	38	18	44
Regional Shopping Center	16.60	8.40	6.90	16.30	64.70	19.00	54	35	11

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Apartments Mid Rise	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
General Office Building	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
High Turnover (Sit Down Restaurant)	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Hotel	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Quality Restaurant	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Regional Shopping Center	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Village South Specific Plan (Proposed) - Los Angeles-South Coast County, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.7660	6.7462	4.2573	0.0418		0.5292	0.5292		0.5292	0.5292		8,355.9832	8,355.9832	0.1602	0.1532	8,405.6387
NaturalGas Unmitigated	0.7660	6.7462	4.2573	0.0418		0.5292	0.5292		0.5292	0.5292		8,355.9832	8,355.9832	0.1602	0.1532	8,405.6387

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	1119.16	0.0121	0.1031	0.0439	6.6000e-004		8.3400e-003	8.3400e-003		8.3400e-003	8.3400e-003		131.6662	131.6662	2.5200e-003	2.4100e-003	132.4486
Apartments Mid Rise	35784.3	0.3859	3.2978	1.4033	0.0211		0.2666	0.2666		0.2666	0.2666		4,209.9164	4,209.9164	0.0807	0.0772	4,234.9339
General Office Building	1283.42	0.0138	0.1258	0.1057	7.5000e-004		9.5600e-003	9.5600e-003		9.5600e-003	9.5600e-003		150.9911	150.9911	2.8900e-003	2.7700e-003	151.8884
High Turnover (Sit Down Restaurant)	22759.9	0.2455	2.2314	1.8743	0.0134		0.1696	0.1696		0.1696	0.1696		2,677.6342	2,677.6342	0.0513	0.0491	2,693.5460
Hotel	4769.72	0.0514	0.4676	0.3928	2.8100e-003		0.0355	0.0355		0.0355	0.0355		561.1436	561.1436	0.0108	0.0103	564.4782
Quality Restaurant	5057.75	0.0545	0.4959	0.4165	2.9800e-003		0.0377	0.0377		0.0377	0.0377		595.0298	595.0298	0.0114	0.0109	598.5658
Regional Shopping Center	251.616	2.7100e-003	0.0247	0.0207	1.5000e-004		1.8700e-003	1.8700e-003		1.8700e-003	1.8700e-003		29.6019	29.6019	5.7000e-004	5.4000e-004	29.7778
Total		**0.7660**	**6.7463**	**4.2573**	**0.0418**		**0.5292**	**0.5292**		**0.5292**	**0.5292**		**8,355.9832**	**8,355.9832**	**0.1602**	**0.1532**	**8,405.6387**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	1.11916	0.0121	0.1031	0.0439	6.6000e-004		8.3400e-003	8.3400e-003		8.3400e-003	8.3400e-003		131.6662	131.6662	2.5200e-003	2.4100e-003	132.4486
Apartments Mid Rise	35.7843	0.3859	3.2978	1.4033	0.0211		0.2666	0.2666		0.2666	0.2666		4,209.9164	4,209.9164	0.0807	0.0772	4,234.9339
General Office Building	1.28342	0.0138	0.1258	0.1057	7.5000e-004		9.5600e-003	9.5600e-003		9.5600e-003	9.5600e-003		150.9911	150.9911	2.8900e-003	2.7700e-003	151.8884
High Turnover (Sit Down Restaurant)	22.7599	0.2455	2.2314	1.8743	0.0134		0.1696	0.1696		0.1696	0.1696		2,677.6342	2,677.6342	0.0513	0.0491	2,693.5460
Hotel	4.76972	0.0514	0.4676	0.3928	2.8100e-003		0.0355	0.0355		0.0355	0.0355		561.1436	561.1436	0.0108	0.0103	564.4782
Quality Restaurant	5.05775	0.0545	0.4959	0.4165	2.9800e-003		0.0377	0.0377		0.0377	0.0377		595.0298	595.0298	0.0114	0.0109	598.5658
Regional Shopping Center	0.251616	2.7100e-003	0.0247	0.0207	1.5000e-004		1.8700e-003	1.8700e-003		1.8700e-003	1.8700e-003		29.6019	29.6019	5.7000e-004	5.4000e-004	29.7778
Total		**0.7660**	**6.7463**	**4.2573**	**0.0418**		**0.5292**	**0.5292**		**0.5292**	**0.5292**		**8,355.9832**	**8,355.9832**	**0.1602**	**0.1532**	**8,405.6387**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	30.5020	15.0496	88.4430	0.0944		1.5974	1.5974		1.5974	1.5974	0.0000	18,148.5950	18,148.5950	0.4874	0.3300	18,259.1192
Unmitigated	30.5020	15.0496	88.4430	0.0944		1.5974	1.5974		1.5974	1.5974	0.0000	18,148.5950	18,148.5950	0.4874	0.3300	18,259.1192

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.2670					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	24.1085					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	1.6500	14.1000	6.0000	0.0900		1.1400	1.1400		1.1400	1.1400	0.0000	18,000.0000	18,000.0000	0.3450	0.3300	18,106.9650
Landscaping	2.4766	0.9496	82.4430	4.3600e-003		0.4574	0.4574		0.4574	0.4574		148.5950	148.5950	0.1424		152.1542
Total	**30.5020**	**15.0496**	**88.4430**	**0.0944**		**1.5974**	**1.5974**		**1.5974**	**1.5974**	**0.0000**	**18,148.5950**	**18,148.5950**	**0.4874**	**0.3300**	**18,259.1192**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.2670					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	24.1085					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	1.6500	14.1000	6.0000	0.0900		1.1400	1.1400		1.1400	1.1400	0.0000	18,000.0000	18,000.0000	0.3450	0.3300	18,106.9650
Landscaping	2.4766	0.9496	82.4430	4.3600e-003		0.4574	0.4574		0.4574	0.4574		148.5950	148.5950	0.1424		152.1542
Total	**30.5020**	**15.0496**	**88.4430**	**0.0944**		**1.5974**	**1.5974**		**1.5974**	**1.5974**	**0.0000**	**18,148.5950**	**18,148.5950**	**0.4874**	**0.3300**	**18,259.1192**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Village South Specific Plan (Proposed)

Los Angeles-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	45.00	1000sqft	1.03	45,000.00	0
High Turnover (Sit Down Restaurant)	36.00	1000sqft	0.83	36,000.00	0
Hotel	50.00	Room	1.67	72,600.00	0
Quality Restaurant	8.00	1000sqft	0.18	8,000.00	0
Apartments Low Rise	25.00	Dwelling Unit	1.56	25,000.00	72
Apartments Mid Rise	975.00	Dwelling Unit	25.66	975,000.00	2789
Regional Shopping Center	56.00	1000sqft	1.29	56,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	9			**Operational Year**	2028
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Village South Specific Plan (Proposed) - Los Angeles-South Coast County, Winter

Project Characteristics - Consistent with the DEIR's model.

Land Use - See SWAPE comment regarding residential and retail land uses.

Construction Phase - See SWAPE comment regarding individual construction phase lengths.

Demolition - Consistent with the DEIR's model. See SWAPE comment regarding demolition.

Vehicle Trips - Saturday trips consistent with the DEIR's model. See SWAPE comment regarding weekday and Sunday trips.

Woodstoves - Woodstoves and wood-burning fireplaces consistent with the DEIR's model. See SWAPE comment regarding gas fireplaces.

Energy Use -

Construction Off-road Equipment Mitigation - See SWAPE comment on construction-related mitigation.

Area Mitigation - See SWAPE comment regarding operational mitigation measures.

Water Mitigation - See SWAPE comment regarding operational mitigation measures.

Trips and VMT - Local hire provision

Table Name	Column Name	Default Value	New Value
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberWood	1.25	0.00
tblFireplaces	NumberWood	48.75	0.00
tblTripsAndVMT	WorkerTripLength	14.70	10.00
tblTripsAndVMT	WorkerTripLength	14.70	10.00
tblTripsAndVMT	WorkerTripLength	14.70	10.00
tblTripsAndVMT	WorkerTripLength	14.70	10.00
tblTripsAndVMT	WorkerTripLength	14.70	10.00
tblTripsAndVMT	WorkerTripLength	14.70	10.00
tblVehicleTrips	ST_TR	7.16	6.17
tblVehicleTrips	ST_TR	6.39	3.87
tblVehicleTrips	ST_TR	2.46	1.39
tblVehicleTrips	ST_TR	158.37	79.82

tblVehicleTrips	ST_TR	8.19	3.75
tblVehicleTrips	ST_TR	94.36	63.99
tblVehicleTrips	ST_TR	49.97	10.74
tblVehicleTrips	SU_TR	6.07	6.16
tblVehicleTrips	SU_TR	5.86	4.18
tblVehicleTrips	SU_TR	1.05	0.69
tblVehicleTrips	SU_TR	131.84	78.27
tblVehicleTrips	SU_TR	5.95	3.20
tblVehicleTrips	SU_TR	72.16	57.65
tblVehicleTrips	SU_TR	25.24	6.39
tblVehicleTrips	WD_TR	6.59	5.83
tblVehicleTrips	WD_TR	6.65	4.13
tblVehicleTrips	WD_TR	11.03	6.41
tblVehicleTrips	WD_TR	127.15	65.80
tblVehicleTrips	WD_TR	8.17	3.84
tblVehicleTrips	WD_TR	89.95	62.64
tblVehicleTrips	WD_TR	42.70	9.43
tblWoodstoves	NumberCatalytic	1.25	0.00
tblWoodstoves	NumberCatalytic	48.75	0.00
tblWoodstoves	NumberNoncatalytic	1.25	0.00
tblWoodstoves	NumberNoncatalytic	48.75	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	4.2621	46.4460	31.4068	0.0635	18.2032	2.0456	20.2488	9.9670	1.8820	11.8490	0.0000	6,154.3377	6,154.3377	1.9472	0.0000	6,203.0186
2022	4.7966	38.8851	39.6338	0.1195	8.8255	1.6361	10.4616	3.6369	1.5052	5.1421	0.0000	12,035.3440	12,035.3440	1.9482	0.0000	12,060.6013
2023	4.3939	25.8648	37.5031	0.1162	7.0088	0.7598	7.7685	1.8799	0.7142	2.5940	0.0000	11,710.4080	11,710.4080	0.9617	0.0000	11,734.4497
2024	237.0656	9.5503	14.9372	0.0238	1.2171	0.4694	1.2875	0.3229	0.4319	0.4621	0.0000	2,307.0517	2,307.0517	0.7164	0.0000	2,324.9627
Maximum	**237.0656**	**46.4460**	**39.6338**	**0.1195**	**18.2032**	**2.0456**	**20.2488**	**9.9670**	**1.8820**	**11.8490**	**0.0000**	**12,035.3440**	**12,035.3440**	**1.9482**	**0.0000**	**12,060.6013**

2.1 Overall Construction (Maximum Daily Emission)

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	4.2621	46.4460	31.4068	0.0635	18.2032	2.0456	20.2488	9.9670	1.8820	11.8490	0.0000	6,154.3377	6,154.3377	1.9472	0.0000	6,203.0186
2022	4.7966	38.8851	39.6338	0.1195	8.8255	1.6361	10.4616	3.6369	1.5052	5.1421	0.0000	12,035.3440	12,035.3440	1.9482	0.0000	12,060.6013
2023	4.3939	25.8648	37.5031	0.1162	7.0088	0.7598	7.7685	1.8799	0.7142	2.5940	0.0000	11,710.4080	11,710.4080	0.9617	0.0000	11,734.4497
2024	237.0656	9.5503	14.9372	0.0238	1.2171	0.4694	1.2875	0.3229	0.4319	0.4621	0.0000	2,307.0517	2,307.0517	0.7164	0.0000	2,324.9627
Maximum	**237.0656**	**46.4460**	**39.6338**	**0.1195**	**18.2032**	**2.0456**	**20.2488**	**9.9670**	**1.8820**	**11.8490**	**0.0000**	**12,035.3440**	**12,035.3440**	**1.9482**	**0.0000**	**12,060.6013**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	30.5020	15.0496	88.4430	0.0944		1.5974	1.5974		1.5974	1.5974	0.0000	18,148.5950	18,148.5950	0.4874	0.3300	18,259.1192
Energy	0.7660	6.7462	4.2573	0.0418		0.5292	0.5292		0.5292	0.5292		8,355.9832	8,355.9832	0.1602	0.1532	8,405.6387
Mobile	9.5233	45.9914	110.0422	0.4681	45.9592	0.3373	46.2965	12.2950	0.3132	12.6083		47,917.8005	47,917.8005	2.1953		47,972.6839
Total	**40.7912**	**67.7872**	**202.7424**	**0.6043**	**45.9592**	**2.4640**	**48.4231**	**12.2950**	**2.4399**	**14.7349**	**0.0000**	**74,422.3787**	**74,422.3787**	**2.8429**	**0.4832**	**74,637.4417**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	30.5020	15.0496	88.4430	0.0944		1.5974	1.5974		1.5974	1.5974	0.0000	18,148.5950	18,148.5950	0.4874	0.3300	18,259.1192
Energy	0.7660	6.7462	4.2573	0.0418		0.5292	0.5292		0.5292	0.5292		8,355.9832	8,355.9832	0.1602	0.1532	8,405.6387
Mobile	9.5233	45.9914	110.0422	0.4681	45.9592	0.3373	46.2965	12.2950	0.3132	12.6083		47,917.8005	47,917.8005	2.1953		47,972.6839
Total	**40.7912**	**67.7872**	**202.7424**	**0.6043**	**45.9592**	**2.4640**	**48.4231**	**12.2950**	**2.4399**	**14.7349**	**0.0000**	**74,422.3787**	**74,422.3787**	**2.8429**	**0.4832**	**74,637.4417**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	9/1/2021	10/12/2021	5	30	
2	Site Preparation	Site Preparation	10/13/2021	11/9/2021	5	20	
3	Grading	Grading	11/10/2021	1/11/2022	5	45	
4	Building Construction	Building Construction	1/12/2022	12/12/2023	5	500	
5	Paving	Paving	12/13/2023	1/30/2024	5	35	
6	Architectural Coating	Architectural Coating	1/31/2024	3/19/2024	5	35	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 112.5

Acres of Paving: 0

Residential Indoor: 2,025,000; Residential Outdoor: 675,000; Non-Residential Indoor: 326,400; Non-Residential Outdoor: 108,800; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Village South Specific Plan (Proposed) - Los Angeles-South Coast County, Winter

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	458.00	10.00	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.00	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.00	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	801.00	143.00	0.00	10.00	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	160.00	0.00	0.00	10.00	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.3074	0.0000	3.3074	0.5008	0.0000	0.5008			0.0000			0.0000
Off-Road	3.1651	31.4407	21.5650	0.0388		1.5513	1.5513		1.4411	1.4411		3,747.9449	3,747.9449	1.0549		3,774.3174
Total	**3.1651**	**31.4407**	**21.5650**	**0.0388**	**3.3074**	**1.5513**	**4.8588**	**0.5008**	**1.4411**	**1.9419**		**3,747.9449**	**3,747.9449**	**1.0549**		**3,774.3174**

3.2 Demolition - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1304	4.1454	1.0182	0.0117	0.2669	0.0128	0.2797	0.0732	0.0122	0.0854		1,269.8555	1,269.8555	0.0908		1,272.1252
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0532	0.0346	0.3963	1.1100e-003	0.1141	9.5000e-004	0.1151	0.0303	8.8000e-004	0.0311		110.4707	110.4707	3.3300e-003		110.5539
Total	**0.1835**	**4.1800**	**1.4144**	**0.0128**	**0.3810**	**0.0137**	**0.3948**	**0.1034**	**0.0131**	**0.1165**		**1,380.3262**	**1,380.3262**	**0.0941**		**1,382.6791**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.3074	0.0000	3.3074	0.5008	0.0000	0.5008			0.0000			0.0000
Off-Road	3.1651	31.4407	21.5650	0.0388		1.5513	1.5513		1.4411	1.4411	0.0000	3,747.9449	3,747.9449	1.0549		3,774.3174
Total	**3.1651**	**31.4407**	**21.5650**	**0.0388**	**3.3074**	**1.5513**	**4.8588**	**0.5008**	**1.4411**	**1.9419**	**0.0000**	**3,747.9449**	**3,747.9449**	**1.0549**		**3,774.3174**

3.2 Demolition - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1304	4.1454	1.0182	0.0117	0.2669	0.0128	0.2797	0.0732	0.0122	0.0854		1,269.8555	1,269.8555	0.0908		1,272.1252
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0532	0.0346	0.3963	1.1100e-003	0.1141	9.5000e-004	0.1151	0.0303	8.8000e-004	0.0311		110.4707	110.4707	3.3300e-003		110.5539
Total	**0.1835**	**4.1800**	**1.4144**	**0.0128**	**0.3810**	**0.0137**	**0.3948**	**0.1034**	**0.0131**	**0.1165**		**1,380.3262**	**1,380.3262**	**0.0941**		**1,382.6791**

3.3 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809		3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**3.8882**	**40.4971**	**21.1543**	**0.0380**	**18.0663**	**2.0445**	**20.1107**	**9.9307**	**1.8809**	**11.8116**		**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

3.3 Site Preparation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0638	0.0415	0.4755	1.3300e-003	0.1369	1.1400e-003	0.1381	0.0363	1.0500e-003	0.0374		132.5649	132.5649	3.9900e-003		132.6646
Total	**0.0638**	**0.0415**	**0.4755**	**1.3300e-003**	**0.1369**	**1.1400e-003**	**0.1381**	**0.0363**	**1.0500e-003**	**0.0374**		**132.5649**	**132.5649**	**3.9900e-003**		**132.6646**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809	0.0000	3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**3.8882**	**40.4971**	**21.1543**	**0.0380**	**18.0663**	**2.0445**	**20.1107**	**9.9307**	**1.8809**	**11.8116**	**0.0000**	**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

3.3 Site Preparation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0638	0.0415	0.4755	1.3300e-003	0.1369	1.1400e-003	0.1381	0.0363	1.0500e-003	0.0374		132.5649	132.5649	3.9900e-003		132.6646
Total	**0.0638**	**0.0415**	**0.4755**	**1.3300e-003**	**0.1369**	**1.1400e-003**	**0.1381**	**0.0363**	**1.0500e-003**	**0.0374**		**132.5649**	**132.5649**	**3.9900e-003**		**132.6646**

3.4 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	4.1912	46.3998	30.8785	0.0620		1.9853	1.9853		1.8265	1.8265		6,007.0434	6,007.0434	1.9428		6,055.6134
Total	**4.1912**	**46.3998**	**30.8785**	**0.0620**	**8.6733**	**1.9853**	**10.6587**	**3.5965**	**1.8265**	**5.4230**		**6,007.0434**	**6,007.0434**	**1.9428**		**6,055.6134**

3.4 Grading - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0709	0.0462	0.5284	1.4800e-003	0.1521	1.2700e-003	0.1534	0.0404	1.1700e-003	0.0415		147.2943	147.2943	4.4300e-003		147.4051
Total	**0.0709**	**0.0462**	**0.5284**	**1.4800e-003**	**0.1521**	**1.2700e-003**	**0.1534**	**0.0404**	**1.1700e-003**	**0.0415**		**147.2943**	**147.2943**	**4.4300e-003**		**147.4051**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	4.1912	46.3998	30.8785	0.0620		1.9853	1.9853		1.8265	1.8265	0.0000	6,007.0434	6,007.0434	1.9428		6,055.6134
Total	**4.1912**	**46.3998**	**30.8785**	**0.0620**	**8.6733**	**1.9853**	**10.6587**	**3.5965**	**1.8265**	**5.4230**	**0.0000**	**6,007.0434**	**6,007.0434**	**1.9428**		**6,055.6134**

3.4 Grading - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0709	0.0462	0.5284	1.4800e-003	0.1521	1.2700e-003	0.1534	0.0404	1.1700e-003	0.0415		147.2943	147.2943	4.4300e-003		147.4051
Total	**0.0709**	**0.0462**	**0.5284**	**1.4800e-003**	**0.1521**	**1.2700e-003**	**0.1534**	**0.0404**	**1.1700e-003**	**0.0415**		**147.2943**	**147.2943**	**4.4300e-003**		**147.4051**

3.4 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	3.6248	38.8435	29.0415	0.0621		1.6349	1.6349		1.5041	1.5041		6,011.4105	6,011.4105	1.9442		6,060.0158
Total	**3.6248**	**38.8435**	**29.0415**	**0.0621**	**8.6733**	**1.6349**	**10.3082**	**3.5965**	**1.5041**	**5.1006**		**6,011.4105**	**6,011.4105**	**1.9442**		**6,060.0158**

3.4 Grading - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0665	0.0416	0.4861	1.4300e-003	0.1521	1.2300e-003	0.1534	0.0404	1.1300e-003	0.0415		142.1207	142.1207	4.0000e-003		142.2207
Total	**0.0665**	**0.0416**	**0.4861**	**1.4300e-003**	**0.1521**	**1.2300e-003**	**0.1534**	**0.0404**	**1.1300e-003**	**0.0415**		**142.1207**	**142.1207**	**4.0000e-003**		**142.2207**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	3.6248	38.8435	29.0415	0.0621		1.6349	1.6349		1.5041	1.5041	0.0000	6,011.4105	6,011.4105	1.9442		6,060.0158
Total	**3.6248**	**38.8435**	**29.0415**	**0.0621**	**8.6733**	**1.6349**	**10.3082**	**3.5965**	**1.5041**	**5.1006**	**0.0000**	**6,011.4105**	**6,011.4105**	**1.9442**		**6,060.0158**

3.4 Grading - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0665	0.0416	0.4861	1.4300e-003	0.1521	1.2300e-003	0.1534	0.0404	1.1300e-003	0.0415		142.1207	142.1207	4.0000e-003		142.2207
Total	**0.0665**	**0.0416**	**0.4861**	**1.4300e-003**	**0.1521**	**1.2300e-003**	**0.1534**	**0.0404**	**1.1300e-003**	**0.0415**		**142.1207**	**142.1207**	**4.0000e-003**		**142.2207**

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**		**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

3.5 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4284	13.1673	3.8005	0.0354	0.9155	0.0256	0.9412	0.2636	0.0245	0.2881		3,789.0750	3,789.0750	0.2381		3,795.0283
Worker	2.6620	1.6677	19.4699	0.0571	6.0932	0.0493	6.1425	1.6163	0.0454	1.6617		5,691.9354	5,691.9354	0.1602		5,695.9408
Total	**3.0904**	**14.8350**	**23.2704**	**0.0926**	**7.0087**	**0.0749**	**7.0836**	**1.8799**	**0.0699**	**1.9498**		**9,481.0104**	**9,481.0104**	**0.3984**		**9,490.9691**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**	**0.0000**	**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

3.5 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4284	13.1673	3.8005	0.0354	0.9155	0.0256	0.9412	0.2636	0.0245	0.2881		3,789.0750	3,789.0750	0.2381		3,795.0283
Worker	2.6620	1.6677	19.4699	0.0571	6.0932	0.0493	6.1425	1.6163	0.0454	1.6617		5,691.9354	5,691.9354	0.1602		5,695.9408
Total	**3.0904**	**14.8350**	**23.2704**	**0.0926**	**7.0087**	**0.0749**	**7.0836**	**1.8799**	**0.0699**	**1.9498**		**9,481.0104**	**9,481.0104**	**0.3984**		**9,490.9691**

3.5 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**		**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

3.5 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3183	9.9726	3.3771	0.0343	0.9156	0.0122	0.9277	0.2636	0.0116	0.2752		3,671.4007	3,671.4007	0.2096		3,676.6417
Worker	2.5029	1.5073	17.8820	0.0550	6.0932	0.0479	6.1411	1.6163	0.0441	1.6604		5,483.7974	5,483.7974	0.1442		5,487.4020
Total	**2.8211**	**11.4799**	**21.2591**	**0.0893**	**7.0088**	**0.0601**	**7.0688**	**1.8799**	**0.0557**	**1.9356**		**9,155.1981**	**9,155.1981**	**0.3538**		**9,164.0437**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**	**0.0000**	**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

3.5 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3183	9.9726	3.3771	0.0343	0.9156	0.0122	0.9277	0.2636	0.0116	0.2752		3,671.4007	3,671.4007	0.2096		3,676.6417
Worker	2.5029	1.5073	17.8820	0.0550	6.0932	0.0479	6.1411	1.6163	0.0441	1.6604		5,483.7974	5,483.7974	0.1442		5,487.4020
Total	**2.8211**	**11.4799**	**21.2591**	**0.0893**	**7.0088**	**0.0601**	**7.0688**	**1.8799**	**0.0557**	**1.9356**		**9,155.1981**	**9,155.1981**	**0.3538**		**9,164.0437**

3.6 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694		2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0327**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**		**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

3.6 Paving - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0469	0.0282	0.3349	1.0300e-003	0.1141	9.0000e-004	0.1150	0.0303	8.3000e-004	0.0311		102.6928	102.6928	2.7000e-003		102.7603
Total	**0.0469**	**0.0282**	**0.3349**	**1.0300e-003**	**0.1141**	**9.0000e-004**	**0.1150**	**0.0303**	**8.3000e-004**	**0.0311**		**102.6928**	**102.6928**	**2.7000e-003**		**102.7603**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694	0.0000	2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0327**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**	**0.0000**	**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

3.6 Paving - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0469	0.0282	0.3349	1.0300e-003	0.1141	9.0000e-004	0.1150	0.0303	8.3000e-004	0.0311		102.6928	102.6928	2.7000e-003		102.7603
Total	**0.0469**	**0.0282**	**0.3349**	**1.0300e-003**	**0.1141**	**9.0000e-004**	**0.1150**	**0.0303**	**8.3000e-004**	**0.0311**		**102.6928**	**102.6928**	**2.7000e-003**		**102.7603**

3.6 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310		2,207.5472	2,207.5472	0.7140		2,225.3963
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9882**	**9.5246**	**14.6258**	**0.0228**		**0.4685**	**0.4685**		**0.4310**	**0.4310**		**2,207.5472**	**2,207.5472**	**0.7140**		**2,225.3963**

3.6 Paving - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0444	0.0257	0.3114	1.0000e-003	0.1141	8.8000e-004	0.1150	0.0303	8.1000e-004	0.0311		99.5045	99.5045	2.4700e-003		99.5663
Total	**0.0444**	**0.0257**	**0.3114**	**1.0000e-003**	**0.1141**	**8.8000e-004**	**0.1150**	**0.0303**	**8.1000e-004**	**0.0311**		**99.5045**	**99.5045**	**2.4700e-003**		**99.5663**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310	0.0000	2,207.5472	2,207.5472	0.7140		2,225.3963
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9882**	**9.5246**	**14.6258**	**0.0228**		**0.4685**	**0.4685**		**0.4310**	**0.4310**	**0.0000**	**2,207.5472**	**2,207.5472**	**0.7140**		**2,225.3963**

3.6 Paving - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0444	0.0257	0.3114	1.0000e-003	0.1141	8.8000e-004	0.1150	0.0303	8.1000e-004	0.0311		99.5045	99.5045	2.4700e-003		99.5663
Total	**0.0444**	**0.0257**	**0.3114**	**1.0000e-003**	**0.1141**	**8.8000e-004**	**0.1150**	**0.0303**	**8.1000e-004**	**0.0311**		**99.5045**	**99.5045**	**2.4700e-003**		**99.5663**

3.7 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	236.4115					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
Total	**236.5923**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**		**281.4481**	**281.4481**	**0.0159**		**281.8443**

3.7 Architectural Coating - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.4734	0.2743	3.3220	0.0107	1.2171	9.4300e-003	1.2266	0.3229	8.6800e-003	0.3315		1,061.3818	1,061.3818	0.0264		1,062.0410
Total	**0.4734**	**0.2743**	**3.3220**	**0.0107**	**1.2171**	**9.4300e-003**	**1.2266**	**0.3229**	**8.6800e-003**	**0.3315**		**1,061.3818**	**1,061.3818**	**0.0264**		**1,062.0410**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	236.4115					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609	0.0000	281.4481	281.4481	0.0159		281.8443
Total	**236.5923**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**	**0.0000**	**281.4481**	**281.4481**	**0.0159**		**281.8443**

3.7 Architectural Coating - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.4734	0.2743	3.3220	0.0107	1.2171	9.4300e-003	1.2266	0.3229	8.6800e-003	0.3315		1,061.3818	1,061.3818	0.0264		1,062.0410
Total	**0.4734**	**0.2743**	**3.3220**	**0.0107**	**1.2171**	**9.4300e-003**	**1.2266**	**0.3229**	**8.6800e-003**	**0.3315**		**1,061.3818**	**1,061.3818**	**0.0264**		**1,062.0410**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	9.5233	45.9914	110.0422	0.4681	45.9592	0.3373	46.2965	12.2950	0.3132	12.6083		47,917.8005	47,917.8005	2.1953		47,972.6839
Unmitigated	9.5233	45.9914	110.0422	0.4681	45.9592	0.3373	46.2965	12.2950	0.3132	12.6083		47,917.8005	47,917.8005	2.1953		47,972.6839

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	145.75	154.25	154.00	506,227	506,227
Apartments Mid Rise	4,026.75	3,773.25	4075.50	13,660,065	13,660,065
General Office Building	288.45	62.55	31.05	706,812	706,812
High Turnover (Sit Down Restaurant)	2,368.80	2,873.52	2817.72	3,413,937	3,413,937
Hotel	192.00	187.50	160.00	445,703	445,703
Quality Restaurant	501.12	511.92	461.20	707,488	707,488
Regional Shopping Center	528.08	601.44	357.84	1,112,221	1,112,221
Total	8,050.95	8,164.43	8,057.31	20,552,452	20,552,452

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Apartments Mid Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4
High Turnover (Sit Down	16.60	8.40	6.90	8.50	72.50	19.00	37	20	43
Hotel	16.60	8.40	6.90	19.40	61.60	19.00	58	38	4
Quality Restaurant	16.60	8.40	6.90	12.00	69.00	19.00	38	18	44
Regional Shopping Center	16.60	8.40	6.90	16.30	64.70	19.00	54	35	11

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Apartments Mid Rise	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
General Office Building	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
High Turnover (Sit Down Restaurant)	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Hotel	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Quality Restaurant	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Regional Shopping Center	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Village South Specific Plan (Proposed) - Los Angeles-South Coast County, Winter

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.7660	6.7462	4.2573	0.0418		0.5292	0.5292		0.5292	0.5292		8,355.9832	8,355.9832	0.1602	0.1532	8,405.6387
NaturalGas Unmitigated	0.7660	6.7462	4.2573	0.0418		0.5292	0.5292		0.5292	0.5292		8,355.9832	8,355.9832	0.1602	0.1532	8,405.6387

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	1119.16	0.0121	0.1031	0.0439	6.6000e-004		8.3400e-003	8.3400e-003		8.3400e-003	8.3400e-003		131.6662	131.6662	2.5200e-003	2.4100e-003	132.4486
Apartments Mid Rise	35784.3	0.3859	3.2978	1.4033	0.0211		0.2666	0.2666		0.2666	0.2666		4,209.9164	4,209.9164	0.0807	0.0772	4,234.9339
General Office Building	1283.42	0.0138	0.1258	0.1057	7.5000e-004		9.5600e-003	9.5600e-003		9.5600e-003	9.5600e-003		150.9911	150.9911	2.8900e-003	2.7700e-003	151.8884
High Turnover (Sit Down Restaurant)	22759.9	0.2455	2.2314	1.8743	0.0134		0.1696	0.1696		0.1696	0.1696		2,677.6342	2,677.6342	0.0513	0.0491	2,693.5460
Hotel	4769.72	0.0514	0.4676	0.3928	2.8100e-003		0.0355	0.0355		0.0355	0.0355		561.1436	561.1436	0.0108	0.0103	564.4782
Quality Restaurant	5057.75	0.0545	0.4959	0.4165	2.9800e-003		0.0377	0.0377		0.0377	0.0377		595.0298	595.0298	0.0114	0.0109	598.5658
Regional Shopping Center	251.616	2.7100e-003	0.0247	0.0207	1.5000e-004		1.8700e-003	1.8700e-003		1.8700e-003	1.8700e-003		29.6019	29.6019	5.7000e-004	5.4000e-004	29.7778
Total		**0.7660**	**6.7463**	**4.2573**	**0.0418**		**0.5292**	**0.5292**		**0.5292**	**0.5292**		**8,355.9832**	**8,355.9832**	**0.1602**	**0.1532**	**8,405.6387**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	1.11916	0.0121	0.1031	0.0439	6.6000e-004		8.3400e-003	8.3400e-003		8.3400e-003	8.3400e-003		131.6662	131.6662	2.5200e-003	2.4100e-003	132.4486
Apartments Mid Rise	35.7843	0.3859	3.2978	1.4033	0.0211		0.2666	0.2666		0.2666	0.2666		4,209.9164	4,209.9164	0.0807	0.0772	4,234.9339
General Office Building	1.28342	0.0138	0.1258	0.1057	7.5000e-004		9.5600e-003	9.5600e-003		9.5600e-003	9.5600e-003		150.9911	150.9911	2.8900e-003	2.7700e-003	151.8884
High Turnover (Sit Down Restaurant)	22.7599	0.2455	2.2314	1.8743	0.0134		0.1696	0.1696		0.1696	0.1696		2,677.6342	2,677.6342	0.0513	0.0491	2,693.5460
Hotel	4.76972	0.0514	0.4676	0.3928	2.8100e-003		0.0355	0.0355		0.0355	0.0355		561.1436	561.1436	0.0108	0.0103	564.4782
Quality Restaurant	5.05775	0.0545	0.4959	0.4165	2.9800e-003		0.0377	0.0377		0.0377	0.0377		595.0298	595.0298	0.0114	0.0109	598.5658
Regional Shopping Center	0.251616	2.7100e-003	0.0247	0.0207	1.5000e-004		1.8700e-003	1.8700e-003		1.8700e-003	1.8700e-003		29.6019	29.6019	5.7000e-004	5.4000e-004	29.7778
Total		**0.7660**	**6.7463**	**4.2573**	**0.0418**		**0.5292**	**0.5292**		**0.5292**	**0.5292**		**8,355.9832**	**8,355.9832**	**0.1602**	**0.1532**	**8,405.6387**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	30.5020	15.0496	88.4430	0.0944		1.5974	1.5974		1.5974	1.5974	0.0000	18,148.5950	18,148.5950	0.4874	0.3300	18,259.1192
Unmitigated	30.5020	15.0496	88.4430	0.0944		1.5974	1.5974		1.5974	1.5974	0.0000	18,148.5950	18,148.5950	0.4874	0.3300	18,259.1192

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.2670					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	24.1085					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	1.6500	14.1000	6.0000	0.0900		1.1400	1.1400		1.1400	1.1400	0.0000	18,000.0000	18,000.0000	0.3450	0.3300	18,106.9650
Landscaping	2.4766	0.9496	82.4430	4.3600e-003		0.4574	0.4574		0.4574	0.4574		148.5950	148.5950	0.1424		152.1542
Total	**30.5020**	**15.0496**	**88.4430**	**0.0944**		**1.5974**	**1.5974**		**1.5974**	**1.5974**	**0.0000**	**18,148.5950**	**18,148.5950**	**0.4874**	**0.3300**	**18,259.1192**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.2670					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	24.1085					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	1.6500	14.1000	6.0000	0.0900		1.1400	1.1400		1.1400	1.1400	0.0000	18,000.0000	18,000.0000	0.3450	0.3300	18,106.9650
Landscaping	2.4766	0.9496	82.4430	4.3600e-003		0.4574	0.4574		0.4574	0.4574		148.5950	148.5950	0.1424		152.1542
Total	**30.5020**	**15.0496**	**88.4430**	**0.0944**		**1.5974**	**1.5974**		**1.5974**	**1.5974**	**0.0000**	**18,148.5950**	**18,148.5950**	**0.4874**	**0.3300**	**18,259.1192**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Attachment C

Local Hire Provision Net Change	
Without Local Hire Provision	
Total Construction GHG Emissions (MT CO2e)	3,623
Amortized (MT CO2e/year)	120.77
With Local Hire Provision	
Total Construction GHG Emissions (MT CO2e)	3,024
Amortized (MT CO2e/year)	100.80
% Decrease in Construction-related GHG Emissions	***17%***

EXHIBIT B

SWAPE Technical Consultation, Data Analysis and Litigation Support for the Environment

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Paul Rosenfeld, Ph.D.

Chemical Fate and Transport & Air Dispersion Modeling

Principal Environmental Chemist

Risk Assessment & Remediation Specialist

Education

Ph.D. Soil Chemistry, University of Washington, 1999. Dissertation on volatile organic compound filtration.

M.S. Environmental Science, U.C. Berkeley, 1995. Thesis on organic waste economics.

B.A. Environmental Studies, U.C. Santa Barbara, 1991. Thesis on wastewater treatment.

Professional Experience

Dr. Rosenfeld has over 25 years' experience conducting environmental investigations and risk assessments for evaluating impacts to human health, property, and ecological receptors. His expertise focuses on the fate and transport of environmental contaminants, human health risk, exposure assessment, and ecological restoration. Dr. Rosenfeld has evaluated and modeled emissions from unconventional oil drilling operations, oil spills, landfills, boilers and incinerators, process stacks, storage tanks, confined animal feeding operations, and many other industrial and agricultural sources. His project experience ranges from monitoring and modeling of pollution sources to evaluating impacts of pollution on workers at industrial facilities and residents in surrounding communities.

Dr. Rosenfeld has investigated and designed remediation programs and risk assessments for contaminated sites containing lead, heavy metals, mold, bacteria, particulate matter, petroleum hydrocarbons, chlorinated solvents, pesticides, radioactive waste, dioxins and furans, semi- and volatile organic compounds, PCBs, PAHs, perchlorate, asbestos, per- and poly-fluoroalkyl substances (PFOA/PFOS), unusual polymers, fuel oxygenates (MTBE), among other pollutants. Dr. Rosenfeld also has experience evaluating greenhouse gas emissions from various projects and is an expert on the assessment of odors from industrial and agricultural sites, as well as the evaluation of odor nuisance impacts and technologies for abatement of odorous emissions. As a principal scientist at SWAPE, Dr. Rosenfeld directs air dispersion modeling and exposure assessments. He has served as an expert witness and testified about pollution sources causing nuisance and/or personal injury at dozens of sites and has testified as an expert witness on more than ten cases involving exposure to air contaminants from industrial sources.

Professional History:

Soil Water Air Protection Enterprise (SWAPE); 2003 to present; Principal and Founding Partner
UCLA School of Public Health; 2007 to 2011; Lecturer (Assistant Researcher)
UCLA School of Public Health; 2003 to 2006; Adjunct Professor
UCLA Environmental Science and Engineering Program; 2002-2004; Doctoral Intern Coordinator
UCLA Institute of the Environment, 2001-2002; Research Associate
Komex H_2O Science, 2001 to 2003; Senior Remediation Scientist
National Groundwater Association, 2002-2004; Lecturer
San Diego State University, 1999-2001; Adjunct Professor
Anteon Corp., San Diego, 2000-2001; Remediation Project Manager
Ogden (now Amec), San Diego, 2000-2000; Remediation Project Manager
Bechtel, San Diego, California, 1999 – 2000; Risk Assessor
King County, Seattle, 1996 – 1999; Scientist
James River Corp., Washington, 1995-96; Scientist
Big Creek Lumber, Davenport, California, 1995; Scientist
Plumas Corp., California and USFS, Tahoe 1993-1995; Scientist
Peace Corps and World Wildlife Fund, St. Kitts, West Indies, 1991-1993; Scientist

Publications:

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Rosenfeld, P.E. (April 19-23, 2009). Perfluoroctanoic Acid (PFOA) and Perfluoroactane Sulfonate (PFOS) Contamination in Drinking Water From the Use of Aqueous Film Forming Foams (AFFF) at Airports in the United States. *2009 Ground Water Summit and 2009 Ground Water Protection Council Spring Meeting*, Lecture conducted from Tuscon, AZ.

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Rosenfeld P. E. (March 2007). Blood and Attic Sampling for Dioxin/Furan, PAH, and Metal Exposure in Florala, Alabama. *The AEHS Annual Meeting.* Lecture conducted from San Diego, CA.

Hensley A.R., Scott, A., **Rosenfeld P.E.,** Clark, J.J.J. (August 21 – 25, 2006). Dioxin Containing Attic Dust And Human Blood Samples Collected Near A Former Wood Treatment Facility. *The 26th International Symposium on Halogenated Persistent Organic Pollutants – DIOXIN2006*. Lecture conducted from Radisson SAS Scandinavia Hotel in Oslo Norway.

Hensley A.R., Scott, A., **Rosenfeld P.E.,** Clark, J.J.J. (November 4-8, 2006). Dioxin Containing Attic Dust And Human Blood Samples Collected Near A Former Wood Treatment Facility. *APHA 134 Annual Meeting & Exposition.* Lecture conducted from Boston Massachusetts.

Paul Rosenfeld Ph.D. (October 24-25, 2005). Fate, Transport and Persistence of PFOA and Related Chemicals. Mealey's C8/PFOA. *Science, Risk & Litigation Conference.* Lecture conducted from The Rittenhouse Hotel, Philadelphia, PA.

Paul Rosenfeld Ph.D. (September 19, 2005). Brominated Flame Retardants in Groundwater: Pathways to Human Ingestion, *Toxicology and Remediation PEMA Emerging Contaminant Conference*. Lecture conducted from Hilton Hotel, Irvine California.

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Paul Rosenfeld Ph.D. (September 26-27, 2005). Fate, Transport and Persistence of PDBEs. *Mealey's Groundwater Conference.* Lecture conducted from Ritz Carlton Hotel, Marina Del Ray, California.

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Paul Rosenfeld Ph.D. (July 21-22, 2005). Fate Transport, Persistence and Toxicology of PFOA and Related Perfluorochemicals. *2005 National Groundwater Association Ground Water And Environmental Law Conference*. Lecture conducted from Wyndham Baltimore Inner Harbor, Baltimore Maryland.

Paul Rosenfeld Ph.D. (July 21-22, 2005). Brominated Flame Retardants in Groundwater: Pathways to Human Ingestion, Toxicology and Remediation. *2005 National Groundwater Association Ground Water and Environmental Law Conference.* Lecture conducted from Wyndham Baltimore Inner Harbor, Baltimore Maryland.

Paul Rosenfeld, Ph.D. and James Clark Ph.D. and Rob Hesse R.G. (May 5-6, 2004). Tert-butyl Alcohol Liability and Toxicology, A National Problem and Unquantified Liability. *National Groundwater Association. Environmental Law Conference*. Lecture conducted from Congress Plaza Hotel, Chicago Illinois.

Paul Rosenfeld, Ph.D. (March 2004). Perchlorate Toxicology. *Meeting of the American Groundwater Trust*. Lecture conducted from Phoenix Arizona.

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Paul Rosenfeld, Ph.D. (April 7, 2004). A National Damage Assessment Model For PCE and Dry Cleaners. *Drycleaner Symposium. California Ground Water Association*. Lecture conducted from Radison Hotel, Sacramento, California.

Rosenfeld, P. E., Grey, M., (June 2003) Two stage biofilter for biosolids composting odor control. *Seventh International In Situ And On Site Bioremediation Symposium Battelle Conference* Orlando, FL.

Paul Rosenfeld, Ph.D. and James Clark Ph.D. (February 20-21, 2003) Understanding Historical Use, Chemical Properties, Toxicity and Regulatory Guidance of 1,4 Dioxane. *National Groundwater Association. Southwest Focus Conference. Water Supply and Emerging Contaminants*.. Lecture conducted from Hyatt Regency Phoenix Arizona.

Paul Rosenfeld, Ph.D. (February 6-7, 2003). Underground Storage Tank Litigation and Remediation. *California CUPA Forum*. Lecture conducted from Marriott Hotel, Anaheim California.

Paul Rosenfeld, Ph.D. (October 23, 2002) Underground Storage Tank Litigation and Remediation. *EPA Underground Storage Tank Roundtable*. Lecture conducted from Sacramento California.

Rosenfeld, P.E. and Suffet, M. (October 7- 10, 2002). Understanding Odor from Compost, *Wastewater and Industrial Processes. Sixth Annual Symposium On Off Flavors in the Aquatic Environment. International Water Association*. Lecture conducted from Barcelona Spain.

Rosenfeld, P.E. and Suffet, M. (October 7- 10, 2002). Using High Carbon Wood Ash to Control Compost Odor. *Sixth Annual Symposium On Off Flavors in the Aquatic Environment. International Water Association*. Lecture conducted from Barcelona Spain.

Rosenfeld, P.E. and Grey, M. A. (September 22-24, 2002). Biocycle Composting For Coastal Sage Restoration. *Northwest Biosolids Management Association*. Lecture conducted from Vancouver Washington..

Rosenfeld, P.E. and Grey, M. A. (November 11-14, 2002). Using High-Carbon Wood Ash to Control Odor at a Green Materials Composting Facility. *Soil Science Society Annual Conferenc*e. Lecture conducted from Indianapolis, Maryland.

Rosenfeld. P.E. (September 16, 2000). Two stage biofilter for biosolids composting odor control. *Water Environment Federation.* Lecture conducted from Anaheim California.

Rosenfeld. P.E. (October 16, 2000). Wood ash and biofilter control of compost odor. *Biofest.* Lecture conducted from Ocean Shores, California.

Rosenfeld, P.E. (2000). Bioremediation Using Organic Soil Amendments. *California Resource Recovery Association*. Lecture conducted from Sacramento California.

Rosenfeld, P.E., C.L. Henry, R. Harrison. (1998). Oat and Grass Seed Germination and Nitrogen and Sulfur Emissions Following Biosolids Incorporation With High-Carbon Wood-Ash. *Water Environment Federation 12th Annual Residuals and Biosolids Management Conference Proceedings*. Lecture conducted from Bellevue Washington.

Rosenfeld, P.E., and C.L. Henry. (1999). An evaluation of ash incorporation with biosolids for odor reduction. *Soil Science Society of America*. Lecture conducted from Salt Lake City Utah.

Rosenfeld, P.E., C.L. Henry, R. Harrison. (1998). Comparison of Microbial Activity and Odor Emissions from Three Different Biosolids Applied to Forest Soil. *Brown and Caldwell.* Lecture conducted from Seattle Washington.

Rosenfeld, P.E., C.L. Henry. (1998). Characterization, Quantification, and Control of Odor Emissions from Biosolids Application To Forest Soil. *Biofest.* Lecture conducted from Lake Chelan, Washington.

Rosenfeld, P.E, C.L. Henry, R. Harrison. (1998). Oat and Grass Seed Germination and Nitrogen and Sulfur Emissions Following Biosolids Incorporation With High-Carbon Wood-Ash. Water Environment Federation 12th Annual Residuals and Biosolids Management Conference Proceedings. Lecture conducted from Bellevue Washington.

Rosenfeld, P.E., C.L. Henry, R. B. Harrison, and R. Dills. (1997). Comparison of Odor Emissions From Three Different Biosolids Applied to Forest Soil. *Soil Science Society of America*. Lecture conducted from Anaheim California.

Teaching Experience:

UCLA Department of Environmental Health (Summer 2003 through 20010) Taught Environmental Health Science 100 to students, including undergrad, medical doctors, public health professionals and nurses. Course focused on the health effects of environmental contaminants.

National Ground Water Association, Successful Remediation Technologies. Custom Course in Sante Fe, New Mexico. May 21, 2002. Focused on fate and transport of fuel contaminants associated with underground storage tanks.

National Ground Water Association; Successful Remediation Technologies Course in Chicago Illinois. April 1, 2002. Focused on fate and transport of contaminants associated with Superfund and RCRA sites.

California Integrated Waste Management Board, April and May, 2001. Alternative Landfill Caps Seminar in San Diego, Ventura, and San Francisco. Focused on both prescriptive and innovative landfill cover design.

UCLA Department of Environmental Engineering, February 5, 2002. Seminar on Successful Remediation Technologies focusing on Groundwater Remediation.

University Of Washington, Soil Science Program, Teaching Assistant for several courses including: Soil Chemistry, Organic Soil Amendments, and Soil Stability.

U.C. Berkeley, Environmental Science Program Teaching Assistant for Environmental Science 10.

Academic Grants Awarded:

California Integrated Waste Management Board. $41,000 grant awarded to UCLA Institute of the Environment. Goal: To investigate effect of high carbon wood ash on volatile organic emissions from compost. 2001.

Synagro Technologies, Corona California: $10,000 grant awarded to San Diego State University.
Goal: investigate effect of biosolids for restoration and remediation of degraded coastal sage soils. 2000.

King County, Department of Research and Technology, Washington State. $100,000 grant awarded to University of Washington: Goal: To investigate odor emissions from biosolids application and the effect of polymers and ash on VOC emissions. 1998.

Northwest Biosolids Management Association, Washington State. $20,000 grant awarded to investigate effect of polymers and ash on VOC emissions from biosolids. 1997.

James River Corporation, Oregon: $10,000 grant was awarded to investigate the success of genetically engineered Poplar trees with resistance to round-up. 1996.

United State Forest Service, Tahoe National Forest: $15,000 grant was awarded to investigating fire ecology of the Tahoe National Forest. 1995.

Kellogg Foundation, Washington D.C. $500 grant was awarded to construct a large anaerobic digester on St. Kitts in West Indies. 1993

Deposition and/or Trial Testimony:

In the United States District Court For The District of New Jersey
Duarte et al, *Plaintiffs,* vs. United States Metals Refining Company et. al. *Defendant.*
Case No.: 2:17-cv-01624-ES-SCM
Rosenfeld Deposition. 6-7-2019

In the United States District Court of Southern District of Texas Galveston Division
M/T Carla Maersk, *Plaintiffs,* vs. Conti 168., Schiffahrts-GMBH & Co. Bulker KG MS "Conti Perdido" *Defendant.*
Case No.: 3:15-CV-00106 consolidated with 3:15-CV-00237
Rosenfeld Deposition. 5-9-2019

In The Superior Court of the State of California In And For The County Of Los Angeles – Santa Monica
Carole-Taddeo-Bates et al., vs. Ifran Khan et al., Defendants
Case No.: No. BC615636
Rosenfeld Deposition, 1-26-2019

In The Superior Court of the State of California In And For The County Of Los Angeles – Santa Monica
The San Gabriel Valley Council of Governments et al. vs El Adobe Apts. Inc. et al., Defendants
Case No.: No. BC646857
Rosenfeld Deposition, 10-6-2018; Trial 3-7-19

In United States District Court For The District of Colorado
Bells et al. Plaintiff vs. The 3M Company et al., Defendants
Case: No 1:16-cv-02531-RBJ
Rosenfeld Deposition, 3-15-2018 and 4-3-2018

In The District Court Of Regan County, Texas, 112th Judicial District
Phillip Bales et al., Plaintiff vs. Dow Agrosciences, LLC, et al., Defendants
Cause No 1923
Rosenfeld Deposition, 11-17-2017

In The Superior Court of the State of California In And For The County Of Contra Costa
Simons et al., Plaintiffs vs. Chevron Corporation, et al., Defendants
Cause No C12-01481
Rosenfeld Deposition, 11-20-2017

In The Circuit Court Of The Twentieth Judicial Circuit, St Clair County, Illinois
Martha Custer et al., Plaintiff vs. Cerro Flow Products, Inc., Defendants
Case No.: No. 0i9-L-2295
Rosenfeld Deposition, 8-23-2017

In The Superior Court of the State of California, For The County of Los Angeles
Warrn Gilbert and Penny Gilber, Plaintiff vs. BMW of North America LLC
Case No.: LC102019 (c/w BC582154)
Rosenfeld Deposition, 8-16-2017, Trail 8-28-2018

In the Northern District Court of Mississippi, Greenville Division
Brenda J. Cooper, et al., *Plaintiffs,* vs. Meritor Inc., et al., *Defendants*
Case Number: 4:16-cv-52-DMB-JVM
Rosenfeld Deposition: July 2017

In The Superior Court of the State of Washington, County of Snohomish
Michael Davis and Julie Davis et al., Plaintiff vs. Cedar Grove Composting Inc., Defendants
Case No.: No. 13-2-03987-5
Rosenfeld Deposition, February 2017
Trial, March 2017

In The Superior Court of the State of California, County of Alameda
Charles Spain., Plaintiff vs. Thermo Fisher Scientific, et al., Defendants
Case No.: RG14711115
Rosenfeld Deposition, September 2015

In The Iowa District Court In And For Poweshiek County
Russell D. Winburn, et al., Plaintiffs vs. Doug Hoksbergen, et al., Defendants
Case No.: LALA002187
Rosenfeld Deposition, August 2015

In The Iowa District Court For Wapello County
Jerry Dovico, et al., Plaintiffs vs. Valley View Sine LLC, et al., Defendants
Law No,: LALA105144 - Division A
Rosenfeld Deposition, August 2015

In The Iowa District Court For Wapello County
Doug Pauls, et al.,, et al., Plaintiffs vs. Richard Warren, et al., Defendants
Law No,: LALA105144 - Division A
Rosenfeld Deposition, August 2015

In The Circuit Court of Ohio County, West Virginia
Robert Andrews, et al. v. Antero, et al.
Civil Action N0. 14-C-30000
Rosenfeld Deposition, June 2015

In The Third Judicial District County of Dona Ana, New Mexico
Betty Gonzalez, et al. Plaintiffs vs. Del Oro Dairy, Del Oro Real Estate LLC, Jerry Settles and Deward DeRuyter, Defendants
Rosenfeld Deposition: July 2015

In The Iowa District Court For Muscatine County
Laurie Freeman et. al. Plaintiffs vs. Grain Processing Corporation, Defendant
Case No 4980
Rosenfeld Deposition: May 2015

In the Circuit Court of the 17th Judicial Circuit, in and For Broward County, Florida
Walter Hinton, et. al. Plaintiff, vs. City of Fort Lauderdale, Florida, a Municipality, Defendant.
Case Number CACE07030358 (26)
Rosenfeld Deposition: December 2014

In the United States District Court Western District of Oklahoma
Tommy McCarty, et al., Plaintiffs, v. Oklahoma City Landfill, LLC d/b/a Southeast Oklahoma City Landfill, et al. Defendants.
Case No. 5:12-cv-01152-C
Rosenfeld Deposition: July 2014

In the County Court of Dallas County Texas
Lisa Parr et al, *Plaintiff*, vs. Aruba et al, *Defendant.*
Case Number cc-11-01650-E
Rosenfeld Deposition: March and September 2013
Rosenfeld Trial: April 2014

In the Court of Common Pleas of Tuscarawas County Ohio
John Michael Abicht, et al., *Plaintiffs,* vs. Republic Services, Inc., et al., *Defendants*
Case Number: 2008 CT 10 0741 (Cons. w/ 2009 CV 10 0987)
Rosenfeld Deposition: October 2012

In the United States District Court of Southern District of Texas Galveston Division
Kyle Cannon, Eugene Donovan, Genaro Ramirez, Carol Sassler, and Harvey Walton, each Individually and on behalf of those similarly situated, *Plaintiffs,* vs. BP Products North America, Inc., *Defendant.*
Case 3:10-cv-00622
Rosenfeld Deposition: February 2012
Rosenfeld Trial: April 2013

In the Circuit Court of Baltimore County Maryland
Philip E. Cvach, II et al., *Plaintiffs* vs. Two Farms, Inc. d/b/a Royal Farms, Defendants
Case Number: 03-C-12-012487 OT
Rosenfeld Deposition: September 2013

EXHIBIT C

SWAPE Technical Consultation, Data Analysis and Litigation Support for the Environment

1640 5th St.., Suite 204 Santa
Santa Monica, California 90401
Tel: (949) 887-9013
Email: mhagemann@swape.com

Matthew F. Hagemann, P.G., C.Hg., QSD, QSP

Geologic and Hydrogeologic Characterization
Industrial Stormwater Compliance
Investigation and Remediation Strategies
Litigation Support and Testifying Expert
CEQA Review

Education:

M.S. Degree, Geology, California State University Los Angeles, Los Angeles, CA, 1984.
B.A. Degree, Geology, Humboldt State University, Arcata, CA, 1982.

Professional Certifications:

California Professional Geologist
California Certified Hydrogeologist
Qualified SWPPP Developer and Practitioner

Professional Experience:

Matt has 25 years of experience in environmental policy, assessment and remediation. He spent nine years with the U.S. EPA in the RCRA and Superfund programs and served as EPA's Senior Science Policy Advisor in the Western Regional Office where he identified emerging threats to groundwater from perchlorate and MTBE. While with EPA, Matt also served as a Senior Hydrogeologist in the oversight of the assessment of seven major military facilities undergoing base closure. He led numerous enforcement actions under provisions of the Resource Conservation and Recovery Act (RCRA) while also working with permit holders to improve hydrogeologic characterization and water quality monitoring.

Matt has worked closely with U.S. EPA legal counsel and the technical staff of several states in the application and enforcement of RCRA, Safe Drinking Water Act and Clean Water Act regulations. Matt has trained the technical staff in the States of California, Hawaii, Nevada, Arizona and the Territory of Guam in the conduct of investigations, groundwater fundamentals, and sampling techniques.

Positions Matt has held include:

- Founding Partner, Soil/Water/Air Protection Enterprise (SWAPE) (2003 – present);
- Geology Instructor, Golden West College, 2010 – 2014;
- Senior Environmental Analyst, Komex H2O Science, Inc. (2000 -- 2003);

- Executive Director, Orange Coast Watch (2001 – 2004);
- Senior Science Policy Advisor and Hydrogeologist, U.S. Environmental Protection Agency (1989–1998);
- Hydrogeologist, National Park Service, Water Resources Division (1998 – 2000);
- Adjunct Faculty Member, San Francisco State University, Department of Geosciences (1993 – 1998);
- Instructor, College of Marin, Department of Science (1990 – 1995);
- Geologist, U.S. Forest Service (1986 – 1998); and
- Geologist, Dames & Moore (1984 – 1986).

Senior Regulatory and Litigation Support Analyst:

With SWAPE, Matt's responsibilities have included:

- Lead analyst and testifying expert in the review of over 100 environmental impact reports since 2003 under CEQA that identify significant issues with regard to hazardous waste, water resources, water quality, air quality, Valley Fever, greenhouse gas emissions, and geologic hazards. Make recommendations for additional mitigation measures to lead agencies at the local and county level to include additional characterization of health risks and implementation of protective measures to reduce worker exposure to hazards from toxins and Valley Fever.
- Stormwater analysis, sampling and best management practice evaluation at industrial facilities.
- Manager of a project to provide technical assistance to a community adjacent to a former Naval shipyard under a grant from the U.S. EPA.
- Technical assistance and litigation support for vapor intrusion concerns.
- Lead analyst and testifying expert in the review of environmental issues in license applications for large solar power plants before the California Energy Commission.
- Manager of a project to evaluate numerous formerly used military sites in the western U.S.
- Manager of a comprehensive evaluation of potential sources of perchlorate contamination in Southern California drinking water wells.
- Manager and designated expert for litigation support under provisions of Proposition 65 in the review of releases of gasoline to sources drinking water at major refineries and hundreds of gas stations throughout California.
- Expert witness on two cases involving MTBE litigation.
- Expert witness and litigation support on the impact of air toxins and hazards at a school.
- Expert witness in litigation at a former plywood plant.

With Komex H2O Science Inc., Matt's duties included the following:

- Senior author of a report on the extent of perchlorate contamination that was used in testimony by the former U.S. EPA Administrator and General Counsel.
- Senior researcher in the development of a comprehensive, electronically interactive chronology of MTBE use, research, and regulation.
- Senior researcher in the development of a comprehensive, electronically interactive chronology of perchlorate use, research, and regulation.
- Senior researcher in a study that estimates nationwide costs for MTBE remediation and drinking water treatment, results of which were published in newspapers nationwide and in testimony against provisions of an energy bill that would limit liability for oil companies.
- Research to support litigation to restore drinking water supplies that have been contaminated by MTBE in California and New York.

- Expert witness testimony in a case of oil production-related contamination in Mississippi.
- Lead author for a multi-volume remedial investigation report for an operating school in Los Angeles that met strict regulatory requirements and rigorous deadlines.

- Development of strategic approaches for cleanup of contaminated sites in consultation with clients and regulators.

Executive Director:

As Executive Director with Orange Coast Watch, Matt led efforts to restore water quality at Orange County beaches from multiple sources of contamination including urban runoff and the discharge of wastewater. In reporting to a Board of Directors that included representatives from leading Orange County universities and businesses, Matt prepared issue papers in the areas of treatment and disinfection of wastewater and control of the discharge of grease to sewer systems. Matt actively participated in the development of countywide water quality permits for the control of urban runoff and permits for the discharge of wastewater. Matt worked with other nonprofits to protect and restore water quality, including Surfrider, Natural Resources Defense Council and Orange County CoastKeeper as well as with business institutions including the Orange County Business Council.

Hydrogeology:

As a Senior Hydrogeologist with the U.S. Environmental Protection Agency, Matt led investigations to characterize and cleanup closing military bases, including Mare Island Naval Shipyard, Hunters Point Naval Shipyard, Treasure Island Naval Station, Alameda Naval Station, Moffett Field, Mather Army Airfield, and Sacramento Army Depot. Specific activities were as follows:

- Led efforts to model groundwater flow and contaminant transport, ensured adequacy of monitoring networks, and assessed cleanup alternatives for contaminated sediment, soil, and groundwater.
- Initiated a regional program for evaluation of groundwater sampling practices and laboratory analysis at military bases.
- Identified emerging issues, wrote technical guidance, and assisted in policy and regulation development through work on four national U.S. EPA workgroups, including the Superfund Groundwater Technical Forum and the Federal Facilities Forum.

At the request of the State of Hawaii, Matt developed a methodology to determine the vulnerability of groundwater to contamination on the islands of Maui and Oahu. He used analytical models and a GIS to show zones of vulnerability, and the results were adopted and published by the State of Hawaii and County of Maui.

As a hydrogeologist with the EPA Groundwater Protection Section, Matt worked with provisions of the Safe Drinking Water Act and NEPA to prevent drinking water contamination. Specific activities included the following:

- Received an EPA Bronze Medal for his contribution to the development of national guidance for the protection of drinking water.
- Managed the Sole Source Aquifer Program and protected the drinking water of two communities through designation under the Safe Drinking Water Act. He prepared geologic reports, conducted public hearings, and responded to public comments from residents who were very concerned about the impact of designation.

- Reviewed a number of Environmental Impact Statements for planned major developments, including large hazardous and solid waste disposal facilities, mine reclamation, and water transfer.

Matt served as a hydrogeologist with the RCRA Hazardous Waste program. Duties were as follows:

- Supervised the hydrogeologic investigation of hazardous waste sites to determine compliance with Subtitle C requirements.
- Reviewed and wrote "part B" permits for the disposal of hazardous waste.
- Conducted RCRA Corrective Action investigations of waste sites and led inspections that formed the basis for significant enforcement actions that were developed in close coordination with U.S. EPA legal counsel.
- Wrote contract specifications and supervised contractor's investigations of waste sites.

With the National Park Service, Matt directed service-wide investigations of contaminant sources to prevent degradation of water quality, including the following tasks:

- Applied pertinent laws and regulations including CERCLA, RCRA, NEPA, NRDA, and the Clean Water Act to control military, mining, and landfill contaminants.
- Conducted watershed-scale investigations of contaminants at parks, including Yellowstone and Olympic National Park.
- Identified high-levels of perchlorate in soil adjacent to a national park in New Mexico and advised park superintendent on appropriate response actions under CERCLA.
- Served as a Park Service representative on the Interagency Perchlorate Steering Committee, a national workgroup.
- Developed a program to conduct environmental compliance audits of all National Parks while serving on a national workgroup.
- Co-authored two papers on the potential for water contamination from the operation of personal watercraft and snowmobiles, these papers serving as the basis for the development of nation-wide policy on the use of these vehicles in National Parks.
- Contributed to the Federal Multi-Agency Source Water Agreement under the Clean Water Action Plan.

Policy:

Served senior management as the Senior Science Policy Advisor with the U.S. Environmental Protection Agency, Region 9. Activities included the following:

- Advised the Regional Administrator and senior management on emerging issues such as the potential for the gasoline additive MTBE and ammonium perchlorate to contaminate drinking water supplies.
- Shaped EPA's national response to these threats by serving on workgroups and by contributing to guidance, including the Office of Research and Development publication, Oxygenates in Water: Critical Information and Research Needs.
- Improved the technical training of EPA's scientific and engineering staff.
- Earned an EPA Bronze Medal for representing the region's 300 scientists and engineers in negotiations with the Administrator and senior management to better integrate scientific principles into the policy-making process.
- Established national protocol for the peer review of scientific documents.

Geology:

With the U.S. Forest Service, Matt led investigations to determine hillslope stability of areas proposed for timber harvest in the central Oregon Coast Range. Specific activities were as follows:

- Mapped geology in the field, and used aerial photographic interpretation and mathematical models to determine slope stability.
- Coordinated his research with community members who were concerned with natural resource protection.
- Characterized the geology of an aquifer that serves as the sole source of drinking water for the city of Medford, Oregon.

As a consultant with Dames and Moore, Matt led geologic investigations of two contaminated sites (later listed on the Superfund NPL) in the Portland, Oregon, area and a large hazardous waste site in eastern Oregon. Duties included the following:

- Supervised year-long effort for soil and groundwater sampling.
- Conducted aquifer tests.
- Investigated active faults beneath sites proposed for hazardous waste disposal.

Teaching:

From 1990 to 1998, Matt taught at least one course per semester at the community college and university levels:

- At San Francisco State University, held an adjunct faculty position and taught courses in environmental geology, oceanography (lab and lecture), hydrogeology, and groundwater contamination.
- Served as a committee member for graduate and undergraduate students.
- Taught courses in environmental geology and oceanography at the College of Marin.

Matt taught physical geology (lecture and lab and introductory geology at Golden West College in Huntington Beach, California from 2010 to 2014.

Invited Testimony, Reports, Papers and Presentations:

Hagemann, M.F., 2008. Disclosure of Hazardous Waste Issues under CEQA. Presentation to the Public Environmental Law Conference, Eugene, Oregon.

Hagemann, M.F., 2008. Disclosure of Hazardous Waste Issues under CEQA. Invited presentation to U.S. EPA Region 9, San Francisco, California.

Hagemann, M.F., 2005. Use of Electronic Databases in Environmental Regulation, Policy Making and Public Participation. Brownfields 2005, Denver, Coloradao.

Hagemann, M.F., 2004. Perchlorate Contamination of the Colorado River and Impacts to Drinking Water in Nevada and the Southwestern U.S. Presentation to a meeting of the American Groundwater Trust, Las Vegas, NV (served on conference organizing committee).

Hagemann, M.F., 2004. Invited testimony to a California Senate committee hearing on air toxins at schools in Southern California, Los Angeles.

Brown, A., Farrow, J., Gray, A. and **Hagemann, M.**, 2004. An Estimate of Costs to Address MTBE Releases from Underground Storage Tanks and the Resulting Impact to Drinking Water Wells. Presentation to the Ground Water and Environmental Law Conference, National Groundwater Association.

Hagemann, M.F., 2004. Perchlorate Contamination of the Colorado River and Impacts to Drinking Water in Arizona and the Southwestern U.S. Presentation to a meeting of the American Groundwater Trust, Phoenix, AZ (served on conference organizing committee).

Hagemann, M.F., 2003. Perchlorate Contamination of the Colorado River and Impacts to Drinking Water in the Southwestern U.S. Invited presentation to a special committee meeting of the National Academy of Sciences, Irvine, CA.

Hagemann, M.F., 2003. Perchlorate Contamination of the Colorado River. Invited presentation to a tribal EPA meeting, Pechanga, CA.

Hagemann, M.F., 2003. Perchlorate Contamination of the Colorado River. Invited presentation to a meeting of tribal repesentatives, Parker, AZ.

Hagemann, M.F., 2003. Impact of Perchlorate on the Colorado River and Associated Drinking Water Supplies. Invited presentation to the Inter-Tribal Meeting, Torres Martinez Tribe.

Hagemann, M.F., 2003. The Emergence of Perchlorate as a Widespread Drinking Water Contaminant. Invited presentation to the U.S. EPA Region 9.

Hagemann, M.F., 2003. A Deductive Approach to the Assessment of Perchlorate Contamination. Invited presentation to the California Assembly Natural Resources Committee.

Hagemann, M.F., 2003. Perchlorate: A Cold War Legacy in Drinking Water. Presentation to a meeting of the National Groundwater Association.

Hagemann, M.F., 2002. From Tank to Tap: A Chronology of MTBE in Groundwater. Presentation to a meeting of the National Groundwater Association.

Hagemann, M.F., 2002. A Chronology of MTBE in Groundwater and an Estimate of Costs to Address Impacts to Groundwater. Presentation to the annual meeting of the Society of Environmental Journalists.

Hagemann, M.F., 2002. An Estimate of the Cost to Address MTBE Contamination in Groundwater (and Who Will Pay). Presentation to a meeting of the National Groundwater Association.

Hagemann, M.F., 2002. An Estimate of Costs to Address MTBE Releases from Underground Storage Tanks and the Resulting Impact to Drinking Water Wells. Presentation to a meeting of the U.S. EPA and State Underground Storage Tank Program managers.

Hagemann, M.F., 2001. From Tank to Tap: A Chronology of MTBE in Groundwater. Unpublished report.

Hagemann, M.F., 2001. Estimated Cleanup Cost for MTBE in Groundwater Used as Drinking Water. Unpublished report.

Hagemann, M.F., 2001. Estimated Costs to Address MTBE Releases from Leaking Underground Storage Tanks. Unpublished report.

Hagemann, M.F., and VanMouwerik, M., 1999. Potential Water Quality Concerns Related to Snowmobile Usage. Water Resources Division, National Park Service, Technical Report.

VanMouwerik, M. and **Hagemann, M.F**. 1999, Water Quality Concerns Related to Personal Watercraft Usage. Water Resources Division, National Park Service, Technical Report.

Hagemann, M.F., 1999, Is Dilution the Solution to Pollution in National Parks? The George Wright Society Biannual Meeting, Asheville, North Carolina.

Hagemann, M.F., 1997, The Potential for MTBE to Contaminate Groundwater. U.S. EPA Superfund Groundwater Technical Forum Annual Meeting, Las Vegas, Nevada.

Hagemann, M.F., and Gill, M., 1996, Impediments to Intrinsic Remediation, Moffett Field Naval Air Station, Conference on Intrinsic Remediation of Chlorinated Hydrocarbons, Salt Lake City.

Hagemann, M.F., Fukunaga, G.L., 1996, The Vulnerability of Groundwater to Anthropogenic Contaminants on the Island of Maui, Hawaii. Hawaii Water Works Association Annual Meeting, Maui, October 1996.

Hagemann, M. F., Fukanaga, G. L., 1996, Ranking Groundwater Vulnerability in Central Oahu, Hawaii. Proceedings, Geographic Information Systems in Environmental Resources Management, Air and Waste Management Association Publication VIP-61.

Hagemann, M.F., 1994. Groundwater Characterization and Cleanup at Closing Military Bases in California. Proceedings, California Groundwater Resources Association Meeting.

Hagemann, M.F. and Sabol, M.A., 1993. Role of the U.S. EPA in the High Plains States Groundwater Recharge Demonstration Program. Proceedings, Sixth Biennial Symposium on the Artificial Recharge of Groundwater.

Hagemann, M.F., 1993. U.S. EPA Policy on the Technical Impracticability of the Cleanup of DNAPL-contaminated Groundwater. California Groundwater Resources Association Meeting.

Hagemann, M.F., 1992. Dense Nonaqueous Phase Liquid Contamination of Groundwater: An Ounce of Prevention... Proceedings, Association of Engineering Geologists Annual Meeting, v. 35.

Other Experience:

Selected as subject matter expert for the California Professional Geologist licensing examination, 2009-2011.

De La Garza Residents
13900 S H St
Bakersfield, Ca 93313

11/7/23

Loreli H Oviatt, AICP, Director
2700 M St
Bakersfield, CA 93301
Subject: PP24402

Dear Loreli H Oviatt, AICP, Director
2700 M St
Bakersfield, CA 93301
Subject: PP24402
:

Hi

My name is Oralia De La Garza, I reside at 13900 S H St. which is located east of the proposed project.

Thank you for the opportunity to hear our comments

I would like to start with my first concern being your distribution facility. This magnitude of a warehouse will operate most likely 24/7. Which will create a high volume of truck-traffic, noise due to truck idling, shouting, loud music, backup beepers, etc. That is not to mention the adverse health effects associated with diesel engine exhaust. I can go on and on however CARB has did a good job on making us all aware of the health effects associated with diesel emissions.

I will leave it at that for now.

The second concern is your temporary batch plant. The word temporary is kind of deceiving cause this temporary time frame can be for infinity years. Again, this would have the same effects as mentioned above however now we are adding a different kind of particular matter into the air (cement)

Third but not least,

Wastewater treatment facility. This is not clear except that water will be treated. My interpretation when someone says wastewater treatment, this is sewer water. Our property value will drop.

Unfortunately we are opposing this project for the reasons mentioned. We will do everything in our power to` prevent this from moving forward. We did not purchase our homes to live in front of a wastewater treatment plant, batch plant and distribution center.

We have lived here over 40 years and have got used to the noise of the tractors discing the field 24/7 preparing it for the next planting. Enduring the dust created from the farming, and also getting dusted when the crop duster is not on target, however we moved here aware of what it came with. Never did we complain because we were well aware of what would come along with country living. We will do everything in our power for it to remain as it is.

Again, thank you for the opportunity to comment on this matter.

Thank you.

Oralia De La Garza

SUMMARY OF PROCEEDINGS

KERN COUNTY AGENCY SCOPING MEETING

Kern County Planning and Natural Resources Department
2700 M Street, Suite 100
Bakersfield, California

Conference Room 1A

Date November 8, 2023

STAFF ATTENDANCE:
Terrance Smalls, Supervising Planner
Mark Tolentino, Staff Planner

The meeting convened at 1:30 p.m. with Staff and no representatives of the Westside Industrial Project in attendance. Items were then discussed in order as identified on the agenda.

NOTICE OF PREPARATION PROJECT:

EIR – Notice of Preparation:
Westside Industrial Project by Seefried Industrial Properties (PP24402)
GPA 21; ZCC 69; CUP 75; CUP 78; PD 3 Map 142; Excl. 3, Ag Pres 10; TPM No. 12537

Five (5) members of the public were present, three (3) of whom provided comments.

Jorge Torres, a representative from the Western States Regional Council of Carpenters, discussed the project's need to hire local union labor and how such hiring efforts are associated with a reduction of air quality impacts.

Oralia De La Garza, a resident of 13900 South "H" Street, expressed opposition to the proposed project and discussed concerns regarding: high volumes of truck-traffic, the proposed temporary concrete batch plant potentially remaining on site indefinitely, and the proposed wastewater treatment facility affecting property values due to proximity to sewer water.

John Borba, a resident of 13500 South "H" Street, expressed opposition to the proposed project and concurrence with points discussed by the previous commenter.

Public testimony closed at approximately 01:40 p.m.

Notes prepared by
Mark Tolentino, Staff Planner

From: John Borba
To: Mark Tolentino
Subject: Westside Industrial Project PP24402
Date: Friday, November 10, 2023 7:27:03 AM

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Hello,

I attended the scoping meeting on Wednesday, November 8th for the Westside Industrial Project PP24402. I want to voice my oppositon to the project as a longtime resident who will be impacted. There are a number of concerns I have including, a.) continous increased traffic flow from empoyees and shipping trucks, b.) noise and exhaust fumes from all the vehicles, c.) odor from the proposed waste treatment plant, d.) prison like illumination of the facility during the evening and early morning hours, and e.) yet another parcel of agriculture land being taken out of production.

Sincerely,

John Borba

11/16/2023

VIA EMAIL ONLY

Mark Tolentino
Kern County Planning and Natural Resources Department
2700 “M” Street, Suite 100
Bakersfield, CA 93301
Email: TolentinoM@kerncounty.com

RE: NOP Comments for the Westside Industrial Project

Dear Mr. Tolentino,

The comments are submitted on behalf of Californians Allied for a Responsible Economy ("CARE CA") regarding the Notice of Preparation (“NOP”) of a Draft Environmental Impact Report (“DEIR”) for Westside Industrial Project (“the Project”). CARE CA understands that the proposed Project consists of the construction and operation of a 653,442-square-foot single-story warehouse and distribution facility and related improvements.

The goal of an EIR is to provide decisionmakers and the public with detailed information about the effects of a proposed project on the environment, how significant impacts will be minimized and alternatives to the project (Pub. Res. Code § 21002.2). We, therefore, respectfully request a complete analysis of all identified impacts, imposition of all feasible mitigation and study of a reasonable range of alternatives. In addition, we wish to provide the following comments:

Industrial Uses: The DEIR should clearly articulate and quantify all proposed future warehouse uses of the Project. This will ensure that the unique impacts of the relevant logistics-type use, including cold storage, are comprehensively evaluated (i.e., both truck and vehicular trips, air quality, GHG emissions, public health risk and other environmental effects).

If the Project will not include cold storage, then the DEIR must include California Air Resources Board (CARB) recommended design measures in the Mitigation Monitoring and Reporting Program (MMRP). CARB recommends requiring contractual language in tenant lease agreements or restrictive covenant over parcels to prohibit use of transport refrigeration units (TRUs).

Air Quality & Public Health: The Project will have high daily volumes of heavy-duty diesel truck traffic, transportation refrigeration units (TRUs), and on-site equipment (e.g., backup generators, forklifts, and yard tractors) that will pollute the air with toxic diesel emissions and expose communities to further air pollution and climate change.

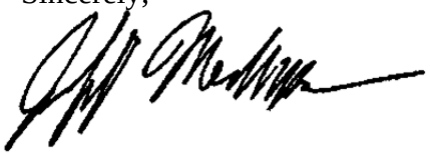
The City must, therefore, make all efforts to minimize air quality effects to the greatest extent possible. In this regard, the Air Quality analysis should be based on actual emissions data from existing similar sized warehouse projects rather than computer generated estimates. In addition, the DEIR should address the impacts of particulate matter from the diesel trucks on the health of the public. A Statement of Overriding Considerations should be considered only after ALL feasible mitigation measures are included in the MMRP.

Greenhouse Gas Emissions: In the DEIR analysis, the City has the discretion to quantify GHG emissions resulting from a project and/or rely on a qualitative analysis or performance-based standards "based to the extent possible on scientific and factual data" Guidelines §,15064, subd. (b). To determine the significance of the Project's GHG, we urge the City to adopt quantitative thresholds that embody climate change's existential threat to humankind and provide detailed discussion on the Applicant's plan to offset the Project's GHG emissions.

Thank you for the opportunity to submit NOP comments. Please provide all sources and referenced materials when the DEIR is made available. Again, CARE CA respectfully requests under CEQA full analysis of the environmental impacts, feasible mitigation, and reasonable alternatives to the Project.

We look forward to reviewing and commenting on the DEIR.

Sincerely,



Jeff Modrzejewski
Executive Director

San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

HEALTHY AIR LIVING™

November 27, 2023

Mark Tolentino
County of Kern
Planning and Natural Resources Department
2700 M Street, Suite 100
Bakersfield, CA 93301

Project: Notice of Preparation of a Draft Environmental Impact Report for the Westside Industrial Project

District CEQA Reference No: 20230987

Dear Mr. Tolentino:

The San Joaquin Valley Air Pollution Control District (District) has reviewed the Notice of Preparation (NOP) from the County of Kern (County) for the proposed industrial project. Per the NOP, the project consists of the construction and operation of a 653,442 sq. ft. warehouse and distribution facility (Project). The Project is located in unincorporated Kern County at the southeast corner of the Houghton Road and Wible Road intersection.

The District offers the following comments at this time regarding the Project:

1) Project Related Emissions

At the federal level under the National Ambient Air Quality Standards (NAAQS), the District is designated as extreme nonattainment for the 8-hour ozone standards and serious nonattainment for the particulate matter less than 2.5 microns in size (PM2.5) standards. At the state level under California Ambient Air Quality Standards (CAAQS), the District is designated as nonattainment for the 8-hour ozone, PM10, and PM2.5 standards.

The District's initial review of the Project concludes that emissions resulting from construction and operation of the Project may exceed any of the following significance thresholds as identified in the District's Guidance for Assessing and Mitigating Air Quality Impacts: https://www.valleyair.org/transportation/GAMAQI.pdf. The District recommends that a more detailed preliminary review of the Project be conducted for the Project's construction and operational emissions.

Samir Sheikh
Executive Director/Air Pollution Control Officer

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www.valleyair.org www.healthyairliving.com

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1a) Construction Emissions

The District recommends, to reduce impacts from construction-related diesel exhaust emissions, the Project should utilize the cleanest available off-road construction equipment.

1b) Operational Emissions

Operational (ongoing) air emissions from mobile sources and stationary sources should be analyzed separately. For reference, the District's significance thresholds are identified in the District's Guidance for Assessing and Mitigating Air Quality Impacts: https://www.valleyair.org/transportation/GAMAQI.pdf.

Recommended Mitigation Measure: At a minimum, project related impacts on air quality should be reduced to levels below the District's significance thresholds through incorporation of design elements such as the use of cleaner Heavy Heavy-Duty (HHD) trucks and vehicles, measures that reduce Vehicle Miles Traveled (VMTs), and measures that increase energy efficiency. More information on transportation mitigation measures can be found at: https://ww2.valleyair.org/media/ob0pweru/clean-air-measures.pdf

1c) Project Trip Length for HHD Truck Travel

The County's environmental review should adequately characterize and justify an appropriate trip length distance for off-site HHD truck travel to and from the Project site. Based on the following factors: 1) the Project consists of a warehouse/distribution center that is expected to generate a high volume of HHD truck trips, and 2) HHD trucks generally travel further distances for distribution. The District recommends the environmental review include a discussion characterizing an appropriate trip length distance for HHD truck travel, and reflect such appropriate distance supported by project-specific factors.

1d) Recommended Model for Quantifying Air Emissions

Project-related criteria pollutant emissions from construction and operational sources should be identified and quantified. Emissions analysis should be performed using the California Emission Estimator Model (CalEEMod), which uses the most recent CARB-approved version of relevant emissions models and emission factors. CalEEMod is available to the public and can be downloaded from the CalEEMod website at: www.caleemod.com.

2) Health Risk Screening/Assessment

The County should evaluate the risk associated with the Project for sensitive receptors (residences, businesses, hospitals, day-care facilities, health care facilities, etc.) in the area and mitigate any potentially significant risk to help limit exposure of sensitive receptors to emissions.

To determine potential health impacts on surrounding receptors (residences, businesses, hospitals, day-care facilities, health care facilities, etc.) a Prioritization and/or a Health Risk Assessment (HRA) should be performed for the Project. These health risk determinations should quantify and characterize potential Toxic Air Contaminants (TACs) identified by the Office of Environmental Health Hazard Assessment/California Air Resources Board (OEHHA/CARB) that pose a present or potential hazard to human health.

Health risk analyses should include all potential air emissions from the project, which include emissions from construction of the project, including multi-year construction, as well as ongoing operational activities of the project. Note, two common sources of TACs can be attributed to diesel exhaust emitted from heavy-duty off-road earth moving equipment during construction, and from ongoing operation of heavy-duty on-road trucks.

Prioritization (Screening Health Risk Assessment):
A "Prioritization" is the recommended method for a conservative screening-level health risk assessment. The Prioritization should be performed using the California Air Pollution Control Officers Association's (CAPCOA) methodology. Please contact the District for assistance with performing a Prioritization analysis.

The District recommends that a more refined analysis, in the form of an HRA, be performed for any project resulting in a Prioritization score of 10 or greater. This is because the prioritization results are a conservative health risk representation, while the detailed HRA provides a more accurate health risk evaluation.

Health Risk Assessment:
Prior to performing an HRA, it is strongly recommended that land use agencies/ project proponents develop and submit for District review a health risk modeling protocol that outlines the sources and methodologies that will be used to perform the HRA.

A development project would be considered to have a potentially significant health risk if the HRA demonstrates that the health impacts would exceed the District's established risk thresholds, which can be found here: http://www.valleyair.org/transportation/ceqa_idx.htm.

A project with a significant health risk would trigger all feasible mitigation measures.

The District strongly recommends that development projects that result in a significant health risk not be approved by the land use agency.

The District is available to review HRA protocols and analyses. For HRA submittals please provide the following information electronically to the District for review:

- HRA (AERMOD) modeling files
- HARP2 files
- Summary of emissions source locations, emissions rates, and emission factor calculations and methodologies.

For assistance, please contact the District's Technical Services Department by:

- E-Mailing inquiries to: hramodeler@valleyair.org
- Calling (559) 230-5900

Recommended Measure: Development projects resulting in TAC emissions should be located an adequate distance from residential areas and other sensitive receptors to prevent the creation of a significant health risk in accordance to CARB's Air Quality and Land Use Handbook: A Community Health Perspective located at https://ww2.arb.ca.gov/our-work/programs/resource-center/strategy-development/land-use-resources.

3) Ambient Air Quality Analysis

An Ambient Air Quality Analysis (AAQA) uses air dispersion modeling to determine if emissions increases from a project will cause or contribute to a violation of State or National Ambient Air Quality Standards. The District recommends an AAQA be performed for the Project if emissions exceed 100 pounds per day of any pollutant.

An AAQA uses air dispersion modeling to determine if emission increase from a project will cause or contribute to a violation of State or National Ambien Air Quality Standards. An acceptable analysis would include emissions from both project-specific permitted and non-permitted equipment and activities. The District recommends consultation with District staff to determine the appropriate model and input data to use in the analysis.

Specific information for assessing significance, including screening tools and modeling guidance, is available online at the District's website: www.valleyair.org/ceqa.

4) Industrial/Warehouse Emission Reduction Strategies

The District recommends the County incorporate emission reduction strategies that can reduce potential harmful health impacts, such as those listed below:

- Require cleanest available heavy-duty trucks and off-road equipment (see comment 6)
- Require HHD truck routing patterns that limit exposure of residential communities and sensitive receptors to emissions (see comment 5)
- Require minimization of heavy-duty truck idling (see comment 7)
- Require solid screen buffering trees, solid decorative walls, and/or other natural ground landscaping techniques are implemented along the property line of adjacent sensitive receptors
- Orient loading docks away from sensitive receptors unless physically impossible
- Require loading docks a minimum of 300 feet away from the property line of sensitive receptor unless dock is exclusively used for electric trucks
- Incorporate signage and “pavement markings” to clearly identify on-site circulation patterns to minimize unnecessary on-site vehicle travel
- Require projects be designed to provide the necessary infrastructure to support use of zero-emissions on-road vehicles and off-road equipment (see comment 11)
- Require all building roofs are solar-ready
- Require all portions of roof tops that are not covered with solar panels are constructed to have light colored roofing material with a solar reflective index of greater than 78
- Ensure rooftop solar panels are installed and operated to supply 100% of the power needed to operate all non-refrigerated portions of the development project
- Require power sources at loading docks for all refrigerated trucks have “plugin” capacity, which will eliminate prolonged idling while loading and unloading goods
- Incorporate bicycle racks and electric bike plug-ins
- Require the use of low volatile organic compounds (VOC) architectural and industrial maintenance coatings
- Designate an area during construction to charge electric powered construction vehicles and equipment, if temporary power is available
- Prohibit the use of non-emergency diesel-powered generators during construction
- Inform the project proponent of the incentive programs (e.g., Carl Moyer Program and Voucher Incentive Program) offered to reduce air emissions from the Project
- Ensure all landscaping be drought tolerant

5) Truck Routing

Truck routing involves the assessment of which roads Heavy Heavy-Duty (HHD) trucks take to and from their destination, and the emissions impact that the HHD trucks may have on residential communities and sensitive receptors.

The District recommends the County evaluate HHD truck routing patterns for the Project, with the aim of limiting exposure of residential communities and sensitive receptors to emissions. This evaluation would consider the current truck routes, the quantity and type of each truck (e.g., Medium Heavy-Duty, HHD, etc.), the destination and origin of each trip, traffic volume correlation with the time of day or the day of the week, overall Vehicle Miles Traveled (VMT), and associated exhaust emissions. The truck routing evaluation would also identify alternative truck routes and their impacts on VMT and air quality.

6) Cleanest Available Heavy-Duty Trucks

The San Joaquin Valley will not be able to attain stringent health-based federal air quality standards without significant reductions in emissions from HHD trucks, the single largest source of NOx emissions in the San Joaquin Valley. Accordingly, to meet federal air quality attainment standards, the District's ozone and particulate matter attainment plans rely on a significant and rapid transition of HHD fleets to zero or near-zero emissions technologies.

For development projects which typically generate a high volume of HHD truck traffic (e.g., "high-cube" warehouses or distribution centers), there are HHD trucks traveling to-and-from the project location at longer distribution trip length distances. As such, the District recommends that the following measures be considered by the County to reduce Project-related operational emissions:

- *Recommended Measure*: Fleets associated with operational activities utilize the cleanest available HHD trucks, including zero and near-zero technologies.

- *Recommended Measure*: All on-site service equipment (cargo handling, yard hostlers, forklifts, pallet jacks, etc.) utilize zero-emissions technologies.

7) Reduce Idling of Heavy-Duty Trucks

The goal of this strategy is to limit the potential for localized PM2.5 and toxic air contaminant impacts associated with the idling of Heavy-Duty trucks. The diesel exhaust from idling has the potential to impose significant adverse health and environmental impacts.

Since the Project is expected to result in HHD truck trips, the District recommends the EIR include measures to ensure compliance of the state anti-idling regulation (13

CCR § 2485 and 13 CCR § 2480) and discuss the importance of limiting the amount of idling, especially near sensitive receptors. In addition, the District recommends the County consider the feasibility of implementing a more stringent 3-minute idling restriction and requiring appropriate signage and enforcement of idling restrictions.

8) Electric On-Site Off-Road and On-Road Equipment

Since the Project consists of warehouse development, the Project may have the potential to result in increased use of off-road equipment (e.g., forklifts) and on-road equipment (e.g., mobile yard trucks with the ability to move materials). The District recommends that the EIR include requirements for project proponents to utilize electric or zero emission off-road and on-road equipment.

9) Vegetative Barriers and Urban Greening

There are residential units located north of the Project. The District suggests the County consider the feasibility of incorporating vegetative barriers and urban greening as a measure to further reduce air pollution exposure on sensitive receptors (e.g., residential units).

While various emission control techniques and programs exist to reduce air quality emissions from mobile and stationary sources, vegetative barriers have been shown to be an additional measure to potentially reduce a population's exposure to air pollution through the interception of airborne particles and the update of gaseous pollutants. Examples of vegetative barriers include, but are not limited to the following: trees, bushes, shrubs, or a mix of these. Generally, a higher and thicker vegetative barrier with full coverage will result in greater reductions in downwind pollutant concentrations. In the same manner, urban greening is also a way to help improve air quality and public health in addition to enhancing the overall beautification of a community with drought tolerant, low-maintenance greenery.

10) On-Site Solar Deployment

It is the policy of the State of California that renewable energy resources and zero-carbon resources supply 100% of retail sales of electricity to California end-use customers by December 31, 2045. While various emission control techniques and programs exist to reduce air quality emissions from mobile and stationary sources, the production of solar energy is contributing to improving air quality and public health. The District suggests that the County consider incorporating solar power systems as an emission reduction strategy for the Project.

11) Electric Infrastructure

The District recommends that the County require all nonresidential buildings be designed to provide electric infrastructure to support the use of on-road zero emissions vehicles, such as HHD trucks associated with a warehouse.

To support and accelerate the installation of electric vehicle charging equipment and development of required infrastructure, the District offers incentives to public agencies, businesses, and property owners of multi-unit dwellings to install electric charging infrastructure (Level 2 and 3 chargers). The purpose of the District's Charge Up! Incentive program is to promote clean air alternative-fuel technologies and the use of low or zero-emission vehicles. The District recommends that the County and project proponents install electric vehicle chargers at project sites, and at strategic locations.

Please visit www.valleyair.org/grants/chargeup.htm for more information.

12) District Rules and Regulations

The District issues permits for many types of air pollution sources, and regulates some activities that do not require permits. A project subject to District rules and regulations would reduce its impacts on air quality through compliance with the District's regulatory framework. In general, a regulation is a collection of individual rules, each of which deals with a specific topic. As an example, Regulation II (Permits) includes District Rule 2010 (Permits Required), Rule 2201 (New and Modified Stationary Source Review), Rule 2520 (Federally Mandated Operating Permits), and several other rules pertaining to District permitting requirements and processes.

The list of rules below is neither exhaustive nor exclusive. Current District rules can be found online at: www.valleyair.org/rules/1ruleslist.htm. To identify other District rules or regulations that apply to future projects, or to obtain information about District permit requirements, the project proponents are strongly encouraged to contact the District's Small Business Assistance (SBA) Office at (661) 392-5665.

12a) District Rules 2010 and 2201 - Air Quality Permitting for Stationary Sources

Stationary Source emissions include any building, structure, facility, or installation which emits or may emit any affected pollutant directly or as a fugitive emission. District Rule 2010 (Permits Required) requires operators of emission sources to obtain an Authority to Construct (ATC) and Permit to Operate (PTO) from the District.

District Rule 2201 (New and Modified Stationary Source Review) requires that new and modified stationary sources of emissions mitigate their emissions using Best Available Control Technology (BACT).

This Project may be subject to District Rule 2010 (Permits Required) and Rule 2201 (New and Modified Stationary Source Review) and may require District permits. Prior to construction, the Project proponent should submit to the District an application for an ATC. For further information or assistance, the project proponent may contact the District's SBA Office at (661) 392-5665.

12b) District Rule 9510 - Indirect Source Review (ISR)

The Project is subject to District Rule 9510 because it will receive a project-level discretionary approval from a public agency and will equal or exceed 100,000 sq. ft. of heavy industrial development.

The purpose of District Rule 9510 is to reduce the growth in both NOx and PM emissions associated with development and transportation projects from mobile and area sources; specifically, the emissions associated with the construction and subsequent operation of development projects. The ISR Rule requires developers to mitigate their NOx and PM emissions by incorporating clean air design elements into their projects. Should the proposed development project clean air design elements be insufficient to meet the required emission reductions, developers must pay a fee that ultimately funds incentive projects to achieve off-site emissions reductions.

Per Section 5.0 of the ISR Rule, an Air Impact Assessment (AIA) application is required to be submitted no later than applying for project-level approval from a public agency. As of the date of this letter, the District has not received an AIA application for this Project. Please inform the project proponent to immediately submit an AIA application to the District to comply with District Rule 9510 so that proper mitigation and clean air design under ISR can be incorporated into the Project's design.

Information about how to comply with District Rule 9510 can be found online at: http://www.valleyair.org/ISR/ISRHome.htm.

The AIA application form can be found online at: http://www.valleyair.org/ISR/ISRFormsAndApplications.htm.

12c) District Rule 9410 (Employer Based Trip Reduction)

The Project may be subject to District Rule 9410 (Employer Based Trip Reduction) if the project would result in employment of 100 or more "eligible" employees. District Rule 9410 requires employers with 100 or more "eligible"

employees at a worksite to establish an Employer Trip Reduction Implementation Plan (eTRIP) that encourages employees to reduce single-occupancy vehicle trips, thus reducing pollutant emissions associated with work commutes. Under an eTRIP plan, employers have the flexibility to select the options that work best for their worksites and their employees.

Information about District Rule 9410 can be found online at: www.valleyair.org/tripreduction.htm.

For additional information, you can contact the District by phone at 559-230-6000 or by e-mail at etrip@valleyair.org

12d) District Rule 4601 (Architectural Coatings)

The Project will be subject to District Rule 4601 since it is expected to utilize architectural coatings. Architectural coatings are paints, varnishes, sealers, or stains that are applied to structures, portable buildings, pavements or curbs. The purpose of this rule is to limit VOC emissions from architectural coatings. In addition, this rule specifies architectural coatings storage, cleanup and labeling requirements. Additional information on how to comply with District Rule 4601 requirements can be found online at: http://www.valleyair.org/rules/currntrules/r4601.pdf

12e) District Regulation VIII (Fugitive PM10 Prohibitions)

The project proponent may be required to submit a Construction Notification Form or submit and receive approval of a Dust Control Plan prior to commencing any earthmoving activities as described in Regulation VIII, specifically Rule 8021 – *Construction, Demolition, Excavation, Extraction, and Other Earthmoving Activities.*

Should the project result in at least 1-acre in size, the project proponent shall provide written notification to the District at least 48 hours prior to the project proponents intent to commence any earthmoving activities pursuant to District Rule 8021 (Construction, Demolition, Excavation, Extraction, and Other Earthmoving Activities). Also, should the project result in the disturbance of 5-acres or more, or will include moving, depositing, or relocating more than 2,500 cubic yards per day of bulk materials, the project proponent shall submit to the District a Dust Control Plan pursuant to District Rule 8021 (Construction, Demolition, Excavation, Extraction, and Other Earthmoving Activities). For additional information regarding the written notification or Dust Control Plan requirements, please contact District Compliance staff at (559) 230-5950.

The application for both the Construction Notification and Dust Control Plan can be found online at:
https://www.valleyair.org/busind/comply/PM10/forms/DCP-Form.docx

Information about District Regulation VIII can be found online at:
http://www.valleyair.org/busind/comply/pm10/compliance_pm10.htm

12f) Other District Rules and Regulations

The Project may also be subject to the following District rules: Rule 4641 (Cutback, Slow Cure, and Emulsified Asphalt, Paving and Maintenance Operations).

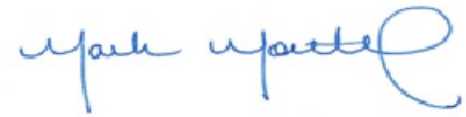
13) District Comment Letter

The District recommends that a copy of the District's comments be provided to the Project proponent.

If you have any questions or require further information, please contact Jacob Torrez by e-mail at jacob.torrez@valleyair.org or by phone at (559) 230-6558.

Sincerely,

Brian Clements
Director of Permit Services



Mark Montelongo
Program Manager

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State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
Central Region
1234 East Shaw Avenue
Fresno, California 93710
(559) 243-4005
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GAVIN NEWSOM, Governor
CHARLTON H. BONHAM, Director

December 1, 2023

Mark Tolentino
Kern County Planning and Natural Resources Department
2700 "M" Street Suite 100
Bakersfield California, 93301
TolentinoM@kerncounty.com

Subject: Westside Industrial Project (Project)
Notice of Preparation (NOP) SCH No.: 2023100467

Dear Mark Tolentino:

The California Department of Fish and Wildlife (CDFW) received a Notice of Preparation (NOP) from the Kern County Planning and Natural Resources Department for the above-referenced Project pursuant to the California Environmental Quality Act (CEQA) and CEQA Guidelines.[1]

Thank you for the opportunity to provide comments and recommendations regarding those activities involved in the Project that may affect California fish and wildlife. Likewise, CDFW appreciates the opportunity to provide comments regarding those aspects of the Project that CDFW, by law, may be required to carry out or approve through the exercise of its own regulatory authority under Fish and Game Code. While the comment period may have ended, CDFW requests that Kern County still consider our comments.

CDFW ROLE

CDFW is California's **Trustee Agency** for fish and wildlife resources and holds those resources in trust by statue for all the people of the State (Fish & G. Code, §§ 711.7, subd. (a) & 1802; Pub. Resources Code, § 21070; CEQA Guidelines § 15386, subd. (a)). CDFW, in its trustee capacity, has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and habitat necessary for biologically sustainable populations of those species (*Id.*, § 1802). Similarly, for purposes of CEQA, CDFW is charged by law to provide, as available, biological expertise during public agency environmental review efforts, focusing specifically on projects and related activities that have the potential to adversely affect fish and wildlife resources.

[1] CEQA is codified in the California Public Resources Code in section 21000 et seq. The "CEQA Guidelines" are found in Title 14 of the California Code of Regulations, commencing with section 15000.

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CDFW is also submitting comments as a **Responsible Agency** under CEQA (Pub. Resources Code, § 21069; CEQA Guidelines, § 15381). CDFW expects that it may need to exercise regulatory authority as provided by the Fish and Game Code. As proposed, for example, the Project may be subject to CDFW's lake and streambed alteration regulatory authority (Fish & G. Code, § 1600 et seq.). Likewise, to the extent implementation of the Project as proposed may result in "take" as defined by State law of any species protected under the California Endangered Species Act (CESA) (Fish & G. Code, § 2050 et seq.), related authorization as provided by the Fish and Game Code may be required.

Nesting Birds: CDFW has jurisdiction over actions with potential to result in the disturbance or destruction of active nest sites or the unauthorized take of birds. Fish and Game Code sections that protect birds, their eggs and nests include, sections 3503 (regarding unlawful take, possession or needless destruction of the nest or eggs of any bird), 3503.5 (regarding the take, possession or destruction of any birds-of-prey or their nests or eggs), and 3513 (regarding unlawful take of any migratory nongame bird).

PROJECT DESCRIPTION SUMMARY

Proponent: Seefried Industrial Properties

Objective: The Project proposes the construction and operation of a warehouse and distribution facility. The proposed Project would include the construction of an approximately 653,442 square-foot single-story warehouse and related site improvements, including but not limited to, perimeter security fencing and nighttime directional lighting at the on-site warehouse and distribution facility, new pavement, curb and gutter, and sidewalk on frontage roads with associated signing and markings, office, break and ancillary space.

Location: The proposed Project is located in unincorporated Kern County at the southeast corner of the Houghton Road and Wible Road intersection, approximately 1.25 miles west of State Route 99, at the southern end of the San Joaquin Valley. The Project site is located in Section 13 of Township 31 South, Range 27 East in the Mount Diablo Base and Meridian.

Timeline: September 2024 - September 2025

COMMENTS AND RECOMMENDATIONS

CDFW offers the following comments and recommendations to assist the Kern County Planning and Natural Resources Department in adequately identifying and/or mitigating the Project's significant, or potentially significant, direct and indirect impacts on fish and wildlife (biological) resources. Editorial comments or other suggestions may also be included to improve the CEQA document prepared for this Project.

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There are special-status species that may be present at the Project site. These resources may need to be evaluated and addressed prior to any approvals that would allow ground-disturbing activities or land use changes. CDFW is concerned regarding potential impacts to special-status species including, but not limited to, the federally endangered and State threatened San Joaquin Kit Fox (*Vulpes macrotis mutica*), the State threatened Swainson's hawk (*Buteo swainsoni*), the State candidate endangered Crotch's bumblebee (*Bombus crotchii*), and the State Species of Special Concern burrowing owl (*Athene cunnicularia*), western spadefoot (*Spea hammondii*), and American badger (*Taxidea taxus*).

In order to adequately assess potential impacts to biological resources, CDFW recommends that a qualified biologist perform database and other research of the Project area, then conduct focused habitat assessments and/or focused biological surveys during the appropriate survey period(s) in order to determine whether any special-status species may be present within the Project site. CDFW recommends this initial work be documented and used to inform further efforts that may be needed thereafter including the need for additional protocol surveys and/or the development of avoidance, minimization, and/or mitigation measures. This information and analysis may then be used to consider the development of modified or new project alternatives to avoid and minimize potentially significant environmental impacts on the biological environment. This information is critical to make an informed decision during the CEQA process and to ensure Project compliance with CESA, Fish and Game code, and other applicable State and federal laws and regulations.

San Joaquin Kit Fox

Bakersfield is home to a unique urban population of the federally endangered and State threatened, San Joaquin kit fox (SJKF) with multiple recorded occurrences in the California Natural Diversity Database (CNDDB) (CDFW 2023). While the Project may not contain typical native habitat for SJKF dens, its proximity to the City of Bakersfield means that any ground-disturbing activity could attract SJKF. The urban population of SJKF has also been recorded to use anthropogenically altered habitats while maintaining a robust population (Cypher 2013). As a result, the Project may result in impacts to SJKF and any take of SJKF without appropriate take authorization would be a violation of Fish and Game Code.

In addition to native habitats, SJKF can den in right-of-ways, vacant lots, etc., and populations can fluctuate over time. It is important to note that SJKF populations are known to fluctuate and a negative finding from biological surveys in any one year does not necessarily demonstrate absence of SJKF on a site. In addition, SJKF may be attracted to both construction materials (pipes, etc.) and construction footprints due to the type and level of activity (excavation, etc.) and the loose, friable soils that are created as a result of intensive ground disturbance.

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CDFW recommends assessing presence/absence of SJKF by conducting surveys following the USFWS' "Standardized recommendations for protection of the San Joaquin kit fox prior to or during ground disturbance", and implementing no-disturbance buffers around den sites, as described in the United States Fish and Wildlife Service document (USFWS 2011). Specifically, CDFW recommends conducting these surveys over the entirety of the Project site no less than 14-days and no more than 30-days prior to beginning of ground and/or vegetation disturbing activities. CDFW also recommends a qualified biologist conduct on-site worker awareness training and inspect all construction materials for SJKF before use. Any pits or trenches created should be sloped or covered to prevent inadvertent capture or entrapment (take).

SJKF detection warrants consultation with CDFW to discuss how to avoid take or, if avoidance is not feasible, to acquire an Incidental Take Permit (ITP) prior to initiating or resuming (whichever applies) ground-disturbing activities, pursuant to Fish and Game Code section 2081 subdivision (b).

Swainson's Hawk

According to the CNDDB, there are multiple Swainson's hawk (SWHA) occurrences near the Project site – one approximately 2 miles north and another less than 1 mile west of the Project site. According to aerial imagery, the parcels to the north and west both support suitable nesting trees within ½ mile from the Project site. Given the proximity to known SWHA occurrences and the fact that SWHA exhibit high nest-site fidelity year after year in the San Joaquin Valley (CDFW 2016), SWHA have the potential to be present near the Project site, and CDFW has jurisdiction over this species under CESA.

The Project as proposed may involve noise, groundwork, and movement of workers that could affect nests and has the potential to result in nest abandonment, significantly impacting local nesting SWHA. Without appropriate avoidance and minimization measures for SWHA, potential significant impacts that may result from Project activities include nest abandonment, and reduced nesting success (loss or reduced health or vigor of eggs or young) from loss of foraging habitat. CDFW recommends that the CEQA document prepared for this Project address potential impacts to SWHA by including both mitigation for loss of foraging habitat and appropriate avoidance and minimization measures resulting from an analysis of potential impacts to nesting habitat beginning with protocol surveys as described below.

CDFW recommends compensation for the loss of SWHA foraging habitat as described in the Staff Report Regarding Mitigation for Impacts to Swainson's Hawks (California Department of Fish and Game 1994). CDFW recommends that mitigation for habitat loss occur within a minimum distance of 10 miles from known nest sites. CDFW has the following recommendations based on the Staff Report:

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- For projects within 1 mile of an active nest tree, a minimum of one acre of habitat management (HM) land for each acre of development is advised.
- For projects within 5 miles of an active nest but greater than 1 mile, a minimum of 0.75 acres of HM land for each acre of development is advised.
- For projects within 10 miles of an active nest tree but greater than 5 miles from an active nest tree, a minimum of 0.5 acres of HM land for each acre of development is advised.

SWHA are known to travel up to 18 miles to forage (Estep 1989). Any SWHA in known nesting trees within that range may utilize the Project site for foraging. Therefore, CDFW recommends protocol surveys for SWHA be conducted as part of the biological technical studies conducted in support of the CEQA document by a qualified biologist with knowledge of SWHA natural history and behaviors, following the survey methods developed by the Swainson's Hawk Technical Advisory Committee (SWHA TAC 2000).

Due to the close proximity of potential nesting trees on the parcels north and west of the Project, if the initial protocol surveys do not detect nesting SWHA, CDFW recommends that protocol surveys be conducted again by a qualified biologist within the survey season immediately prior to Project construction. CDFW recommends a minimum no-disturbance buffer of 0.5-mile be delineated around active nests until the breeding season has ended or until a qualified biologist has determined that the birds have fledged and are no longer reliant upon the nest or parental care for survival. If an active SWHA nest is detected during surveys and a 0.5-mile buffer is not feasible, consultation with CDFW is warranted to discuss how to implement the Project and avoid take. If take cannot be avoided, take authorization through the acquisition of an ITP, pursuant to Fish and Game Code section 2081 subdivision (b) is necessary to comply with CESA.

Crotch's Bumble Bee

According to CNDDB, the State candidate endangered Crotch's bumble bee (CBB) have been recorded to occur less than 4 miles north of the Project site. CBB was once common throughout most of central and southern California. However, it now appears to be absent from most of their range, especially in the central portion of its historic range within California's Central Valley (Hatfield et al. 2015). Analyses by the Xerces Society et al. (2018) suggest there have been sharp declines in relative abundance by 98% and persistence by 80% over the last ten years. Additionally, CBB are known to inhabit areas of grasslands and scrub that contain requisite habitat elements for nesting, such as small mammal burrows and bunch/thatched grasses. According to aerial photography some of these elements are present on the Project site, as a result, CBB have the potential to be present in the Project site, and CDFW has jurisdiction over this species under CESA.

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CDFW recommends a qualified biologist conduct a habitat assessment as part of the biological technical studies conducted in support of the CEQA document to determine if the Project site or its immediate vicinity contain habitat suitable to support CBB. Potential nesting sites, which include all small mammal burrows, perennial bunch grasses, thatched annual grasses, brush piles, old bird nests, dead trees, and hollow logs would need to be documented as part of the assessment. If potentially suitable habitat is identified, CDFW recommends that a qualified biologist conduct focused surveys for CBB, and their requisite habitat features following the methodology outlined in the Survey Considerations for California Endangered Species Act Candidate Bumble Bee Species (CDFW 2023b), as part of the biological technical studies conducted in support of the draft environmental impact report.

If CBB is detected, then CDFW recommends that all small mammal burrows and thatched/bunch grasses be avoided by a minimum of 50 feet to avoid take and potentially significant impacts. If ground-disturbing activities will occur during the overwintering period (October through February), consultation with CDFW is warranted to discuss how to implement Project activities and avoid take. Any detection of CBB prior to or during Project implementation warrants consultation with CDFW to discuss how to avoid take.

If take cannot be avoided, CDFW recommends acquiring an ITP pursuant to Fish and Game Code Section 2081(b), prior to initiating ground-disturbing activities.

State Species of Special Concern

Burrowing owl (BUOW), western spadefoot, and American badger have the potential to occur within the Project site. According to CNDDB, BUOW have been reported to occur less than 2 miles west of the Project site and American badger have been reported in the City of Bakersfield. Western spadefoot may utilize orchards and agricultural sumps for breeding. The Project site, and its vicinity, may support requisite habitat elements for these species.

CDFW recommends that a qualified biologist conduct a habitat assessment as part of the biological technical studies conducted in support of the CEQA document, to determine if Project sites or their immediate vicinity contain potential habitat for the species mentioned above. If potential habitat is present, CDFW recommends that a qualified biologist conduct focused surveys for applicable species and their requisite habitat features to evaluate potential impacts resulting from ground and vegetation disturbance.

Avoidance whenever possible is encouraged via delineating and observing a 50-foot no-disturbance buffer around the entrances of burrows that can provide refuge for American badger and western spadefoot.

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CDFW recommends assessing presence/absence of BUOW by having a qualified biologist conduct surveys as part of the biological technical studies conducted in support of the CEQA document following the California Burrowing Owl Consortium's Burrowing Owl Survey Protocol and Mitigation Guidelines (CBOC 1993) and CDFW's Staff Report on Burrowing Owl Mitigation (CDFG 2012). Specifically, if suitable habitat is present at an individual Project site, CBOC and CDFW's Staff Report suggest three or more surveillance surveys conducted during daylight with each visit occurring at least three weeks apart during the peak breeding season (April 15 to July 15), when BUOW are most detectable.

If BUOW are detected, CDFW recommends no-disturbance buffers, as outlined in the Staff Report on Burrowing Owl Mitigation (CDFG 2012), be implemented prior to and during any ground-disturbing activities. Specifically, CDFW's Staff Report recommends that impacts to occupied burrows be avoided in accordance with the following table unless a qualified biologist approved by CDFW verifies through non-invasive methods that either: 1) the birds have not begun egg laying and incubation; or 2) that juveniles from the occupied burrows are foraging independently and are capable of independent survival.

Location	Time of Year	Level of Disturbance		
		Low	Med	High
Nesting sites	April 1-Aug 15	200 m*	500 m	500 m
Nesting sites	Aug 16-Oct 15	200 m	200 m	500 m
Nesting sites	Oct 16-Mar 31	50 m	100 m	500 m

* meters (m)

If BUOW are found within these recommended buffers and avoidance is not possible, it is important to note that according to the Staff Report (CDFG 2012), exclusion is not a take avoidance, minimization, or mitigation method and is considered a potentially significant impact under CEQA. However, if necessary, CDFW recommends that burrow exclusion be conducted by qualified biologists and only during the non-breeding season, before breeding behavior is exhibited and after the burrow is confirmed empty through non-invasive methods, such as surveillance. CDFW recommends replacement of occupied burrows with artificial burrows at a ratio of 1 burrow collapsed to 1 artificial burrow constructed (1:1) as mitigation for the potentially significant impact of evicting BUOW. BUOW may attempt to colonize or re-colonize an area that will be impacted; thus, CDFW recommends ongoing surveillance, at a rate that is sufficient to detect BUOW if they return.

Federally Listed Species: CDFW recommends consulting with USFWS regarding potential impacts to federally listed species including but not limited to SJKF. Take under the Federal Endangered Species Act (FESA) is more broadly defined than CESA; take under FESA also includes significant habitat modification or degradation that could

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result in death or injury to a listed species by interfering with essential behavioral patterns such as breeding, foraging, or nesting. Consultation with the USFWS in order to comply with FESA is advised well in advance of any Project activities.

CDFW appreciates the opportunity to comment to assist the Kern County Planning and Natural Resources Department in identifying and mitigating Project impacts on biological resources. If you have any questions, please contact Jaime Marquez, Environmental Scientist, at the address provided on this letterhead, by telephone at (559) 580-3200, or by electronic mail at Jaime.Marquez@wildlife.ca.gov.

Sincerely,

DocuSigned by:
Julie Vance
FA83F09FE08945A...

Julie A. Vance
Regional Manager

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Jaime Marquez
California Department of Fish and Wildlife

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California Department of Transportation

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December 5, 2023

KER-99-15.398
TRAFFIC IMPACT STUDY
HOUGHTON INDUSTRIAL PHASE 1
GTS: 06-KER-2023-02160

SENT VIA EMAIL

Joe Shultz, P.E.
Kimley-Horn
401 B Street, Suite 600
San Diego, CA 92101

Dear Mr. Shultz:

Caltrans has completed reviewing the Traffic Impact Study (TIS) for an approximately 629,186 square-foot industrial warehouse and distribution facility development (Project). The Project site is located on the southwest corner of Houghton Road and South H Street, approximately 0.8-miles west of the State Route (SR) 99 and Houghton Road interchange, in the County of Kern.

Caltrans provides the following comments consistent with the State's smart mobility goals that support a vibrant economy and sustainable communities:

1. Caltrans will need the following information submitted to further assess the TIS.

2. Please verify the assumption of the usage in Land Use 155 (High-Cube Fulfillment Center Warehouse-Sort). The information regarding how many employees and the number of shifts, current transit, and/or pedestrian network in the vicinity of the project.

3. The TIS recommends the Project to signalize the Houghton Road and South Union Avenue intersection and modify the raised median on South Union Avenue to the northbound right-turn pocket with a 150-feet minimum. Please collaborate with the County of Kern for this improvement.

4. Our comment letter dated September 26, 2023, still applies.

If you have any other questions, please contact Scott Lau at (559) 981-7341 or scott.lau@dot.ca.gov.

Sincerely,

Lorena Mendibles

LORENA MENDIBLES, Chief
Transportation Planning – South

C: Sara Eickenhorst – Kern County Planning

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Appendix B:
Air Quality, Greenhouse Gas, and Energy Supporting Information

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B-1: Air Quality, Greenhouse Gas Emissions, and Energy Analysis Report

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FIRSTCARBONSOLUTIONS™

Air Quality, Greenhouse Gas Emissions, and Energy Analysis Report
Westside Industrial Project
Kern County, California

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Report Date: December 1, 2023
Revised: February 13, 2024

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ACRONYMS AND ABBREVIATIONS

°F	degrees Fahrenheit
µg/m^3	micrograms per cubic meter
AAQA	Ambient Air Quality Analysis
AAQS	Ambient Air Quality Standard
AB	Assembly Bill
ADMRT	Air Dispersion Modeling and Risk Tool
AERMAP	EPA Terrain Preprocessor
AERMOD	American Meteorological Society/EPA Regulatory Model
APCD	Air Pollution Control District
APN	Assessor's Parcel Number
AQAP	Air Quality Attainment Plan
AQI	Air Quality Index
AQMD	Air Quality Management District
AQP	Air Quality Plan
ARB	California Air Resources Board
ATCM	Airborne Toxic Control Measure
BAU	Business-as-Usual
BMP	Best Management Practice
C^{2}ES	Center for Climate and Energy Solutions
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
Cal/EPA	California Environmental Protection Agency
CALGreen	California Green Building Standards Code
CAP	Climate Action Plan
CAPCOA	California Air Pollution Control Officers Association
CCR	California Code of Regulations
CCS	Carbon Capture and Sequestration
CDC	Center for Disease Control and Prevention
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CH_4	methane
CMS	Clean Mile Standards
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent

COA	Condition of Approval
COG	Council of Governments
CPF	cancer potency factor
CPUC	California Public Utility Commission
DEM	Digital Elevation Model
DPM	diesel particulate matter
EIR	Environmental Impact Report
EMFAC	Emission Factors Model
EPA	United States Environmental Protection Agency
EV	electric vehicle
EVSE	electric vehicle service equipment
FTIP	Federal Transportation Improvement Program
GAMAQI	Guidance for Assessing and Mitigating Air Quality Impacts
GHG	greenhouse gas
GPA	General Plan Amendment
gpcpd	gallons per capita per day
GPD	gallons per day
GWP	global warming potential
HAP	Hazardous Air Pollutant
HARP	Hot Spots Analysis and Reporting Program
HFC	hydrofluorocarbon
HHDT	heavy heavy-duty truck
HI	hazard index
hp	horsepower
HRA	Health Risk Assessment
HVAC	heating, ventilation, and air conditioning
ICC	International Code Council
IPCC	United Nations Intergovernmental Panel on Climate Change
ISR	Indirect Source Review
ITE	Institute of Transportation Engineers
lb	pounds
LCFS	Low Carbon Fuel Standard
LDA	light-duty auto
LDT	light-duty truck
LEV	Low Emission Vehicle
LI	Light Industrial
MDV	medium-duty vehicle
MEIR	Maximally Exposed Individual Resident

MEIW	Maximally Exposed Individual Worker
MIR	Maximally Impacted Sensitive Receptor
MM	Mitigation Measure
MSS	Mobile Source Strategy
MT	metric ton
MW	megawatt
N-95	Non-Oil 95
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAP	Nonattainment Area Plan
NESHAP	National Emission Standard for Hazardous Air Pollutants
NF_3	nitrogen trifluoride
NO_2	nitrogen dioxide
NO_X	nitrogen oxide
O_3	ozone
OEHHA	Office of Environmental Health Hazard Assessment
PDF	Project Design Feature
PFC	perfluorocarbon
PG&E	Pacific Gas and Electric Company
PM_{10}	particulate matter less than 10 microns in diameter
$PM_{2.5}$	particulate matter less than 2.5 microns in diameter
PMI	point of maximum impact
ppm	parts per million
PV	photovoltaic
RACM	regulated asbestos-containing materials
REL	Reference Exposure Level
R-IA	Intensive Agricultural
RMP	Risk Management Plan
RNG	renewable natural gas
ROG	reactive organic gases
RPS	Renewables Portfolio Standard
RTP/SCS	Regional Transportation Plan and Sustainable Communities Strategy
RWQCB	Regional Water Quality Control Board
SCAQMD	South Coast Air Quality Management District
SCS	Sustainable Communities Strategy
SF_6	sulfur hexafluoride
SIL	significant impact level
SIP	State Implementation Plan

SJVAB	San Joaquin Valley Air Basin
SJVAPCD	San Joaquin Valley Air Pollution Control District
SLAMS	State and Local Air Monitoring Stations
SLCP	Short-Lived Climate Pollutant
SNAP	Significant New Alternatives Policy
SO_2	sulfur dioxide
SORE	Small Off-road Engine
SO_X	sulfur oxides
SR	State Route
TAC	toxic air contaminant
TDM	Transportation Demand Management
TRU	Transport Refrigeration Unit
VMT	Vehicle Miles Traveled
VOC	volatile organic compound
WAF	worker adjustment factor
WWTP	Wastewater Treatment Plant
ZEV	Zero-Emission Vehicle

SECTION 1: INTRODUCTION

1.1 - Purpose and Methods of Analysis

This Air Quality, Greenhouse Gas Emissions, and Energy Analysis Report was prepared to evaluate the estimated criteria air pollutant, ozone precursor, toxic air contaminant (TAC), and/or greenhouse gas (GHG) emissions generated from construction and/or operation of the proposed Westside Industrial Project (proposed project). The respective analyses were conducted within the context of the California Environmental Quality Act (CEQA) (California Public Resources Code [PRC] § 21000, *et seq.*) The air quality significance criteria were developed considering the CEQA significance criteria developed by the local air quality district in the project area, approved CEQA air quality checklists, analysis presented within this section is based on both qualitative and quantitative approaches for determining air quality impacts associated with construction, operation, and maintenance of the project. The findings in this report were prepared in accordance with the Kern County Planning Department's *Guidelines for Preparing an Air Quality Assessment for Use in Environmental Impact Reports* and the San Joaquin Valley Air Pollution Control District (SJVAPCD) 2015 *Guidance for Assessing and Mitigation Air Quality Impacts*. The final determination of whether a project may involve significant impacts is within the purview of the Lead Agency pursuant to Section 15064(b) of the CEQA Guidelines.

1.2 - Project Summary

The proposed project would include the development of a 653,442-square-foot single-story warehouse distribution facility and associated improvements on approximately 93.74 acres of privately owned land in the central portion of unincorporated Kern County. In addition to the proposed on-site development, the proposed project would also include approximately 5.54 acres of dedicated off-site improvements along Houghton Road and Wible Road.

1.2.1 - Site Location

The proposed would be located on approximately 93.74 acres of privately owned land located at the southern end of the San Joaquin Valley approximately 1.3 miles south of the City of Bakersfield, in unincorporated Kern County, California as shown in Exhibit 1. The project site is bounded by Wible Road (west), Houghton Road (north), and agricultural land (south and east) as shown in Exhibit 2. The Assessor's Parcel Number (APN) for the project site is 184-391-08.

The project site is situated approximately 1 mile west of State Route (SR) 99 and 8.75 miles east of Interstate 5 (I-5). Regional access to the project site is available from SR-99 via the Houghton Road exit. Local access to the project site is available from Houghton Road and Wible Road. Unpaved roads provide existing access within the project site.

1.2.2 - General Plan and Zoning

Bakersfield is the largest incorporated area in Kern County. Bakersfield is the County Seat and the focus of much of the business activity in the County. Kern County and City of Bakersfield jointly

adopted a general plan. The Metropolitan Bakersfield General Plan is part of the County's General Plan. The project site is within the jurisdictional boundaries of the Metropolitan Bakersfield General Plan and is designated Intensive Agricultural (R-IA). The R-IA designation is applied to areas devoted to the production of irrigated crops, or areas that have the potential for such use. The minimum parcel size for the R-IA designation is 20 gross acres.

The proposed project includes a request to amend the Metropolitan Bakersfield General Plan, which would change the existing Kern County General Plan map code for the project site from R-IA to Light Industrial (LI).

1.2.3 - Project Description

The proposed project consists of a 653,442-square-foot single-story warehouse and related improvements. The proposed warehouse building would be concrete tilt-up panel construction with insulated metal panels. The proposed facility has a footprint of approximately 629,186 square feet (including approximately 44,424 square feet of office space) that would primarily facilitate material handling equipment and warehouse uses, as shown in Exhibit 3. The remaining square footage is made up of a 24,256-square-foot mezzanine, which contains only material handling equipment conveyors with occasional maintenance and no storage. The proposed project would also include two guardhouses and one pumphouse.

The warehouse would be exclusively truck-served, meaning it would be utilized by delivery trucks. The proposed warehouse building, yard trucks and forklifts would be electrified. The proposed project would not use natural gas. The proposed project would comply with the applicable requirements of the California 2022 Building Energy Efficiency Standards (CALGreen) and would include rooftop photovoltaics (PV) solar facilities. Cold storage is not proposed as part of the proposed project.

The proposed project would also have an on-site electrical substation and a pre-packaged wastewater treatment plant to meet its utility requirements. The wastewater treatment plant would be designed to treat 54,900 gallons per day and include an odor control facility, and a small building for electrical and operations and maintenance equipment. The siting, design, construction, operation, maintenance, and monitoring of the wastewater system would comply with the requirements of the applicable Regional Water Quality Control Board (RWQCB) Basin Plan.

1.2.4 - Environmental Setting

Project Site

The project site is currently used as an active agricultural field and has been historically covered by row crops. As detailed above, the project site is bordered immediately to the north and west by Houghton Road and Wible Road, respectively, and to the east and south by agricultural uses.

Project Vicinity

The Kern Island Canal and a cluster of unincorporated residences are located approximately 1 mile east of the project site. The project vicinity is characterized by cultivated agricultural uses (row crops

and orchards) as well as agricultural processing facilities. The General Shafter Elementary School is located approximately 0.8 mile southeast of the project site at South H Street and Shafter Road. In addition, Kern High School District has identified a future school site at Wible Road and Engle Road approximately 0.5 mile north of the project site.

1.2.5 - Facility Construction

The following construction schedule was assumed for the purposes of this environmental analysis. The proposed project would require site preparation, grading, paving, and construction and painting of the warehouse facility. Construction would begin in July 2024 and is anticipated to take approximately 16 months, with completion in September 2025. Construction would primarily occur during daylight hours, Monday through Friday, between 7:00 a.m. and 8:00 p.m., as required to meet the construction schedule. Additional hours/days may be necessary to facilitate the schedule.

The proposed project also includes construction and operation of a temporary concrete batch plant.

The proposed project would additionally construct 5.54 acres of dedicated off-site improvements. Specifically, the southern half of Houghton Road and the eastern Portion of Wible Road would be widened along the property frontage to provide improvements for a County standard Type “A” Arterial Highway. Furthermore, Houghton Road and Wibble Road would be improved with new pavement, raised median, curb and gutter, sidewalk, and signing and markings would be constructed for the new pavement delineations.

1.2.6 - Operation

The 653,442-square-foot single-story warehouse and distribution facility would receive and consolidate products from vendors and then ship these products to other fulfillment centers within the network. The proposed project is anticipated to operate 24 hours per day, 365 days per year. During peak e-commerce fulfillment season, the proposed project would support two shifts with 915 employees per shift, for a total of 1,830 employees per day.

The project applicant proposes to implement use of zero-emissions material handling equipment (e.g., forklifts, indoor material handling equipment, etc.) on-site for daily warehouse and business operations. To ensure enforceability, the project developer/facility owner would disclose this requirement to all tenants/business entities prior to the signing of any lease agreement. In addition, the limitation of using only electric-powered off-road equipment would be included in all leasing agreements. This is incorporated into the Project Description as Project Design Feature (PDF) GHG-1.

1.2.7 - Vehicular Access and Parking

A new private road would be constructed along the eastern and southern perimeter of the project site to connect Houghton Road and Wible Road. The road would be two lanes and designed to accommodate heavy trucks. The proposed project would include approximately 5.54 acres of off-site improvements, as shown in Exhibit 4, Project Off-site Roadway and Frontage Improvements.

The facility would have 132 loading docks, 702 trailer parking spots, and 1,000 car parking stalls.

Access to the proposed project would be established through the proposed construction of a private access road adjacent to the east and south sides of the site, East Private Road/South Private Road. The proposed project would have dedicated inbound and outbound truck driveways, as well as two passenger vehicle driveways that would access via this private road.

1.2.8 - Passenger and Truck Vehicle Routes

It is estimated that the proposed project would generate 4,052 total daily trips, with 547 trips during the AM peak-hour and 755 trips during the PM peak-hour. Daily truck trips are estimated at 145 per day, with 13 trips during the AM peak-hour and six trips during the PM peak-hour.

According to a traffic study by Kimley-Horn, passenger vehicles traveling to the proposed project site would utilize several local surface streets and arterials. Approximately 45 percent of these trips would arrive locally via Wible Road, Union Avenue, and Houghton Road. The SR-99 would be the primary route for the remaining 55 percent of the passenger vehicle traffic, which would use then Houghton Interchange to enter the project area via Houghton Road to the east of the site.

Since delivery trucks would not originate locally and would travel to/from the site via designated truck routes from SR-99, these vehicles are assumed to be distributed to the study area as follows:

- 60 percent to/from the north along SR-99, using the Houghton Road interchange.
- 40 percent to/from the south along SR-99, using the Houghton Road interchange.

1.2.9 - Dry Storage Use

The proposed facility is assumed to be used for dry storage only (i.e., non-refrigerated use). As part of recommendation GHG-2, cold storage uses will be prohibited on the project site unless prior to the issuance of occupancy permits, the Planning Department confirmed that the tenant lease agreements include contractual language that requires all Transport Refrigeration Units (TRUs) entering the project site be plug-in capable. Electrical hookups shall be provided as part of the tenant improvements for any tenant that requires cold storage. The electrical hookups shall be provided at loading bays for truckers to plug in any onboard auxiliary equipment and power refrigeration units while their truck is stopped.

1.3 - Recommendations

Air Quality

AIR-1 The project shall continuously comply with the following: Construction and operation of the project shall be conducted in compliance with applicable rules and regulations set forth by the San Joaquin Valley Air Pollution Control District (SJVAPCD). Dust control measures outlined below shall be implemented where they are applicable and feasible. The list shall not be considered all-inclusive, and any other measures to reduce fugitive dust emissions not listed shall be encouraged.

a. Land Preparation, Excavation and/or Demolition. The following dust control measures shall be implemented:

1. All soil excavated or graded shall be sufficiently watered to prevent excessive dust. Watering shall occur as needed with complete coverage of disturbed soil areas. Watering shall take place a minimum of twice daily on unpaved/untreated roads and on disturbed soil areas with active operations.
2. All clearing, grading, earth moving, and excavation activities shall cease during periods of winds greater than 20 miles per hour (averaged over one hour), if disturbed material is easily windblown, or when dust plumes of 20 percent or greater opacity impact public roads, occupied structures, or neighboring property.
3. All fine material transported off-site shall be either sufficiently watered or securely covered to prevent excessive dust.
4. Areas disturbed by clearing, earth moving, or excavation activities shall be minimized at all times.
5. Stockpiles of dirt or other fine loose material shall be stabilized by watering or other appropriate method to prevent windblown fugitive dust.
6. Where acceptable to the Kern County Fire Department, weed control shall be accomplished by mowing instead of disking, thereby, leaving the ground undisturbed and with a mulch covering.

b. Site Construction. After clearing, grading, earth moving and/or excavating is completed within any portion of the project sites, the following dust control practices shall be implemented:
   1. Once initial leveling has ceased, all temporality open and inactive soil areas within the construction site shall be (1) seeded and watered until plant growth is evident, (2) treated with a dust palliative, or (3) watered twice daily until soil has sufficiently crusted to prevent fugitive dust emissions.
   2. Dependent on specific site conditions (season and wind conditions), revegetation shall occur in open areas.
   3. All active disturbed soil areas shall be sufficiently watered at least twice daily or have dust palliatives applied to prevent excessive dust.

c. Vehicular Activities. During all phases of construction, the following vehicular control measures shall be implemented:
   1. On-site vehicle speed shall be limited to 15 miles per hour.
   2. All areas with vehicle traffic shall be paved, treated with dust palliatives or watered a minimum of twice daily.
   3. Streets adjacent to the project sites shall be kept clean, and project-related accumulated silt shall be removed.
   4. Access to the project sites shall be by means of an apron into the project sites from adjoining surfaced roadways. The aprons shall be surfaced or treated with dust palliatives. If operating on soils that cling to the wheels of vehicles, a grizzly, wheel washer, or other such device shall be used on the road exiting the project sites, immediately prior to the pavement, in order to remove most of the soil material from vehicle tires.

AIR-2 Prior to issuance of grading or building permits, the project proponent shall prepare a comprehensive Fugitive Dust Control Plan for review and approval by the San Joaquin Valley Air Pollution Control District and submitted to the Kern County Planning and Natural Resources Department. The Plan shall take into consideration grading and construction schedule, seasonal winds, site-specific wind patterns and conditions to ensure adequate measures are implemented to manage fugitive dust. The Dust Control Plan shall include:

a. Name(s), address(es), and phone number(s) of person(s) responsible for the preparation, submission, and implementation of the plan.
b. Description and location of operation(s).
c. Listing of all fugitive dust emissions sources included in the operation.
d. The following dust control measures shall be implemented:
    1. Identify a comprehensive 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 project features.
    2. All on-site unpaved roads and off-site unpaved access roads shall be stabilized using water or chemical soil stabilizers that can be determined to be as efficient as or more efficient for fugitive dust control than California Air Resources Board approved soil stabilizers, and that shall not increase any other environmental impacts including loss of vegetation.
    3. All material excavated or graded will be watered to prevent excessive dust. Watering will occur as needed with complete coverage of disturbed areas. The excavated soil piles will be watered as needed to limit dust emissions to less than 20% opacity or covered with temporary coverings.
    4. Construction activities that occur on unpaved surfaces will be discontinued during windy conditions when winds exceed 25 miles per hour and those activities cause visible dust plumes that exceed the SJVAPCD 20% opacity standard.
    5. Track-out debris onto public paved roads shall not extend 50 feet or more from an active operation and track-out shall be removed or isolated such as behind a locked gate at the conclusion of each workday, except on agricultural fields where speeds are limited to 15 mph.
    6. All hauling materials should be moist while being loaded into dump trucks.
    7. All haul trucks hauling soil, sand, and other loose materials on public roads shall be covered (e.g., with tarps or other enclosures that would reduce fugitive dust emissions).
    8. Soil loads should be kept below 6 inches or the freeboard of the truck
    9. Drop heights when loaders dump soil into trucks shall not exceed 5 feet above the truck
    10. Gate seals should be tight on dump trucks.
    11. Traffic speeds on unpaved roads shall be limited to 15 miles per hour
    12. All grading activities shall be suspended when visible dust emissions exceed 20%.

13. Other fugitive dust control measures as necessary to comply with San Joaquin Valley Air Pollution Control District Rules and Regulations.

AIR-3 The proposed project shall continuously comply with the following: The project proponent and/or its contractors shall implement the following measures during construction of the project:

a. All equipment shall be maintained in accordance with the manufacturer's specifications.
b. Construction-related equipment, including heavy-duty equipment, motor vehicles, and portable equipment, shall be turned off when not in use for extended periods of time.
c. Construction equipment shall operate longer than eight cumulative hours per day.
d. Electric equipment shall be used whenever possible in lieu of diesel- or gasoline-powered equipment.
e. All construction vehicles shall be equipped with proper emissions control equipment and kept in good and proper running order to substantially reduce NOX emissions.
f. On-road and off-road diesel equipment shall use diesel particulate filters (or the equivalent) if permitted under manufacturer's guidelines.
g. Tier 3 engines shall be used on all equipment when available.

AIR-4 All required landscaping along major and arterial roadways will be designed with native drought-resistant species (plants, trees, and bushes) to reduce demand for gas-powered landscape maintenance equipment.

AIR-5 To minimize personnel and public exposure to potential Valley Fever–containing dust on and off site, the following control measures shall be implemented during project construction:

a. Equipment, vehicles, and other items shall be thoroughly cleaned of dust before they are moved off-site to other work locations.
b. 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.
c. The area immediately behind grading or trenching equipment shall be sprayed with water before ground workers move into the area.
d. In the event that a water truck runs out of water before dust is sufficiently dampened, ground workers exposed to dust shall leave the area until a truck can resume water spraying.
e. To the greatest extent feasible, heavy-duty earth-moving vehicles shall be closed-cab and equipped with a HEPA-filtered air system.
f. Workers shall receive training in procedures to minimize activities that may result in the release of airborne *Coccidioides immitis* spores and recognize the symptoms of Valley Fever and shall be instructed to promptly report suspected

symptoms of work-related Valley Fever to a supervisor. Evidence of training shall be provided to the Kern County Planning and Natural Resources Department within 5 days of the training session.

g. A Valley Fever informational handout shall be provided to all on-site construction personnel and surrounding residents within 3 miles of the project site. The handout shall, at a minimum, provide information regarding symptoms, health effects, preventative measures, and treatment of Valley Fever. No less than 30 days prior to any work commencing, this handout shall be mailed to all existing residences within 3 miles of the project boundaries. Additional information and handouts can be obtained by contacting the Kern County Public Health Services Department.
h. On-site personnel shall be trained in the proper use of personal protective equipment, including respiratory equipment. National Institute for Occupational Safety and Health-approved respirators shall be provided to on-site personnel, upon request. When exposure to dust is unavoidable, affected workers shall be provided appropriate NIOSH-approved respiratory protection. If respiratory protection is deemed necessary, employers must develop and implement a respiratory protection program in accordance with the California Occupational Safety and Health Administration's Respiratory Protection standard (8 CCR 5144).

AIR-6 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.

AIR-7 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 Department for review and approval.

AIR-8 Prior to commencement of any on-site construction activities (i.e., fence construction, mobilization of construction equipment, initial grading), 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.

AIR-9 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.

GHG-1 Only electric-powered off-road equipment (e.g., forklifts, indoor material handling equipment, etc.) shall be utilized on-site for daily warehouse and business operations. The project developer/facility owner shall disclose this requirement to all tenants/business entities prior to the signing of any lease agreement. In addition, the limitation on using only electric-powered off-road equipment shall be included in all leasing agreements.

GHG-2 The warehouse usage would be limited to dry storage. If the warehouse is used for cold storage uses, then prior to the issuance of occupancy permits, the Planning Department shall confirm that tenant lease agreements include contractual language that requires all Transport Refrigeration Units (TRUs) entering the project site be plug-in capable. Building systems should be upgraded to provide electrical hookups as part of the tenant improvements for any tenant that requires cold storage. The electrical hookups shall be provided at loading bays for truckers to plug in any onboard auxiliary equipment and power refrigeration units while their truck is stopped.

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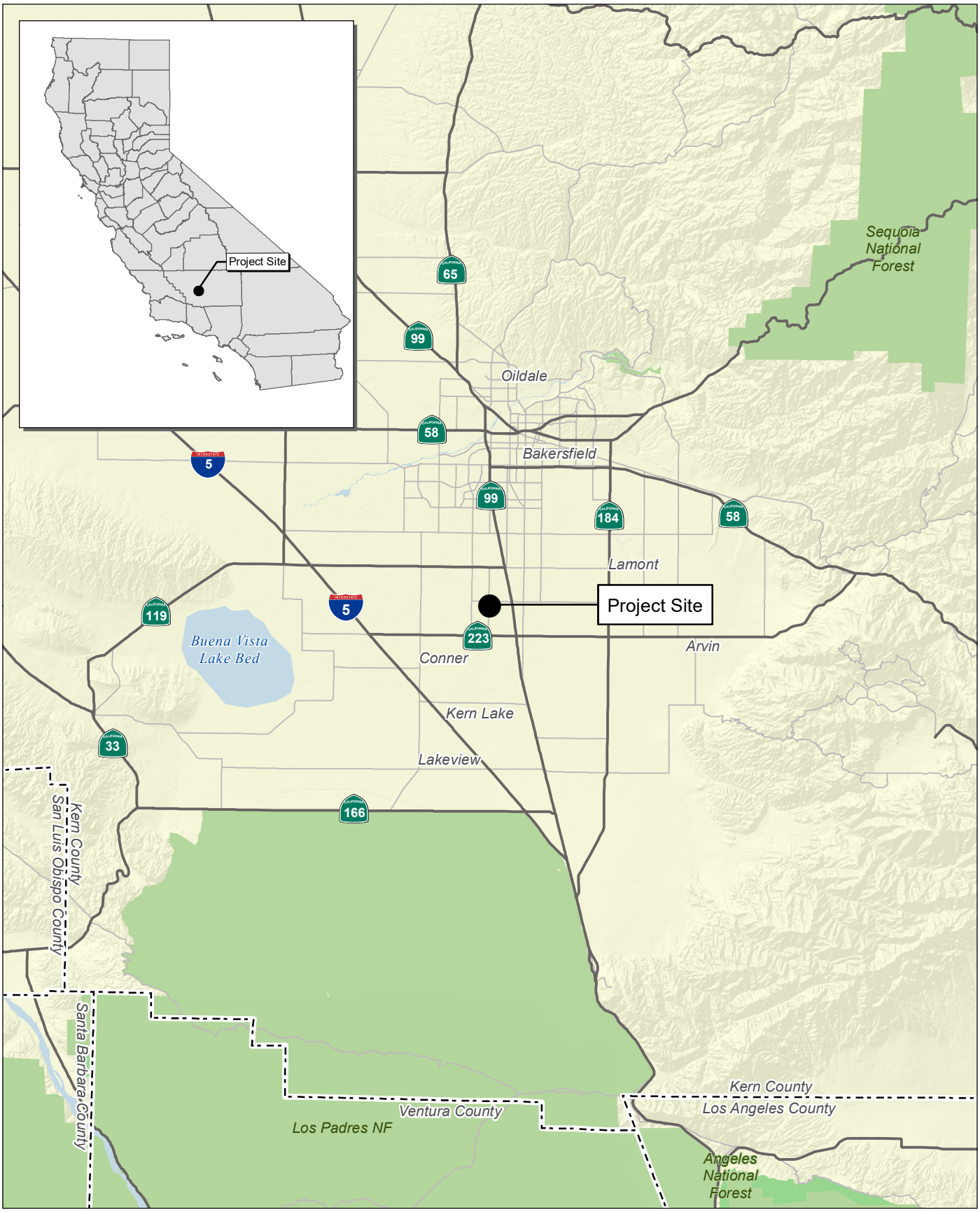

Source: Census 2000 Data, The California Spatial Information Library (CaSIL).

FIRSTCARBON SOLUTIONS™

8.5 4.25 0 8.5 Miles

Exhibit 1
Regional Location Map

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KERN COUNTY
WESTSIDE INDUSTRIAL PROJECT
AIR QUALITY, GREENHOUSE GAS EMISSIONS, AND ENERGY ANALYSIS REPORT

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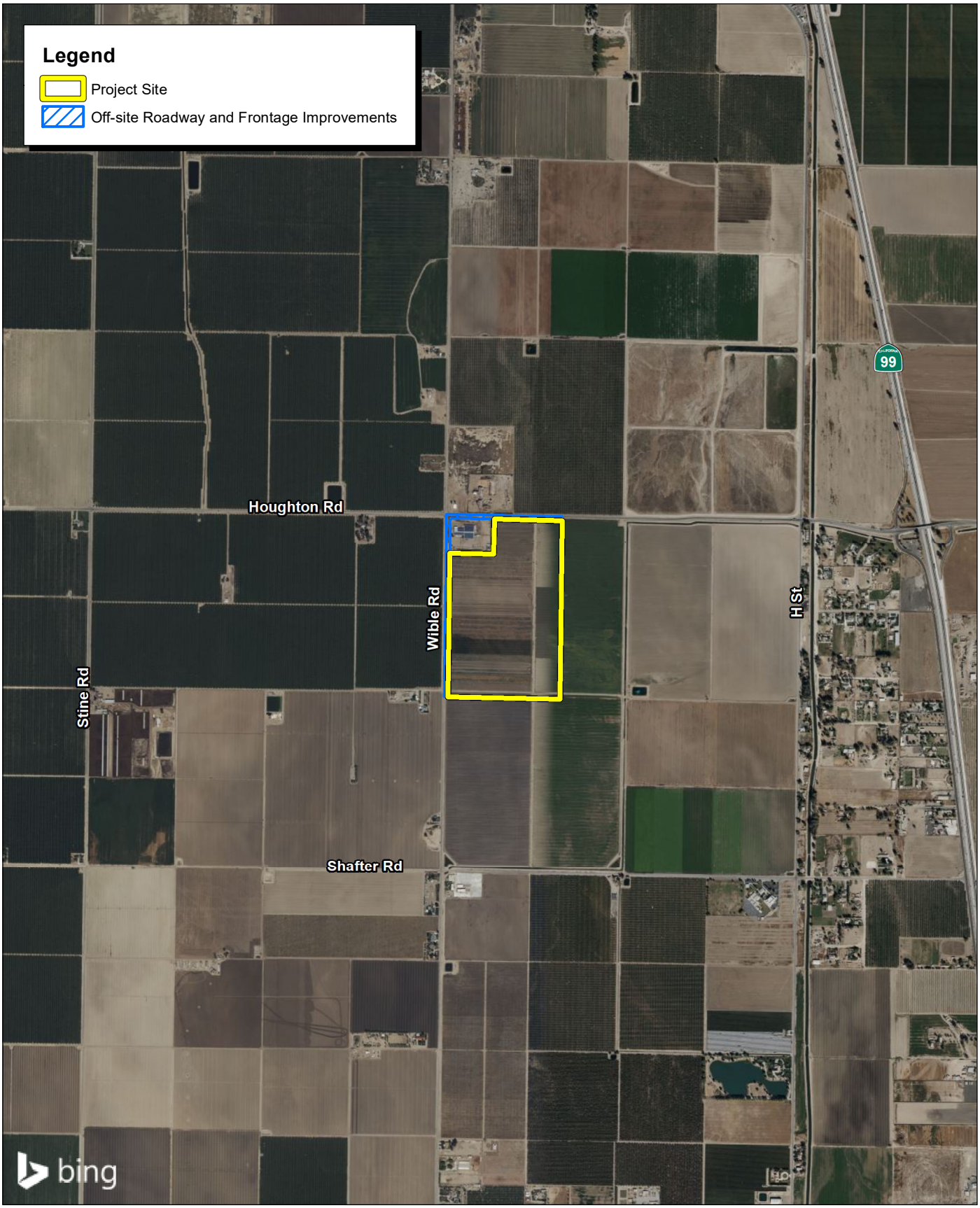

Source: Bing Aerial Imagery.

FIRSTCARBON SOLUTIONS™

2,000 1,000 0 2,000 Feet

Exhibit 2
Local Vicinity Map

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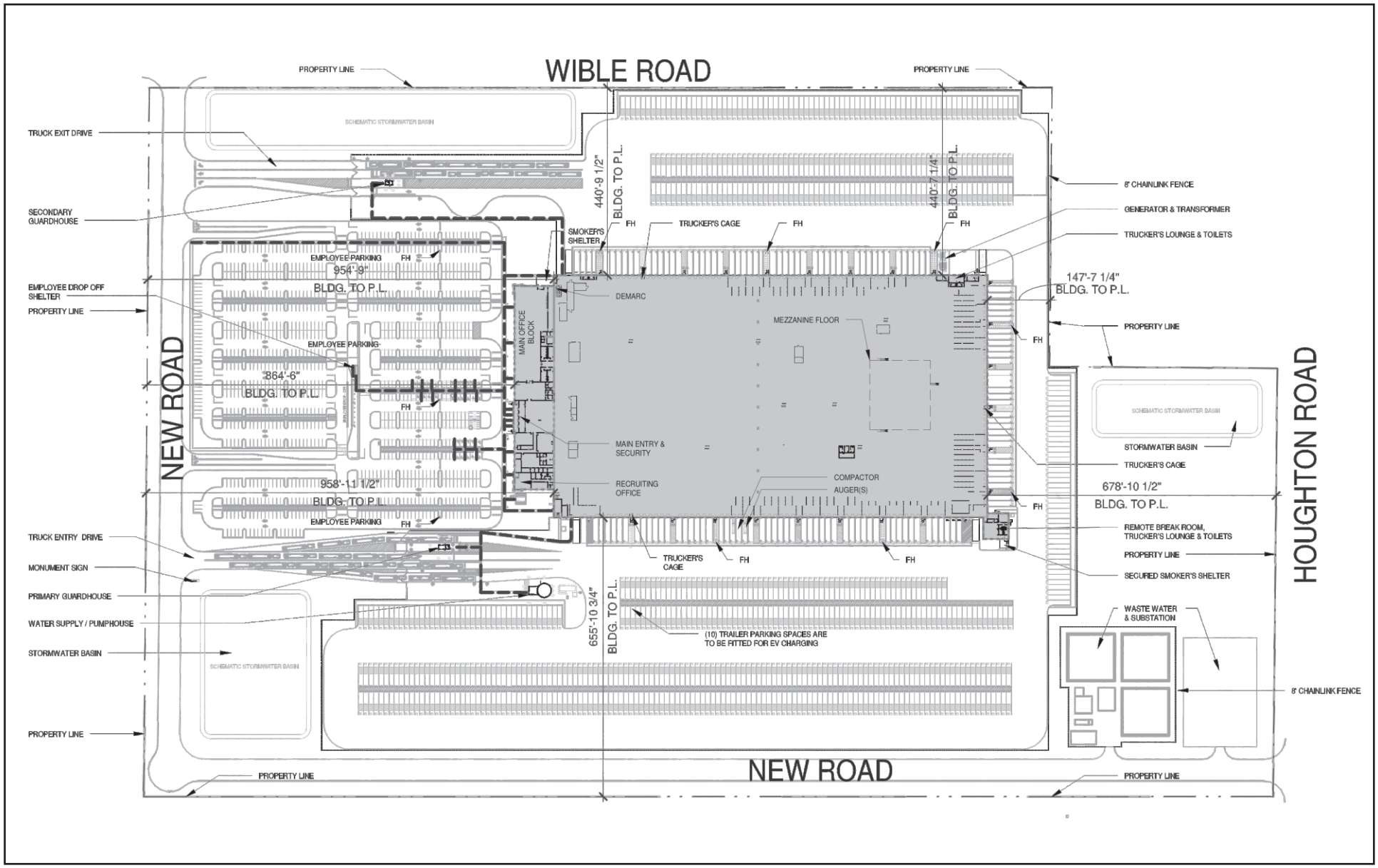

Source: Kimley-Horn, Ware Malcomb, 03/30/2023.

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Exhibit 3
Site Plan

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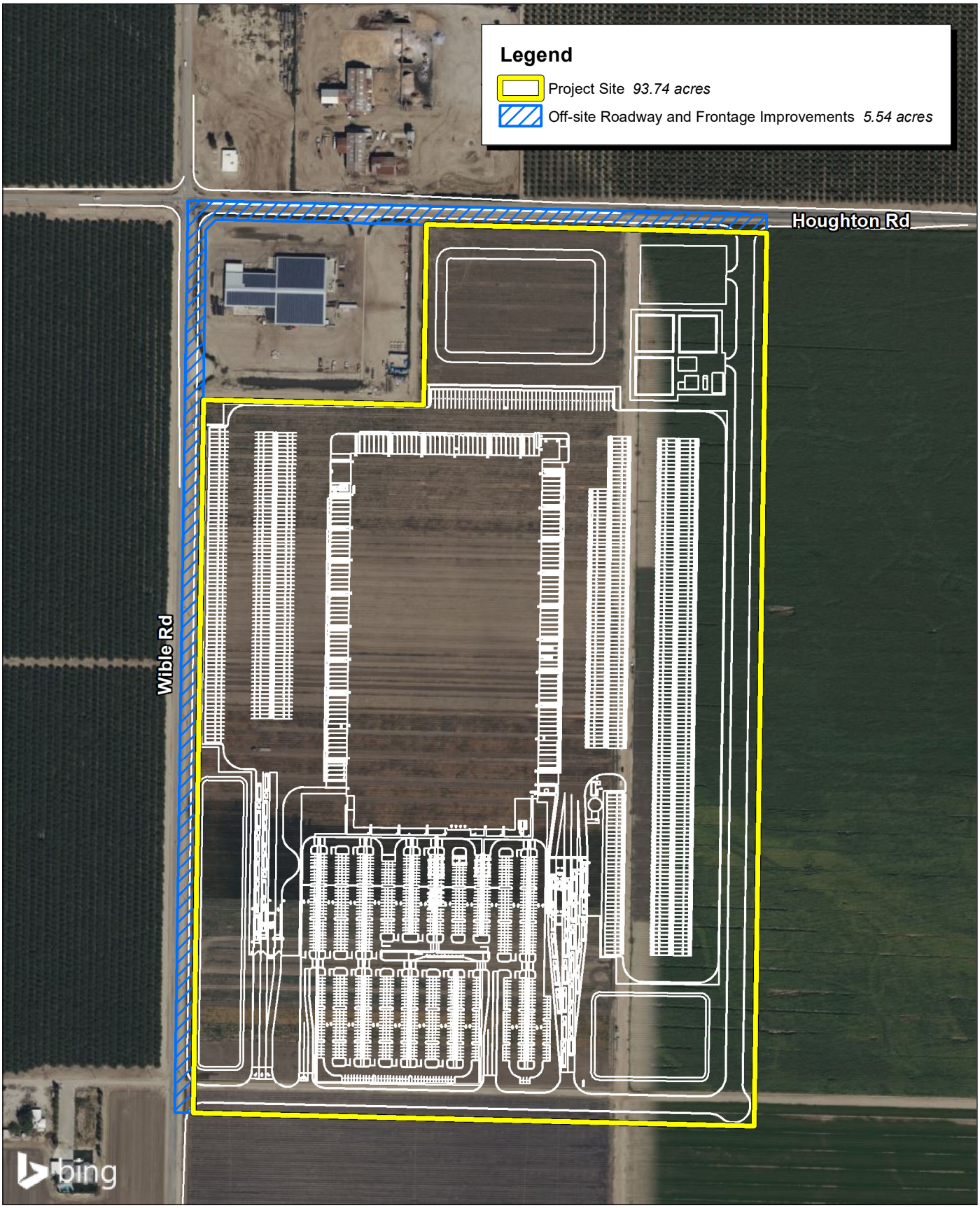

Source: Bing Aerial Imagery. Kimley-Horn, 04/2023.

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400 200 0 400
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Exhibit 4
Project Off-site Roadway and Frontage Improvements

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SECTION 2: AIR QUALITY SETTING

2.1 - Environmental Setting

The proposed project is in unincorporated Kern County within the San Joaquin Valley Air Basin (Air Basin) and within the boundaries of the SJVAPCD. Regional and local air quality is impacted by topography, dominant airflows, atmospheric inversions, location, and season. The following section describes these conditions as they pertain to the Air Basin.[1]

2.1.1 - San Joaquin Valley Air Basin

Topography and Meteorology

Air pollution, especially the dispersion of air pollutants, is directly related to a region's topographic features. Air quality is a function of both the rate and location of pollutant emissions and the meteorological conditions and topographic features that influence pollutant movement and dispersal. Atmospheric conditions such as wind speed, wind direction, atmospheric stability, and air temperature gradients interact with the physical features of the landscape to determine the movement and dispersal of air pollutants, which affects ambient air quality.

The Air Basin is generally shaped like a bowl. It is open in the north and is surrounded by mountain ranges on all other sides. The Sierra Nevada mountains are along the eastern boundary (8,000 to 14,000 feet in elevation), the Coast Ranges are along the western boundary (3,000 feet in elevation), and the Tehachapi Mountains are along the southern boundary (6,000 to 8,000 feet in elevation). The Air Basin has an "inland Mediterranean" climate and is characterized by long, hot, dry summers, and short, foggy winters. Sunlight can be a catalyst in the formation of some air pollutants (such as ozone); the Air Basin averages over 260 sunny days per year. The climate is a result of the topography and the strength and location of a semi-permanent, subtropical high-pressure cell.

Winds in Kern County typically blow from the northwest. The region's topographic features restrict air movement and channel the air mass toward the southeastern end of the San Joaquin Valley. This effect moderates air temperatures in the region, with average minimum winter temperatures ranging from the low 40°F (degrees Fahrenheit) to the mid-40°F and average maximum summer temperatures ranging from the low 90°F to 100°F. Wind speeds are moderate in this region, with annual average wind speeds of approximately 6 miles per hour.

Project Site

The project site is located in unincorporated Kern County, in central California. The City of Bakersfield, located approximately 1.3 miles to the north, is the nearest metropolitan area in relation to the project site. In addition, the City of Arvin lies approximately 11 miles east of the project site,

[1] San Joaquin Valley Air Pollution Control District (SJVAPCD). 2015. Guidance for Assessing and Mitigating Air Quality Impacts. February 19, 2015. Website: http://www.valleyair.org/transportation/ceqa_guidance_documents.htm. Accessed November 13, 2023.

and the unincorporated community of Lamont is approximately 6 miles northeast of the project site. The topography of the project area is relatively flat.

Regional Climate and Air Pollution Potential

The climate is important for air quality because of differences in the atmosphere's ability to trap pollutants close to the ground, creating adverse air quality or rapidly dispersing pollutants over a wide area, thus preventing high concentrations from accumulating under different climatic conditions. The Air Basin has an "inland Mediterranean" climate and is characterized by long, hot, dry summers, and short, foggy winters. Sunlight can be a catalyst in the formation of some air pollutants (such as ozone); the Air Basin averages over 260 sunny days per year.

The valley topography and climate of the Air Basin create ideal conditions for trapping and holding pollutants within the valley. The particle and gaseous emissions can recirculate within the valley and accumulate to unhealthy levels. Bakersfield's hot, desert-like climate promotes the prevalence of both smog during hot winter months. It is especially dry climate, averaging just 6 inches of rainfall a year prevents particle pollution from coagulating or being tamped down by rain, and as a result, particles can remain suspended in the air for much longer than is typical.

Sources of Pollution

Bakersfield is a hub for energy production, agriculture, and distribution in California. The Oil and Gas Industry and agriculture contribute largely to the regions pollution including exhaust from passenger vehicles also contribute to local pollution sources. Mobile sources including passenger vehicles and heavy truck traffic on the SR-99 and I-5 are major contributors to air pollution in the basin.

Sensitive Receptors

Sensitive receptors are land uses or people considered to be more sensitive than others to air pollutants. The reasons for greater than average sensitivity include pre-existing health problems, proximity to emissions sources, or duration of exposure to air pollutants. Residences, schools, hospitals, convalescent homes, and parks are considered to be relatively sensitive to poor air quality because children, elderly people, and the infirm are more susceptible to respiratory distress and other air quality-related health problems than the general public. Residential areas are considered sensitive to poor air quality because people usually stay home for extended periods of time, with associated greater exposure to ambient air quality. Recreational uses are also considered sensitive due to greater exposure to ambient air quality conditions because vigorous exercise associated with recreation places a high demand on the human respiratory system.

The project site is approximately 93.74 acres in size and is currently zoned for agricultural uses. The surrounding area is also zoned for agricultural uses. The vicinity of the project site contains the following sensitive receptors: a single-family residential home approximately 300 feet west of the project site, a single-family residential home approximately 1,300 feet west of the project site, a single-family residential community approximately 0.75 mile east of the project site, and the General Shafter Elementary School located approximately 0.8 mile southeast of the project site.

2.2 - Regulatory Setting

Air pollutants are regulated to protect human health and for secondary effects such as visibility and building soiling. The Clean Air Act of 1970 tasks the United States Environmental Protection Agency (EPA) with setting air quality standards. The State of California also sets air quality standards that are, in some cases, more stringent than federal standards and address additional pollutants. The following section describes these federal and State standards and the health effects of the regulated pollutants.

National and State Ambient Air Quality Standards

Regulation of air pollution is achieved through both federal and State ambient air quality standards and permitted emission limits for individual sources of air pollutants. As required by the federal Clean Air Act (CAA), the EPA has identified criteria pollutants and has established National Ambient Air Quality Standards (NAAQS) to protect public health and welfare. NAAQS have been established for ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter (specifically PM_{10} and $PM_{2.5}$), and lead. These pollutants are called "criteria" air pollutants because standards have been established for each of them to meet specific public health and welfare criteria.

To protect human health and the environment, the EPA has set "primary" and "secondary" ambient standards for each of the criteria pollutants. Primary thresholds were set to protect human health, particularly sensitive receptors, such as children, the elderly, and individuals suffering from chronic lung conditions, such as asthma and emphysema. Secondary standards were set to protect the natural environment and prevent further deterioration of animals, crops, vegetation, and buildings.

Regional and Local Standards

NAAQS establish the level for an air pollutant above which detrimental effects to public health or welfare may result. NAAQS are defined as the maximum acceptable concentrations that, depending on the pollutant, may not be equaled or exceeded more than once per year or in some cases as a percentile of observations. California has generally adopted more stringent ambient air quality standards for the criteria air pollutants (i.e., California Ambient Air Quality Standards [CAAQS]). California has also established CAAQS for sulfates, hydrogen sulfide, and vinyl chloride; however, air emissions of these pollutants are not expected to occur under the project and, thus, these pollutants are not addressed further in this Environmental Impact Report (EIR).

Table 1 presents both sets of ambient air quality standards (i.e., national and State) as well as attainment status for each of these standards within the SJVAPCD jurisdiction. If a pollutant concentration in an area is lower than the established standard, the area is classified as being in "attainment" for that pollutant. If the pollutant concentration meets or exceeds the standard (depending on the specific standard for the individual pollutants), the area is classified as a "nonattainment" area. If there are not enough data available to determine whether the standard is exceeded in an area, the area is designated "unclassified."

As shown in Table 1, the State attainment status for the project area, located in Kern County, is currently nonattainment/severe for 1-hour ozone standards, nonattainment for 8-hour ozone standards, nonattainment for 24-hour and annual arithmetic mean for PM_{10} standards, and

nonattainment for annual arithmetic mean for $PM_{2.5}$ standards. The national attainment status for the project area is currently nonattainment/extreme for 8-hour ozone standards and nonattainment for 24-hour and annual arithmetic mean for $PM_{2.5}$ standards. State and national standards of all the other criteria pollutants are classified as attainment and/or unclassified.

Table 1: State and National Criteria Pollutant Standards and SJVAPCD Attainment Status

Pollutant	Averaging Time	California Standards		National Standards	
Ozone (O_3)	1-hour	0.09 ppm	Nonattainment/ Severe	—	—
	8-hour	0.070 ppm	Nonattainment	0.075 ppm	Nonattainment / Extreme
Particulate Matter (PM_{10})	AAM	20 µg/m^3	Nonattainment	—	—
	24-hour	50 µg/m^3	Nonattainment	150 µg/m^3	Attainment
Fine Particulate Matter ($PM_{2.5}$)	AAM	12 µg/m^3	Nonattainment	12.0 µg/m^3	Nonattainment
	24-hour	—	—	35 µg/m^3	Nonattainment
Carbon Monoxide (CO)	1-hour	20 ppm	Attainment	35 ppm	Attainment
	8-hour	9.0 ppm	—	9 ppm	—
Nitrogen Dioxide (NO_2)	AAM	0.030 ppm	Attainment	0.053 ppm	Attainment
	1-hour	0.18 ppm	Attainment	0.100 ppm	Attainment
Sulfur Dioxide (SO_2)	AAM	—	—	0.030 ppm	Attainment
	24-hour	0.04 ppm	Attainment	—	—
	3-hour	—	—	0.5 ppm	Attainment
	1-hour	0.25 ppm	Attainment	0.075 ppm	Unclassified
Lead	30-day average	1.5 µg/m^3	Attainment	—	—
	Calendar quarter	—	—	1.5 µg/m^3	Attainment
	Rolling 3month average	—	—	0.15 µg/m^3	Attainment
Sulfates	24-hour	25 µg/m^3	Attainment	No Federal Standards	
Hydrogen Sulfide	1-hour	0.03 ppm (42 µg/m^3)	Unclassified		
Vinyl Chloride	24-hour	0.01 ppm (42 µg/m^3)	Attainment		
Visibility-Reducing Particle Matter	8-hour	Extinction coefficient: 0.23/ kilometer- visibility of 10 miles or	Unclassified		

Pollutant	Averaging Time	California Standards		National Standards
		more (0.07–30 miles or more for Lake Tahoe) due to particles when the relative humidity is less than 70%.		
Notes: µg/m^3 = micrograms per cubic meter AAM = annual arithmetic mean ppm = parts per million Sources: San Joaquin Valley Air Pollution Control District (SJVAPCD) 2020; San Joaquin Valley Air Pollution Control District (SJVAPCD) 2018.				

Local Air Quality

To assess localized air quality impacts, the CO significance thresholds are based on the State CO standards, shown previously in Table 1, which are 20 parts per million (ppm) for 1-hour CO concentration levels and 9 ppm for 8-hour CO concentration levels. If CO concentration levels with the project would be less than the standards, then there would be no significant impact on local air quality. If future CO concentrations with the project would be above the standards, then the increase due to the project would determine if the impact would be significant or less than significant. A project would have a significant impact on local air quality if the project would result in an increase of 1 ppm or more for the 1-hour averaging time or 0.45 ppm or more for the 8-hour averaging time.

Ambient Air Monitoring

The ARB has established and maintains a network of sampling stations (called the State and Local Air Monitoring Stations [SLAMS] network) that work in conjunction with local air pollution control districts and air quality management districts to monitor ambient pollutant levels. The SLAMS network in Kern County consists of 10 stations that monitor various pollutant concentrations. The locations of these stations were chosen to meet monitoring objectives, which, for the SLAMS network, call for stations that monitor the highest pollutant concentrations, representative concentrations in areas of high population density, the impact of major pollution emissions sources, and general background concentration levels.

The primary pollutants of concern in the project area are ozone, PM_{10}, and $PM_{2.5}$ because the San Joaquin Valley is designated nonattainment for these pollutants by the EPA and/or ARB. Ten ambient air monitoring stations operate in Kern County, eight of which are in the valley portion of Kern County and two of which are in the desert portion of Kern County. Air quality data statistics from the Bakersfield-California Avenue ambient air monitoring station were used as representative of the project area's environmental setting due to the proximity of the monitoring station to the project (approximately 8 miles away). Ambient monitoring data obtained for 2020 through 2022 is summarized below in Table 2**.**

Table 2: Air Quality Data Summary (2020-2022)

Air Pollutant	Averaging Time	Item	2020	2021	2022
Ozone[1]	1 Hour	Maximum 1 Hour (ppm)	0.118	0.10	0.108
		Days > State Standard (0.09 ppm)	8	6	6
	8 Hour	Maximum 8 Hour (ppm)	0.101	0.090	0.086
		Days > Standard (0.070 ppm)	38	24	45
		Days > 2008 National Standard (0.075 ppm)	23	13	22
Nitrogen dioxide[1]	Annual	Annual Average (ppm)	0.012	0.011	0.012
	1 Hour	Maximum 1 Hour (ppm)	0.0655	0.068	0.051
		Days > State Standard (0.18 ppm)	0	0	0
Inhalable coarse particles (PM_{10})[2]	Annual	Annual Average (µg/m^3)	46.0	49.0	45.9
	24 Hour	24 Hour (µg/m^3)	193.8	437.5	133.0
		Days > State Standard (50 µg/m^3)	18	124	135
		Days > National Standard (150 µg/m^3)	1	3	0
Fine particulate matter ($PM_{2.5}$)[2]	Annual	Annual Average (µg/m^3)	19.7	16.6	ID
	24 Hour	24 Hour (µg/m^3)	150.7	72.3	58.1
		Days > National Standard (35 µg/m^3)	46	43	35

Notes:
> = exceed
µg/m^3 = micrograms per cubic meter
Bold = exceedance
ID = Insufficient Data
National Standard = National Ambient Air Quality Standard
ND = no data
ppm = parts per million
State Standard = California Ambient Air Quality Standard
[1] Ozone and NO_2, and exceedances were drawn from the Bakersfield Municipal monitoring station.
[2] PM_{10}, and $PM_{2.5}$ concentrations and exceedances were drawn from the 5558 California Avenue monitoring station.
Source: California Air Resources Board (ARB). 2023. iAdam Air Quality Data Statistics (2020, 2021, 2022). Website: https://www.arb.ca.gov/adam/topfour/topfour1.php. Accessed October 20, 2023.

CO and SO_2 concentrations were not available at any nearby monitoring station. In general, criteria pollutants that are not monitored are considered to not be a concern for the area.

Criteria Air Pollutants

Table 3 shows a general description of the source and health effects from the government regulated criteria air pollutants of ozone (O_3); reactive organic gases (ROGs) and volatile organic compounds (VOCs), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter (specifically PM_{10} and $PM_{2.5}$), sulfates, and lead (Pb).

Table 3: Description of Criteria Pollutants of National and California Concern

Pollutant	Physical Description and Properties	Sources	Most Relevant Effects from Pollutant Exposure
Ozone	A gas formed when reactive organic gases (ROG) and oxides of nitrogen (NO_X) react.	Not emitted directly but a product of reaction of Oxides and Nitrogen and Organic Compounds. Ozone is a strong oxidant that can cause substantial damage to vegetation and other materials.	Irritated respiratory system, reduced lung function, and aggravated chronic lung diseases. This health problem is particularly acute in sensitive receptors such as the sick, elderly, and young children.
Particulate matter (PM_{10})	Airborne PM_{10} is not a single pollutant but is a mixture of many chemical species. Particles with diameter of 10 microns or less are inhalable into the lungs inducing adverse health effects.	Dust from construction sites, landfills and agriculture, wildfires and brush/waste burning, industrial sources, windblown dust from open lands, pollen, and fragments of bacteria.	PM_{10} deposits on the surfaces of the larger airways of the upper region of the lung and can induce tissue damage, and lung inflammation.
Particulate matter ($PM_{2.5}$)	Fine particulate matter is defined as particles that are 2.5 microns or less in diameter ($PM_{2.5}$). and comprises a portion of PM_{10}.	Combustion of gasoline, oil, diesel fuel or wood produce much of the $PM_{2.5}$ pollution found in outdoor air, as well as a significant proportion of PM_{10}.	$PM_{2.5}$ travels into and deposits on the surface of the deeper parts of the lung. Exposures associated with premature death, increased hospital visits for heart or lung causes, restricted activity day, and reduced lung function.
Nitrogen dioxide (NO_2)	Pungent gas that, along with fine airborne particulate matter, contributes to the reddish-brown haze characteristic of smoggy air in California.	Not emitted directly but formed via reactions between oxides of nitrogen and reactive volatile organic compounds. NO_2 levels in air vary with direct emission levels, as well as with changing atmospheric conditions, particularly the amount of sunlight.	Studies have shown correlations between NO_2 exposure and premature death, cardiopulmonary effects, decreased lung function growth in children, respiratory symptoms, emergency room visits for asthma, and intensified allergic responses.
Volatile Organic Compounds (VOC)	Volatile compounds react with oxides of nitrogen to form ground level ozone and smog.	Include architectural and industrial coatings, consumer products and emissions from production and storage of petroleum fuels. Many VOCs, such as benzene, a component	Effects vary significantly depending on the compound itself. Toxic VOC components of industrial and consumer products would list the individual chemical and information on health and exposure information for the individual chemical.

Pollutant	Physical Description and Properties	Sources	Most Relevant Effects from Pollutant Exposure
		of gasoline and crude oil are also air toxics.	
Carbon monoxide (CO)	Colorless, odorless gas. It results from the incomplete combustion of carbon-containing fuels. Binds to hemoglobin in the blood, reducing the ability of blood to carry oxygen to the body's organs.	Emitted from a wide variety of combustion sources, including motor vehicles, power plants, wildfires, and incinerators.	Common effects of exposure are fatigue, headaches, confusion, and dizziness due to inadequate oxygen delivery to the brain.
Sulfur dioxide (SO_2)	Gas with a pungent, irritating odor. SO_2 is a member of a family of chemicals comprised of sulfur and oxygen that are collectively known as sulfur oxides (SO_x) and emitted from combustion of sulfur-containing fuels.	Sources include combustion emissions from locomotives, ships, and off-road diesel equipment that are operated with fuels that contain high levels of sulfur. Industrial sources include natural gas and petroleum production and refining, and metal processing.	More adverse exposure impacts for people with asthma. Effects include irritation such as wheezing, shortness of breath and chest tightness, especially during exercise or physical activity.
Lead	Lead is a metal that is a natural constituent of air, water, and the biosphere. Lead is neither created nor destroyed in the environment, so it essentially persists forever.	Historically, lead was used to increase the octane rating in automobile fuel. However, because gasoline powered automobile engines were a major source of airborne lead through the use of leaded fuels and that use has been mostly phased out, the ambient concentrations of lead have dropped dramatically. Kern County no longer monitors lead in the ambient air of the SJVAB. Exposure to lead occurs mainly through inhalation of air and ingestion of lead in food, water, soil, or dust.	Lead accumulates in the blood, bones, and soft tissues and can adversely affect the kidneys, liver, nervous system, and other organs. Lead poisoning in children, it may result in behavioral problems, reduced intelligence, anemia, and liver or kidney damage. Lead is also harmful to adults and lead poisoning can cause reproductive problems in men and women, high blood pressure, kidney disease, digestive problems, nerve disorders, memory and concentration problems, and muscle and joint pain.
Sulfates (SO_4^{2-})	Sulfates are particulate product that comes from the	Sulfates are the fully oxidized ionic form of	Sulfate particles are part of $PM_{2.5}$, and so they have health

Pollutant	Physical Description and Properties	Sources	Most Relevant Effects from Pollutant Exposure
	combustion of sulfur-containing fossil fuels.	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 (e.g., gasoline and diesel fuel) that contain sulfur.	effects similar to those from exposure to $PM_{2.5}$. These include reduced lung function, aggravated asthmatic symptoms, and increased risk of emergency department visits, hospitalizations, and death in people who have chronic heart or lung diseases.

Sources:
California Air Resources Board (ARB). 2023. Ozone and Health. Website: https://ww2.arb.ca.gov/resources/vinyl-chloride-and-health. Accessed October 14, 2023.

California Air Resources Board (ARB). 2023. Inhalable Particulate Matter and Health. Website: https://ww2.arb.ca.gov/resources/inhalable-particulate-matter-and-health. Accessed October 14, 2023.

California Air Resources Board (ARB). 2023. Nitrogen Dioxide and Health. Website: https://ww2.arb.ca.gov/resources/nitrogen-dioxide-and-health. Accessed October 14, 2023.

California Air Resources Board (ARB). 2023. Carbon Monoxide and Health. Website: https://ww2.arb.ca.gov/resources/carbon-monoxide-and-health. Accessed October 14, 2023.

California Air Resources Board (ARB). 2023. Sulfur Dioxide and Health. Website: https://ww2.arb.ca.gov/resources/sulfur-dioxide-and-health. Accessed October 14, 2023.

California Air Resources Board (ARB). 2023. Lead and Health. Website: https://ww2.arb.ca.gov/resources/lead-and-health. Accessed October 14, 2023.

California Air Resources Board (ARB). 2023. Sulfate and Health. Website: https://ww2.arb.ca.gov/resources/sulfate-and-health. Accessed October 14, 2023.

Toxic Air Contaminants

TACs, as known under the California Clean Air Act of 1988 (CCAA), are 10 pollutants that have been identified through ambient air quality data as posing the most substantial health risk in California. Direct exposure to these pollutants has been shown to cause cancer, birth defects, damage to the brain and nervous system, and respiratory disorders. The ARB provides TAC emission inventories for only the larger air basins.

Sources include industrial processes such as petroleum refining and chrome plating operations, commercial operations such as gasoline stations and dry cleaners and motor vehicle exhaust. 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 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 to the ARB and periodically update those reports. While TACs do result in potential health risks for those exposed, the proposed project would not emit TACs with the exception of diesel particulate matter (DPM), which, therefore, is the only TAC described further in this analysis.

Some studies indicate that DPM poses the greatest health risk among the TACs listed above. A 10-year research program demonstrated that DPM from diesel-fueled engines is a human carcinogen and that chronic (long-term) inhalation exposure to DPM poses a chronic health risk.[2] In addition to increasing the risk of lung cancer, exposure to diesel exhaust can have other health effects. Diesel exhaust can irritate the eyes, nose, throat, and lungs, and it can cause coughs, headaches, lightheadedness, and nausea. Diesel exhaust is a major source of fine particulate pollution as well, and studies have linked elevated particle levels in the air to increased hospital admissions, emergency room visits, asthma attacks, and premature deaths among those suffering from respiratory problems.

Diesel Particulate Matter

DPM is emitted from both mobile and stationary sources. In California, on-road diesel-fueled engines contribute approximately 24 percent of the Statewide total, with an additional 71 percent attributed to other mobile sources such as construction and mining equipment, agricultural equipment, and TRUs. Stationary sources contribute about 5 percent of total DPM.

Health Effects

Diesel exhaust and many individual substances contained in it (including arsenic, benzene, formaldehyde, and nickel) have the potential to contribute to mutations in cells that can lead to cancer. 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). The ARB estimates that approximately 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 to develop lung cancer than workers who were not exposed to diesel emissions. 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, ARB 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 one million people over a 70-year lifetime. 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 OEHHA and ARB.

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, such as dust and pollen. Exposure to diesel exhaust also causes

[2] California Air Resources Board (ARB). 1998. The Toxic Air Contaminant Identification Process: Toxic Air Contaminant Emissions from Diesel-fueled Engines. Website: https://ww2.arb.ca.gov/sites/default/files/classic/toxics/dieseltac/finexsum.pdf. Accessed November 13, 2023.

inflammation in the lungs, which may aggravate chronic respiratory symptoms and increase the frequency or intensity of asthma attacks.

Valley Fever

Coccidioidomycosis, commonly referred to as San Joaquin Valley Fever or Valley Fever, is one of the most studied and oldest known fungal infections. Valley Fever most commonly affects people who live in hot dry areas with alkaline soil and varies with the season. This disease, which affects both humans and animals, is caused by inhalation of arthroconidia (spores) of the fungus *Coccidioides immitis*, which are found in the top few inches of soil and the existence of the fungus in most soil areas is temporary. The cocci fungus lives as a saprophyte in dry, alkaline soil. When weather and moisture conditions are favorable, the fungus "blooms" and forms many tiny spores that lie dormant in the soil until they are stirred up by wind, vehicles, excavation, or other ground-moving activities and become airborne. Agricultural workers, construction workers, and other people who work outdoors and who are exposed to wind and dust are more likely to contract Valley Fever. Children and adults whose hobbies or sports activities expose them to wind and dust are also more likely to contract Valley Fever. 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.

Approximately 60 percent of Valley Fever cases are mild and display flu-like symptoms or no symptoms at all. Of those who are exposed and seek medical treatment, the most common symptoms include fatigue, cough, loss of appetite, rash, headache, and joint aches. In some cases, painful red bumps may develop on the skin. One important fact to mention is that these symptoms are not unique to Valley Fever and may be caused by other illnesses as well. Identifying and confirming this disease require specific laboratory tests such as: (1) microscopic identification of the fungal spherules in infected tissue, sputum or body fluid sample; (2) growing a culture of CI from a tissue specimen, sputum, or body fluid; (3) detection of antibodies (serological tests specifically for Valley Fever) against the fungus in blood serum or other body fluids; and (4) administering the Valley Fever Skin Test (called coccidioidin or spherulin), which indicate prior exposure to the fungus.

Valley Fever is not contagious and, therefore, cannot be passed on from person to person. Most of those who are infected would recover without treatment within six months and would have a life-long immunity to the fungal spores. In severe cases, especially in those 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. The type of medication used and the duration of drug therapy are determined by the severity of disease and response to the therapy. The medications used include ketoconazole, itraconazole and fluconazole in chronic, mild-to-moderate disease, and amphotericin B, given intravenously or inserted into the spinal fluid, for rapidly progressive disease. Although these treatments are often helpful, evidence of disease may persist and years of treatment may be required.

Table 4: Range of Valley Fever Cases

AQI Range	Pollutant Specific Sensitive Groups
Unapparent infections	60 percent
Mild to moderate infections	30 percent
Infections resulting in complications	5–10 percent
Fatal infections	<1 percent
Source: Valley Fever Center for Excellence. Check for Complications. Website: https://vfce.arizona.edu/valley-fever-people/check-complications. Accessed November 15, 2023.	

Asbestos

Asbestos is a term used for several types of naturally occurring fibrous minerals found in many parts of California. The three most common types of asbestos are chrysotile, amosite, and crocidolite. Chrysotile, also known as white asbestos, is the most common type of asbestos found in buildings. Chrysotile makes up approximately 90 to 95 percent of all asbestos contained in buildings in the United States. In addition, naturally occurring asbestos can be released from serpentinite and ultramafic rocks when the rock is broken or crushed. At the point of release, the asbestos fibers may become airborne, causing air quality and human health hazards. These rocks have been commonly used for unpaved gravel roads, landscaping, fill projects, and other improvement projects in some localities. Asbestos may be released to the atmosphere due to vehicular traffic on unpaved roads, during grading for development projects, and at quarry operations. Serpentinite 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. According to information provided by the California Department of Conservation, Division of Mines and Geology, the project site is not located in an area where naturally occurring asbestos is likely to be present.

Coronavirus 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. 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. 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. COVID-19 research and causality is still in the beginning

stages. A nationwide study by Harvard University[3] found a linkage between long-term exposure to $PM_{2.5}$ (averaged from 2000 to 2013) as air pollution and statistically significant increased risk of COVID-19 death in the United States.

2.3 - Air Quality Regulatory Setting

In California, air quality is regulated by several agencies, including EPA, ARB, and local air districts such as the SJVAPCD. Each of these agencies develops rules and/or regulations to attain the goals or directives imposed upon them through legislation. Although EPA regulations may not be superseded, some State and local regulations may be more stringent than federal regulations. The project site is located within the SJVAB, which is under the jurisdiction of the SJVAPCD. The SJVAPCD has developed CEQA guidance for assessing air quality impacts. In addition, Kern County has its own *CEQA Guidelines* for assessing air quality impacts.

Federal

United States Environmental Protection Agency

The principal air quality regulatory mechanism on the federal level is the CAA and in particular, the 1990 amendments to the CAA, and the NAAQS that it establishes. These standards identify levels of air quality for "criteria" pollutants that are considered the maximum levels of ambient (background) air pollutants considered safe, with an adequate margin of safety, to protect the public health and welfare. The criteria pollutants include ozone, CO, NO_2 (which is a form of NO_x), SO_2 (which is a form of SO_x), PM_{10}, $PM_{2.5}$, and lead. 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, such as 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 meet the NAAQS.

State

California Air Resources Board

The ARB, a department of the California Environmental Protection Agency (Cal/EPA), oversees air quality planning and control throughout California by administering the SIP. Its primary responsibility lies in ensuring implementation of the 1989 amendments to the CCAA, responding to the federal CAA requirements and regulating emissions from motor vehicles sold in California. The ARB also sets fuel specifications to further reduce vehicular emissions.

The amendments to the CCAA establish the CAAQS, and a legal mandate to achieve these standards by the earliest practical date. These standards apply to the same criteria pollutants as the federal CAA, and also include sulfates, visibility-reducing particulates, hydrogen sulfide and vinyl chloride

[3] Harvard. 2017. Long-term Exposure to $PM_{2.5}$ and Mortality Among Older Adults in the Southeastern US. Website: https://www.hsph.harvard.edu/wp-content/uploads/sites/2456/2017/05/wang-1.pdf. Accessed November 22, 2023.

(there are currently no NAAQS for these latter pollutants). They are also generally more stringent than the national standards in most cases, although recently promulgated NAAQS for 1-hour NO_2 and SO_2 can in some instances be more stringent than the respective CAAQS.

The ARB is also responsible for regulations pertaining to TACs. The Air Toxics "Hot Spots" Information and Assessment Act (Assembly Bill [AB] 2588, 1987, Connelly) 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 local air basin. Each Air Pollution Control District (APCD) and Air Quality Management District (AQMD) in the State 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.

The ARB also has on- and off-road engine emission reduction programs that would indirectly affect the project's emissions through the phasing in of cleaner on- and off-road engines. Additionally, the ARB has a Portable Equipment Registration Program that allows owners or operators of portable engines and associated equipment to register their units under a Statewide program to operate their equipment which must meet specified program emission requirements, throughout California without having to obtain individual permits from local air districts. Since the project is not proposing to install any applicable stationary sources, the AB 2588 program would not apply to the project.

In 2007, the ARB enacted a regulation for the reduction of DPM and criteria pollutant emissions from in-use off-road diesel-fueled vehicles.[4] This regulation provides target emission rates for particulate matter and NO_X emissions for owners of fleets of diesel-fueled off-road vehicles. It applies to equipment fleets of three specific sizes, and the target emission rates are reduced over time with full implementation by 2023 for large and medium fleets and 2028 for small fleets.

Title V and Extreme Designation

Title V of the CAA, as amended in 1990, creates an operating permit program for certain defined sources. In general, owner/operators of defined industrial or commercial sources that emit more than 25 tons per year of NO_x and ROG must process a Title V permit. In "Extreme Designation" areas, the definition of a major source which requires Title V permitting, changes from 25 tons per year to 10 tons per year. This change results in more businesses having to comply with Title V permitting requirements under the Extreme nonattainment designation.

Title V does not impose any new air pollution standards, require installation of any new controls on the affected facilities, or require reductions in emissions. Title V does enhance public and EPA participation in the permitting process and requires additional record keeping and reporting by businesses, which results in significant administrative requirements.

[4] South Coast Air Quality Management District (SCAQMD). 2014. 13 California Code of Regulations Article 4.8, Chapter 9, Rule 2449. Control Of Oxides Of Nitrogen Emissions From Off-Road Diesel Vehicles. Website: https://www.aqmd.gov/docs/default-source/rule-book/reg-xxiv/rule-2449.pdf. Accessed November 22, 2023.

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 (RPS) 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 (CEC) are jointly responsible for implementing the program. SB 100, signed into law in September 2018, requires California utilities to increase the percentages of renewable energy sold to retail customers. The new targets are for 50 percent renewable resources by December 31, 2026, 60 percent by December 31, 2030, and 100 percent from eligible renewable energy resources and zero-carbon resources by 2045.

California Environmental Quality Act

The SJVAPCD has three roles under CEQA:

1. *Lead Agency*: Responsible for preparing environmental analyses for its own projects (adoption of rules, regulations, or plans) or permit projects filed with the SJVAPCD where the SJVAPCD has primary approval authority over the project.
2. *Responsible Agency*: The discretionary authority of a Responsible Agency is more limited than a Lead Agency; having responsibility for mitigating or avoiding only the environmental effects of those parts of the project which it decides to approve, carry out, or finance. The SJVAPCD defers to the Lead Agency for preparation of environmental documents for land use projects that also have discretionary air quality permits, unless no document is prepared by the Lead Agency and potentially significant impacts related to the permit are possible. The SJVAPCD regularly submits comments on documents prepared by Lead Agencies to ensure that SJVAPCD concerns are addressed.
3. *Commenting Agency*: The SJVAPCD reviews and comments on air quality analyses prepared by other public agencies (such as the proposed project).

The SJVAPCD also provides guidance and thresholds for CEQA air quality and GHG analyses. The result of this guidance, as well as State regulations to control air pollution, is an overall improvement in the Air Basin. In particular, the SJVAPCD's 2015 Guidance for Assessing and Mitigating Air Quality Impacts (GAMAQI) states the following:

1. The SJVAPCD's Air Quality Attainment Plans include measures to promote air quality elements in county and city general plans as one of the primary indirect source programs. The general plan is the primary long-range planning document used by cities and counties to direct development. Since air districts have no authority over land use decisions, it is up to cities and counties to ensure that their general plans help achieve air quality goals. Section 65302.1 of the California Government Code requires cities and counties in the San Joaquin Valley to amend appropriate elements of their general plans to include data, analysis,

comprehensive goals, policies, and feasible implementation strategies to improve air quality in their next housing element revisions.

2. The Air Quality Guidelines for General Plans (Air Quality Guidelines), adopted by the SJVAPCD in 1994 and amended in 2005, is a guidance document containing goals and policy examples that cities and counties may want to incorporate into their General Plans to satisfy Section 65302.1. When adopted in a general plan and implemented, the suggestions in the Air Quality Guidelines can reduce vehicle trips and miles traveled and improve air quality. The specific suggestions in the Air Quality Guidelines are voluntary. The SJVAPCD strongly encourages cities and counties to use their land use and transportation planning authority to help achieve air quality goals by adopting the suggested policies and programs.

Local

Construction and operation of the warehouse facility would be subject to policies and regulations contained within the general and specific plans, including the Metropolitan Bakersfield General Plan, Kern County Zoning Ordinance, and the Kern County Code of Building Regulations, which include policies, goals, and implementation measures related to air quality. The Kern County General Plan contains additional policies, goals, and implementation measures related to air quality that are more general in nature and not specific to development, such as the project.

Metropolitan Bakersfield General Plan (Unincorporated Area)

The Bakersfield Metropolitan General Plan states that planning for compliance with the federal and State ambient air quality standards has been assigned to the SJVAPCD, who, with the assistance of the Kern Council of Governments (Kern COG), prepared the Air Quality Attainment Plan (AQAP) for ozone and carbon monoxide and PM_{10} Nonattainment Area Plan (NAP) for the SJVAB. The AQAP/NAP focuses on air pollutants for which there are federal standards. Among the actions recommended in the AQAP/NAP are policies and programs which localities can undertake to help improve air quality. Local jurisdictions are encouraged to incorporate these policies in their general plans, and to adopt supplementary policies as appropriate.

The plan includes the following relevant goals and policies with respect to Air Quality.

Chapter V: Conservation/Air Quality

Goals

Goal 1 Promote air quality that is compatible with health, wellbeing, and enjoyment of life by controlling point sources and minimizing vehicular trips to reduce air pollutants.

Goal 2 Continue working toward attainment of Federal, State and Local standards as enforced by the San Joaquin Valley Air Pollution Control District.

Goal 3 Reduce the amount of vehicular emissions in the planning area.

Policies

Policy 1 Comply with and promote San Joaquin Valley Air Pollution Control District (SJVAPCD) control measures regarding reactive organic gases (ROG). Such measures are focused on: (a) steam driven well vents, (b) Pseudo-cyclic wells, (c) natural gas processing plant fugitives, (d) heavy oil test stations, (e) light oil production fugitives, (f) refinery pumps and compressors, and (g) vehicle inspection and maintenance.

Policy 3 Require dust abatement measures during significant grading and construction operations.

Policy 4 Consider air pollution impacts when evaluating discretionary permits for land use proposals. Considerations should include:

a. Alternative access routes to reduce traffic congestion.
b. Development phasing to match road capacities.
c. Buffers include increasing vegetation to increase emission dispersion and reduce impacts of gaseous or particulate matter on sensitive uses.

Policy 5 Consider the location of sensitive receptors such as schools, hospitals, and housing developments when locating industrial uses to minimize the impact of industrial sources of air pollution.

Policy 7 Participate in regional air quality studies and comprehensive programs for air pollution reduction.

Policy 10 Implement the Transportation System Management Program (July 1984) for Metropolitan Bakersfield to improve traffic flow, reduce vehicle trips and increase street capacity.

Policy 11 Improve the capacity of the existing road system through improved signalization, more right turn lanes and traffic control systems.

Policy 12 Encourage the use of mass transit, carpooling and other transportation options to reduce vehicle miles traveled.

Policy 13 Consider establishing priority parking areas for carpoolers in projects with relatively large numbers of employees to reduce vehicle miles traveled and improve air quality.

Policy 14 Establish park and ride facilities to encourage carpooling and the use of mass transit.

Policy 15 Promote the use of bicycles by providing attractive bicycle paths and requiring provision of storage facilities in commercial and industrial projects.

Policy 18 Encourage walking for short distance trips through the creation of pedestrian friendly sidewalks and street crossings.

Policy 19 Promote a pattern of land uses which locates residential uses in close proximity to employment and commercial services to minimize vehicular travel (I-1).

Policy 22 Require the provision of secure, convenient bike storage racks at shopping centers, office buildings, and other places of employment in the Bakersfield Metropolitan area.

Policy 23 Encourage the provision of shower and locker facilities by employers, for employees who bicycle or jog to work.

Policy 25 Require design of parking structures and ramps to provide adequate off-street storage for entering vehicles to minimize on-street congestion and to avoid internal backup and idling of vehicles.

Policy 29 Encourage the use of alternative fuel and low or zero-carbon emission vehicles.

San Joaquin Valley Air Pollution Control District

The SJVAPCD is responsible for controlling emissions primarily from stationary sources within the San Joaquin Valley. The SJVAPCD, in coordination with the eight countywide transportation agencies, is also responsible for developing, updating, and implementing air quality attainment plans for the Air Basin. The SJVAPCD also has roles under CEQA.

The SJVAPCD attains 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 the 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. The 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 $PM_{2.5}$ Standard.
- The 2016 Plan for the 2008 8-hr Ozone Standard.
- The 2013 Plan for the Revoked 1-hour Ozone Standard.
- The 2004 Revisions to the Carbon Monoxide Maintenance Plan.

San Joaquin Valley Air Pollution Control District Rules and Regulations

The SJVAPCD Rules and Regulations that may apply during buildout of the project include, but are not limited to the following:

Rule 4102 Nuisance

The purpose of this rule is to protect the health and safety of the public and applies to any source operation that emits or may emit air contaminants or other materials.

Rule 4601 Architectural Coatings

The purpose of this rule is to limit volatile organic compounds (VOC) emissions from architectural coatings. Emissions are reduced by limits on VOC content and providing requirements on coatings storage, cleanup, and labeling.

Rule 4641 Cutback, Slow Cure, and Emulsified Asphalt, Paving and Maintenance Operations

The purpose of this rule is to limit VOC emissions from asphalt paving and maintenance operations. If asphalt paving would be used, then the paving operations would be subject to Rule 4641.

Rule 4701 Internal Combustion Engines–Phase 1

This rule limits the emissions of nitrogen oxides (NO_X), carbon monoxide (CO), and VOC from stationary internal combustion engines rated at greater than 50 brake horsepower that require a permit to operate.

Rule 4702 Internal Combustion Engines

This rule applies to any internal combustion engine rated at 25 brake horsepower or greater. Emergency generators cannot be used to reduce the demand for electrical power when normal electrical power line service has not failed, to produce power for the utility electrical distribution system, or in conjunction with a voluntary utility demand reduction program or interruptible power contract. The rule limits emergency generators to 100 hours of operation for non-emergency usage, which is less stringent than the ATCM for emergency standby stationary engines under 17 California Code of Regulations 93115. Therefore, compliance with the ATCM ensures compliance with the 100-hour requirement**.**

Regulation VIII Fugitive PM_{10} Prohibitions

Rules 8011-8081 are designed to reduce PM_{10} emissions (predominantly dust/dirt) generated by human activity, including construction and demolition activities, road construction, bulk materials storage, paved and unpaved roads, carryout and track out, etc. All development projects that involve soil disturbance are subject to at least one provision of the Regulation VIII series of rules.

Rule 9410 Employer Based Trip Reduction

The purpose of Rule 9410 is to reduce emissions of ozone precursors (NO_X and VOC) and PM from mobile sources. The rule applies to employers with at least 100 eligible employees at a worksite and requires employers to establish an Employer Trip Reduction Implementation Plan (eTRIP) to encourage employees to reduce single-occupancy vehicle trips, thus reducing pollutant emissions associated with work commutes. Rule 9410 (Employer Based Trip Reduction) satisfies a federally-enforceable commitment in District State Implementation Plans (the 2007 Ozone Plan and the 2008 $PM_{2.5}$ Plan) and is designed to share the air pollution cleanup burden traditionally targeted at stationary sources. The rule applies to apply to worksites with over 100 employees in incorporated cities with a population of at least 10,000 people OR worksites where at least 50 percent of all employees work at least 2,040 hours per year.

Rule 9510 Indirect Source Review

The purpose of Rule 9510 is to reduce emissions of NO_X and PM_{10} from new development projects. The rule applies to development projects that, upon full buildout, seek to gain discretionary approval for any one of the following: 50 residential units, 2,000 square feet of commercial space, 25,000 square feet of Light Industrial (LI) 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 and transit projects (exempt only from Rule 9510 Section 6.2 and Section 7.1.2), 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 (tpy) for NO_X and PM_{10} is also exempted from the mitigation requirements of the rule. Developers are encouraged to reduce as much air pollution as possible through on-site mitigation or the incorporation of air-friendly designs and practices into the 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 (under the rule), 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 include projects to retire or crush polluting cars, replace older diesel engines, and replace gas-powered lawnmowers with electric lawnmowers.

The Indirect Source Review (ISR) requires developers to reduce 20 percent of construction exhaust NO_X, 45 percent of construction exhaust PM_{10}; 33 percent of operational NOX over 10 years; and 50 percent of operational PM_{10} over 10 years.

The SJVAPCD has also implements federal National Emission Standard for Hazardous Air Pollutants (NESHAP) and State Airborne Toxic Control Measures (ATCMs) that control the emissions of naturally occurring asbestos through the following programs:

Asbestos Dust Mitigation Plan

Asbestos Dust Mitigation Plan is required for grading/construction projects which involve the disturbance of asbestos-containing soil in areas greater than one acre. Please note: Grading/construction projects which involve the disturbance of asbestos-containing soil in areas greater than one acre. Please note: The Asbestos Dust Mitigation Plan is required for grading/construction projects which involve the disturbance of asbestos-containing soil in areas greater than one acre. Please note this is different from the district's Dust Control Plan that is implemented as part of Regulation VIII.

Rule 4002: NESHAPS Asbestos Regulation

This rule requires that the subject facilities be inspected for asbestos prior to remodeling. Regulated asbestos-containing materials (RACM) must be removed prior to remodeling work. Furthermore, a demolition permit release perm is required prior to obtaining a building department demolition permit.

Kern County Planning Department Guidelines

In 2006, Kern County Planning Department issued its own Guidelines for Preparing an Air Quality Assessment for Use in Environmental Impact Reports. The document provides specific guidance for County-prepared EIRs, including air quality issues to be considered, analytical approaches and resources, and a cumulative impact analysis methodology. In general, Kern County defers to SJVAPCD on issues related to assessing air quality impacts (e.g., modeling, odors, risk assessment). In addition, Kern County recommends an assessment of visibility impacts for all industrial projects and any other projects that have components that could generate dust or emissions related to visibility. Kern County also recommends including a list of projects located within a 1-mile and 6-mile radius of the project boundary.

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 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. These results are compared to pollutant budgets for each basin approved by the EPA in the 1999 base year. Kern County is contained within

two air basins: 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 latest RTP is the 2022 RTP, 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.[5] It has been 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 (SB) 375. The ARB set targets for Kern's 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.

The plan is accompanied by a program level environmental document that analyzes cumulative impacts, and the regional air quality conformity analysis required by federal regulations. The conformity report includes a regional emissions analysis was conducted for the years 2022, 2023, 2024, 2025, 2026, 2029, 2031, 2037 and 2046 for each applicable pollutant. The conformity findings conclude that the Federal Transportation Improvement Program (FTIP) and RTP result in emissions that are less than the emission budgets of baseline emissions for CO, VOC, NO_X, and PM_{10}.[6] The 2023 FTIP and the 2022 RTP would not impede and would support timely implementation of the Transportation Control Measures (TCMs) that have been adopted as part of applicable air quality implementation plans.

Kern County Public Health Services Department

Section 101080 of the California Health and Safety Code authorizes a local health officer to declare a local health emergency in the health officer's jurisdiction, or any part thereof, when the health officer determines that there is an imminent and proximate threat of the introduction of any contagious, infections, or communicable disease, chemical agent, noncommunicable biological agent, toxin, or radioactive agent. On April 2, 2020, the Kern County Health Officer issued an order that was implemented to garner additional tools to assist with Kern County's compliance with Executive Order N-33-20 issued by the Governor of the State of California and the California Department of Public Health's gathering guidance due to COVID-19. The April 2, 2020, order was rescinded on May 2, 2020 by the Kern County Health Officer. The Kern County Public Health Services Department and the Kern County Health Officer continue to provide guidance and recommendations for residents and business of Kern County to safely conduct business, including construction activities, during this COVID-19 pandemic.

[5] Kern Council of Governments (Kern COG). 2022. Regional Transportation Plan/Sustainable Communities Strategy. Website: https://www.kerncog.org/wp-content/uploads/2022/12/2022_RTP.pdf. Accessed November 13, 2023.

[6] Kern Council of Governments (Kern COG). 2022. California 2023 FSTIP Approval. Website: https://www.kerncog.org/wp-content/uploads/2022/08/Kern_2022_2023_FTIP-RTP_Conformity.pdf. Accessed November 13, 2023.

SECTION 3: CLIMATE CHANGE SETTING

GHG emissions and climate change are a cumulative global issue. The ARB and EPA regulate GHG emissions within the State of California and the United States, respectively. While the ARB has the primary regulatory responsibility within California for GHG emissions, local agencies can also adopt policies for GHG emissions reduction.

3.1 - Climate Change and Greenhouse Gases

GHGs refer to gases that absorb and re-emit infrared radiation in the atmosphere. Many chemical compounds found in Earth's atmosphere act as GHGs, which allow sunlight to enter the atmosphere freely. When sunlight strikes Earth's surface, some of it is reflected back toward space as infrared radiation (heat). GHGs, however, absorb some of this infrared radiation and trap the heat in the atmosphere. Over time, the amount of energy sent from the sun to Earth's surface should be about the same as the amount of energy radiated back into space, leaving the temperature of Earth's surface roughly consistent. However, many gases exhibit the "greenhouse" properties. Some of them occur in nature (water vapor, carbon dioxide, methane, and nitrous oxide) while others are exclusively human-made (e.g., gases used for aerosols.).

3.2 - Climate Change in California

Addressing the widespread impacts of climate change represents a significant challenge for the State, and one that will increasingly occupy the legislature's agenda in the coming years. A changing climate presents California with five key climate hazards: (1) higher temperatures and extreme heat events, (2) more severe wildfires, (3) more frequent and intense droughts, (4) flooding due to extreme precipitation events, and (5) coastal flooding and erosion from sea-level rise.

These hazards result in damage to public and private property and infrastructure and pose a considerable threat to public health and wellbeing. Notably, vulnerable communities/populations are disproportionately affected by climate change due to their increased exposure to pollution, less capacity for adapting to climate hazards, and higher levels of pre-existing medical conditions and other socioeconomic and structural stressors.[7]

Wildfire smoke has been linked to a greater risk of respiratory and cardiovascular diseases, specifically for more susceptible groups such as children, seniors, and those with underlying chronic diseases.

Hotter temperature or heat is another widely studied climate stressor. Heat exposure is associated with increased risks of mortality and morbidity (e.g., hospitalization for various diagnoses including cardiovascular disease, acute renal failure, respiratory disease, and birth outcomes). Children, the

[7] California Air Resources Board (ARB). 2023. Impacts of Multiple Climate Change Stressors on Health in California. Website: https://ww2.arb.ca.gov/resources/documents/impacts-multiple-climate-change-stressors-health-california. Accessed November 13, 2023.

elderly, those with pre-existing conditions, outdoor workers, and low social economic status groups are found to be more vulnerable to heat-related health risks.

Hotter temperature or heat is also shown to lead to increased air pollution episodes. A recent study predicted the future air quality for ozone and $PM_{2.5}$ in three major California air basins[8] and reported a strong likelihood of poorer air quality due to the warmer weather, specifically in the areas that have been disproportionately affected by these pollutants. The combination of exposures to extreme heat and air pollution episodes leads to increased health burdens on communities.

3.3 - Greenhouse Gases

The main gases responsible for the greenhouse effect include CO_2, methane (CH_4), nitrous oxide (N_2O), and water vapor. In addition to these natural compounds, synthetic fluorinated gases, and aerosols also function as greenhouse gases.

Individual GHG compounds have varying global warming potential and atmospheric lifetimes. The GWP is the potential of a gas or aerosol to trap heat in the atmosphere. To describe how much global warming a given type and amount of GHG may cause, the CO_2 equivalent (CO_2e) is used.

The calculation of the CO_2 equivalent is a consistent methodology for comparing GHG emissions since it normalizes various GHG emissions to a consistent reference gas, CO_2. For example, CH_4's GWP of 25 indicates that CH_4 has 25 times greater warming effect than CO_2 on a molecule-per-molecule basis. A CO_2 equivalent is the mass emissions of an individual GHG multiplied by its global warming potential. As described in Table 5, the GHGs defined by Assembly Bill (AB) 32 (see the Climate Change Regulatory Environment section for a description) include CO_2, CH_4, N_2O, HFC, perfluorocarbon (PFC), and SF_6. A seventh GHG, nitrogen trifluoride (NF_3), was added to Health and Safety Code Section 38505(g)(7) as a GHG of concern.

Table 5: Description of Greenhouse Gases

Greenhouse Gas	Description and Physical Properties	Sources
Nitrous oxide	Nitrous oxide (laughing gas) is a colorless GHG. It has a lifetime of 114 years. Its GWP is 298.	Microbial processes in soil and water, fuel combustion, and industrial processes.
CH_4	Methane is a flammable gas and is the main component of natural gas. It has a lifetime of 12 years. Its GWP is 25.	Methane is extracted from geological deposits (natural gas fields). Other sources are landfills, fermentation of manure, and decay of organic matter.
CO_2	CO_2 is an odorless, colorless, natural GHG. CO_2's global warming potential is 1. The concentration in 2005 was 379 parts per million (ppm), which is an increase of about 1.4 ppm per year since 1960.	Natural sources include decomposition of dead organic matter; respiration of bacteria, plants, animals, and fungus; evaporation from oceans; and volcanic outgassing.

[8] Zhu S., Horne J.R., Mac Kinnon M., Samuelsen G.S., Dabdub D. Comprehensively assessing the drivers of future air quality in California. Environ Int. 2019 Apr;125:386-398. doi: 10.1016/j.envint.2019.02.007. Epub 2019 Feb 8. PMID: 30743145.

Greenhouse Gas	Description and Physical Properties	Sources
		Anthropogenic sources are from burning coal, oil, natural gas, and wood.
HFC	HFCs are a group of GHGs containing carbon, chlorine, and at least one hydrogen atom. GWPs range from 140 to 11,700.	HFCs are synthetic man-made chemicals used as a substitute for chlorofluorocarbons in applications such as automobile air conditioners and refrigerants.
PFC	PFCs have stable molecular structures and only break down by ultraviolet rays about 60 kilometers above Earth's surface. Because of this, they have long lifetimes, between 10,000 and 50,000 years. GWPs range from 6,500 to 9,200.	Two main sources of PFCs are primary aluminum production and semiconductor manufacturing.
SF_6	SF_6 is an inorganic, odorless, colorless, and nontoxic, nonflammable gas. It has a lifetime of 3,200 years. It has a high GWP of 23,900.	This gas is man-made and used for insulation in electric power transmission equipment in the magnesium industry, in semiconductor manufacturing, and as a tracer gas.
Nitrogen trifluoride	Nitrogen trifluoride (NF_3) was added to Health and Safety Code Section 38505(g)(7) as a GHG of concern. It has a high GWP of 17,200.	This gas is used in electronics manufacture for semiconductors and liquid crystal displays.
Sources: Compiled from a variety of sources, primarily Intergovernmental Panel on Climate Change (IPCC). 2007. Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change [Solomon, S., D. Qin, M. Manning, Z. Chen, M. Marquis, K.B. Averyt, M. Tignor and H.L. Miller (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA. Intergovernmental Panel on Climate Change (IPCC). 2007. Climate Change 2007: Synthesis Report. Contribution of Working Groups I, II and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, Pachauri, R.K. and Reisinger, A. (eds.)]. IPCC, Geneva, Switzerland.		

3.4 - Greenhouse Gas Regulatory Environment

3.4.1 - California GHG Legislation

California has been on the forefront of regulating GHG emissions to address climate change through a variety of far-reaching and broad GHG legislation and executive orders. The following section outlines the major legislative pieces governing climate change in the State. These major pillars of legislation are supported by numerous other legislative actions, which are detailed in the supporting measures of their scoping plans. Other regulations such as the California Building Code and Energy Standards also indirectly reduce GHG emissions.

Major Legislative Actions to Reduce GHGs

The State of California legislature has enacted a series of bills that constitute the most aggressive program to reduce GHGs of any state in the nation. Some legislation such as the landmark AB 32 California Global Warming Solutions Act of 2006 was specifically enacted to address GHG emissions. This was followed by a series of other executive orders, assembly bills, and senate bills that set greenhouse gas policies for the State. The current framework and future goals are supported by three major pieces of legislation.

- AB 32–reduce Statewide GHG emissions to 1990 levels by the year 2020.
- SB 32–reduce GHG emissions to 40 percent below 1990 levels by the year 2030.
- AB 1279–achieve carbon neutrality as soon as possible, but no later than 2045. Reduce emissions 85 percent below 1990 levels by 2045.

Assembly Bill 32: Global Warming Solutions Act

The California State legislature enacted AB 32, the California Global Warming Solutions Act of 2006. AB 32 requires that GHGs emitted in California be reduced to 1990 levels by the year 2020. The ARB's initial Climate Change Scoping Plan (Scoping Plan) contained measures designed to reduce the State's emissions to 1990 levels by the year 2020 to comply with AB 32.[14] The State achieved the 2020 target several years ahead of schedule.

Senate Bill 32

Former Governor Brown signed SB 32 in September of 2016, giving the ARB the statutory responsibility to include the 2030 emissions target previously contained in Executive Order B-30-15 in the 2017 Scoping Plan Update. SB 32 establishes GHG emission reduction goals beyond AB 32 and calls for a reduction of at least 40 percent below 1990 levels no later than December 31, 2030. As such, SB 32 lays the foundation for the legislative reduction targets for 2030.

Assembly Bill 1279: California Climate Crisis Act

AB 1279 (2022) establishes the policy of the State to achieve carbon neutrality as soon as possible, but no later than 2045 and maintain net negative GHG emissions thereafter, and to ensure that by 2045 Statewide anthropogenic GHG emissions are reduced at least 85 percent below 1990 levels. The bill requires the ARB to ensure that the Scoping Plan identifies and recommends measures to achieve carbon neutrality, and to identify and implement policies and strategies that enable carbon dioxide removal and carbon capture, utilization, and storage technologies to complement these emission reductions.

Scoping Plans

AB 32 required preparing a Climate Change Scoping Plan for achieving the maximum technologically feasible and cost-effective GHG emission reduction by 2020 (Health and Safety Code [HSC] § 38561(h)). The ARB developed a Climate Change Scoping Plan that contains strategies to achieve the 2020 emissions cap. In 2008, the initial Climate Change Scoping Plan contained a mix of recommended strategies that combined direct regulations, market-based approaches, voluntary measures, policies, and other emission reduction programs calculated to meet the 2020 Statewide GHG emission limit and initiate the transformations needed to achieve the State's long-range climate objectives. In 2014 was the First Update to the Scoping Plan upon the initial Climate Change Scoping Plan with new strategies and recommendations.

In 2017, the 2017 Climate Change Scoping Plan established a 2030 GHG reduction target of 40 percent emissions reductions below 1990 levels. The 2022 Climate Change Scoping Plan,[9] assesses

[9] California Air Resources Board (ARB). 2022. Scoping Plan for Achieving Carbon Neutrality Executive Summary. Website: https://ww2.arb.ca.gov/sites/default/files/2023-04/2022-sp-es.pdf. Accessed November 13, 2023.

progress toward 2030 emissions target and lays out path a to achieving carbon neutrality no later than 2045.

The 2022 Scoping Plan addresses the target of reducing anthropogenic emissions to 85 percent below 1990 levels by 2045. It lays out a plan based on bold steps to reduce GHGs to meet the anthropogenic emissions target and by expanding actions to capture and store carbon through the State's natural and working lands and using a variety of mechanical approaches. The major element of this unprecedented transformation is the aggressive reduction of fossil fuels wherever they are currently used in California, building on, and accelerating, carbon reduction programs that have been in place for a decade and a half. The plan calls for a rapid transition to zero-emission transportation; the phasing out the use of fossil gas used for heating homes and buildings, development of sustainable transportation alternatives to reduce reliance on cars and clamping down on use of chemicals and refrigerants with high global warming potential. The plan also identifies a path to keep California on track to meet its SB 32 GHG reduction target of at least 40 percent below 1990 emissions by 2030.

The 2022 Scoping Plan reaffirms and clarifies the role of local governments in achieving the State's climate goals, particularly as it concerns the approval of new land use development projects and their environmental review under CEQA. It encourages local governments to adopt a CEQA-qualified Climate Action Plan (CAP) addressing three priority areas: (1) transportation electrification, (2) Vehicle Miles Traveled (VMT) reduction, and (3) building decarbonization. By prioritizing climate action in these three priority areas, local governments can address the largest sources of GHGs within their jurisdiction. Local governments that prepare qualified CAPs that include strategies in these areas are contributing to alignment between local climate action and the State's climate goals.

3.4.2 - GHG Inventories

Figure 1 shows the California GHG Inventory[10] for various sectors, as regulated by the AB32 and SB32, showing emissions up to 2022.

[10] California Air Resources Board (ARB). 2022. California Greenhouse Gas Emissions for 2000 to 2020 Trends of Emissions and Other Indicators. Website: https://ww2.arb.ca.gov/sites/default/files/classic/cc/inventory/2000-2020_ghg_inventory_trends.pdf. Accessed November 13, 2023.

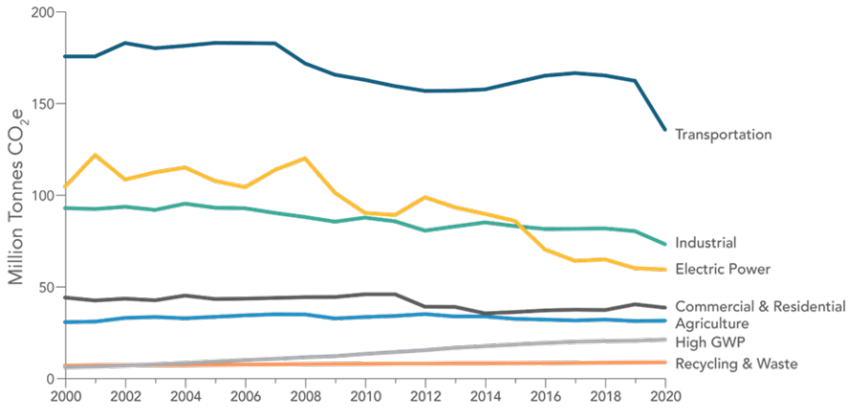

Figure 1: California GHG Emissions 2000–2020

Overall emissions in California have decreased by 93 Million Metric tons or 20 percent since 2000, despite an increasing population (16 percent) and increasing economic growth (56 percent increase in gross domestic product [GDP]).

3.4.3 - California GHG Policy and GHG Reduction Planning

Development results in a large portion of GHG emissions and the State cannot directly regulate the control of emissions from development at this level. As such, State and Local Governments are strongly urged to implement measures and plans to locally control and reduce GHG in alignment with the states plans, by developing and adopting a local Greenhouse Gas Reduction Plan. A "qualified" reduction strategy capable of being utilized for a streamlined or tiered analysis under CEQA must meet the following requirements:

- Quantify GHG emissions, both existing and projected over a specified time period, resulting from activities within a defined geographic area.
- Establish a level, based on substantial evidence, below which the contribution to GHG emissions from activities covered by the plan would not be cumulatively considerable.
- Identify and analyze the GHG emissions resulting from specific actions or categories of actions anticipated within the geographic area.
- Specify measures or a group of measures, including performance standards, that substantial evidence demonstrates, if implemented on a project-by-project basis, would collectively achieve the specified emissions level.
- Establish a mechanism to monitor the plan's progress toward achieving the level and to require amendments if the plan is not achieving specified levels.
- Be adopted in a public process following environmental review.

A project which can show compliance with a local "qualified" GHG plan that addresses the 2030 goals of SB32 would be consistent with its goals and can streamline its compliance determination

with GHG regulations and policies. Similarly, projects that comply with "qualified" GHG reduction plans aligned with both SB32 and AB1279 goals would be considered consistent with all State planning goals.

Absent consistency with an adequate, geographically specific GHG reduction plan such as a CEQA-qualified CAP, the Scoping Plan outlines three distinct approaches that lead agencies may consider for evaluating the consistency of proposed plans and residential and mixed-use development projects with the State's climate goals. The approaches which may be used to evaluate whether a project may have a less than significant impact on GHG emissions include (1) assessing a project's consistency with key project attributes that have been demonstrated to reduce operational GHG emissions while advancing fair housing, (2) adopting a Net-Zero Threshold of Significance, and (3) Recommended Thresholds of Significance developed by the applicable air district or other lead agencies.

These approaches are recommendations only and do not supplant lead agencies' discretion to develop their own evidence-based approaches for determining whether a project would result in a potentially significant impact on GHG emissions. ARB notes that while a net-zero threshold may be appropriate overall objective, it may not be feasible or appropriate metric for evaluating individual projects. For example, a net-zero target may incorrectly imply that the GHG emissions of any project that are not reduced or offset to zero would be considered potentially significant. This may lead to undue burdens and frustrate project approval processes, which may be particularly problematic for residential development in climate-smart, infill areas. A net-zero policy that prohibits or complicates projects that are needed to support the State's climate goals, like infill development or solar arrays, is ultimately not consistent with the State's goals.

3.4.4 - Regional GHG Policy and Reduction Plans

San Joaquin Valley Air Pollution Control District

The SJVAPCD has published Guidance for Valley Land-Use Agencies in Addressing GHG Emissions Impacts for New Projects (SJVAPCD Guidance). According to the SJVAPCD Guidance, the SJVAPCD takes a tiered approach for determining significance from GHG emissions as summarized below:

Tier 1 Project Exemption from CEQA.

Tier 2 Project complies with an adopted Statewide, regional, or local plan for the reduction or mitigation of GHG emissions.

Tier 3 The project achieves the 29 percent GHG Emissions Reduction Target by using approved Best Management Practices (BMPs).

Tier 4 GHG emissions are quantified and the project implements best performance standards or achieves a GHG emissions reduction of 29 percent below Business-as-Usual (BAU).

With respect to the proposed project, the Tier 1 approach cannot be used as the proposed project is not exempt from CEQA. With respect to Tier 2, neither the State, nor the County of Kern has a

qualified (CEQA verified and adopted) CAP or other plan for reducing GHG emissions. Therefore, Tier 2 cannot be used for determining significance with GHG emissions. In light of *Center for Biological Diversity v. California Department of Fish and Wildlife* (*CBD vs. CDFW* 62 Cal.4th204, 2015), the use of either Tier 3 or Tier 4 as significance thresholds also are not recommended for use in determining significance. Note that for Tier 4, BAU is a valid approach, however, the quantitative BAU reduction criteria in the SJVAPCD Guidance lacks the necessary support as specified in *CBD vs. CDFW* 62 Cal.4th 204, 20do 15.

The 29 percent GHG emissions reductions in the SJVAPCD 2015 guidance are aligned with 2020 planning goals for AB32. A BAU approach utilizing Tier 4 methods for post-2020 development projects would require updated emission GHG inventory for 2030 as well as revised reduction target that are aligned with SB32 goals of 40 percent reduction of GHG emissions from 1990 baseline. These inventories and thresholds have not been developed to date.

3.4.5 - Local GHG Policy and Reduction Plans

Kern County

Kern County addresses GHG most broadly in its General Plan. The County does not have a qualified GHG reduction plan or any reach codes that would address building electrification.

Metropolitan Bakersfield General Plan (Unincorporated Area)

The General Plan includes the following relevant goals and policies with respect to GHGs:

Chapter 5: Conservation/Air Quality

Goals

Goal 1 Promote air quality that is compatible with health, wellbeing, and enjoyment of life by controlling point sources and minimizing vehicular trips to reduce air pollutants.

Goal 2 Continue working toward attainment of federal, State, and local standards as enforced by the San Joaquin Valley Air Pollution Control District.

Goal 3 Reduce the amount of vehicular emissions in the planning area.

Policies

Policy 4 Consider air pollution impacts when evaluating discretionary permits for land use proposals. Considerations should include:

a. Alternative access routes to reduce traffic congestion.
b. Development phasing the match road capacities.
c. Buffers including increasing vegetation to increase emission dispersion and reduce impacts of gaseous or particulate matter on sensitive uses.

Policy 10 Implement the Transportation System Management Program (July 1984) for Metropolitan Bakersfield to improve traffic flow, reduce vehicle trips, and increase street capacity.

Policy 12 Encourage the use of mass transit, carpooling and other transportation options to reduce vehicle miles traveled.

Policy 13 Consider establishing priority parking areas for carpoolers in projects with relatively large numbers of employees to reduce vehicle miles traveled and improve air quality.

Policy 14 Establish park and ride facilities to encourage carpooling and the use of mass transit.

Policy 15 Promote the use of bicycles by providing attractive bicycle paths and requiring provision of storage facilities in commercial and industrial projects.

Policy 18 Encourage walking for short distance trips through the creation of pedestrian friendly sidewalks and street crossings.

Policy 19 Promote a pattern of land uses which locates residential uses in close proximity to employment and commercial services to minimize vehicular travel.

Policy 22 Require the provision of secure, convenient bike storage racks at shopping centers, office buildings, and other places of employment in the Bakersfield Metropolitan area.

Policy 23 Encourage the provision of shower and locker facilities by employers, for employees who bicycle or jog to work.

Policy 25 Require design of parking structures and ramps to provide adequate off- street storage for entering vehicles to minimize on-street congestion and avoid internal backup and idling of vehicles.

Policy 29 Encourage the use of alternative fuel and low or zero-emission vehicles.

Implementation Measures

Measure 1 Amend as needed the City and County Zoning Ordinances to:

a. Incorporate the provisions of the Air Quality Management Plan.
b. Incorporate measures identified under the Transportation System Management Plan for Metropolitan Bakersfield.
c. Limit intrusions into the pedestrian right-of-way.
d. Require air quality design considerations indicated in policies 22 and 25.

Measure 5 Expand the use of alternative fuel and low or zero-emission vehicles in the metropolitan area for public and private use to achieve 10 percent usage.

Measure 6 Create the private and public infrastructure necessary to support alternative fuel vehicles.

3.4.6 - California Energy and Building Codes

California has a long history of adopting regulations to improve energy efficiency in new and remodeled buildings. These regulations have kept California's energy consumption relatively flat even with rapid population growth. Recent updates align standards for new development with California's climate and carbon neutrality goals.

Title 20 Appliance Efficiency Regulations

California Code of Regulations, Title 20: Division 2, Chapter 4, Article 4, Sections 1601-1608: Appliance Efficiency Regulations regulates the sale of appliances in California. The Appliance Efficiency Regulations include standards for both federally regulated appliances and non-federally regulated appliances. These appliances include, but are not limited to, water heaters, furnaces, heat pumps, air conditioners, refrigerators, pumps, lamps and ballasts, computers, spray sprinkler bodies and showerheads.

Title 24 Energy Efficiency Standards

California Code of Regulations Title 24 Part 6: California's Energy Efficiency Standards for Residential and Nonresidential Buildings, was first adopted in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficient technologies and methods. Energy efficient buildings require less electricity; therefore, increased energy efficiency reduces fossil fuel consumption and decreases GHG emissions.

The newest version of Title 24, the 2022 Building Energy Efficiency Standards, went into effect on January 1, 2023. The 2022 Building Energy Efficiency Standards were updated to meet the State's critical long-term climate and carbon neutrality goals, and the worldwide push for sustainability in the building energy efficiency standards for residential and nonresidential buildings. As such, project compliance with the 2022 Building Energy Efficiency Standards align new development with the State's long-term standards.

As part of the 2022 Building Energy Efficiency Standards under Title 24 Part 6 Section 140.10(a), Rooftop Solar PV System with Battery Storage, development projects are required to include solar PV and energy storage on all new commercial warehouses. These requirements are based on the climate zone and the conditioned square footage area of the warehouse. In addition, Title 24 Part 6 Section 140.4(a).2, Heat Pump for Space Conditioning in Single-Zoned Office Spaces, further updates the provisions for heat pumps for office areas of warehouses.

Title 24 California Green Building Standards Code

California Code of Regulations Title 24 Part 11, also known as CALGreen, is the first-in-the-nation mandatory green building standards code. Green standards were first developed in 2007 to meet the goals of California's landmark initiative AB 32. The code is updated on a regular basis, with the most recent update consisting of the 2022 California Green Building Standards Code (CALGreen) which

became effective January 1, 2023.[11] CALGreen standards distinguish between residential and nonresidential occupancy. Recent additions to the code are requirements related to electric vehicle charging infrastructure, water conservation and recycling, and changes made to avoid conflicts with California energy efficiency standards under Title 24, Part 6. Local jurisdictions are permitted to adopt more stringent requirements, as State law provides methods for local enhancements. State building code provides the minimum standard that buildings need to meet in order to be certified for occupancy, which is generally enforced by the local building official.

The latest update, 2022 California Green Building Standards Code went into effect on January 1, 2023. The revised code significantly increases the Mandatory Measures for electric vehicle charging requirements for both new residential and commercial buildings.

New nonresidential buildings must follow a regulatory schedule that specifies the minimum number of EV Capable, EV Ready and EV Equipped Spaces. The 2022 update requires the addition of required electric vehicle service equipment (EVSE) spaces. EVSE, in plain language, means "installed charging receptacles or permanently installed chargers." These are the number of charging receptacles/stations that are required to be fully installed.

CALGreen 2022 update includes mandatory nonresidential measures for site development electric vehicle (EV) charging under Section 5.106.5.3 Electric Vehicle Charging.[12] To comply with CALGreen EV charging requirements, the proposed project would be required to meet the following standards:

- The transformer, main service equipment and subpanels shall meet the minimum power requirement in Table 5.106.5.4.1 to accommodate the dedicated branch circuits for the future installation of EVSE.
- The construction documents shall indicate one or more location(s) convenient to the planned off-street loading space(s) reserved for medium- and heavy-duty Zero-Emission Vehicle (ZEV) charging cabinets and charging dispensers, and a pathway reserved for routing of conduit from the termination of the raceway(s) or busway(s) to the charging cabinet(s) and dispenser(s).
- Raceway(s) or busway(s) originating at a main service panel or a subpanel(s) serving the area where potential future medium- and heavy-duty EVSE will be located and shall terminate in close proximity to the potential future location of the charging equipment for medium- and heavy-duty vehicles.
- Load to the future location of the charging for medium- and heavy-duty ZEVs. For warehouses with greater than 256,000 square feet, 400 KVA of additional capacity required for raceway, busway, transformer, and panel.

[11] International Code Council (ICC) Digital Codes. 2022. California Green Building Standards Code, Title 24, Part 11 (CALGreen). Website: https://codes.iccsafe.org/content/CAGBC2022P1. Accessed November 13, 2023.

[12] International Code Council (ICC) Digital Codes. 2022. California Green Building Standards Code, Title 24, Part 11 (CALGreen). Website: https://codes.iccsafe.org/content/CAGBC2022P2/chapter-5-nonresidential-mandatory-measures. Accessed November 22, 2023.

Model Water Efficient Landscape Ordinance

The Model Water Efficient Landscape Ordinance (Ordinance) was required by AB 1881 Water Conservation Act. The bill required local agencies to adopt a local landscape Ordinance at least as effective in conserving water as the Model Ordinance by January 1, 2010. Reductions in water use of 20 percent consistent with (SBX-7-7) 2020 mandate are expected under the Ordinance. New development projects that include landscaped areas of 500 square feet or more are subject to the Ordinance. The Ordinance requires measures such as: more efficient irrigation systems, incentives for graywater usage, improvements for on-site stormwater capture, and limiting high-water use plants in landscaping.

SECTION 4: MODELING PARAMETERS AND ASSUMPTIONS

4.1 - Methodology

The analysis presented in this section is based on quantitative and qualitative approaches for determining air quality impacts related to construction and operation of the project. The air quality impact assessment was prepared pursuant to the Kern County Planning Department's *Guidelines for Preparing an Air Quality Assessment for Use in Environmental Impact Reports* and SJVAPCD's 2015 GAMAQI. The GAMAQI identifies thresholds of significance for criteria pollution emissions.

4.2 - Pollutant Emissions

The California Emissions Estimator Model (CalEEMod) was used to estimate emissions of criteria pollutants (ROG, NOx, CO, SO_2, PM_{10} and $PM_{2.5}$) and Greenhouse Gases (as CO_2, CH_4, and N_{20}). CalEEMod is designed as a uniform platform for government agencies, land use planners, and environmental professionals to quantify potential criteria pollutant and GHG emissions associated with construction and operation from a variety of land uses. The current CalEEMod Version 2022.1 was launched in 2022, as part of a coordinated development effort between the California Air Pollution Control Officers Association (CAPCOA), and California Air Districts. Regional construction and operational emissions reported in this analysis were modeled using CalEEMod Version 2022.1.19.

Regional air pollutant emissions are composed of those on-site and off-site construction and operational emissions generated from all facets of the proposed project. Air pollutant emissions can be estimated by using emission factors and a level of activity. Emission factors represent the emission rate of a pollutant over a given time or activity, for example, grams of NO_X per vehicle mile traveled or grams of NO_X per hp hour of equipment operation. The activity factor is a measure of how active a piece of equipment is and can be represented as the amount of material processed, elapsed time that a piece of equipment is in operation, hp of a piece of equipment used, the rate of fuel consumption, or VMT per day. The ARB has published emission factors for on-road mobile vehicles/trucks in the Emission Factor (EMFAC) mobile source emissions model and emission factors for off-road equipment and vehicles in the OFFROAD emissions model. An air emissions model (or calculator) combines the emission factors and the levels of activity and outputs the emissions for the various pieces of equipment.

Construction

Construction emissions can vary substantially from day to day, depending on the level of activity, the specific type of operation, and prevailing weather conditions. Construction emissions result from on-site and off-site activities. On-site emissions principally consist of exhaust emissions from the activity levels of heavy-duty construction equipment, motor vehicle operation, and fugitive dust (mainly PM_{10}) from disturbed soil. Additionally, paving operations and application of architectural coatings would release VOC emissions. Off-site emissions are caused by motor vehicle exhaust from delivery vehicles, worker traffic, and road dust (PM_{10} and $PM_{2.5}$).

Construction activities for activities occurring on the 93.74-acre project site would consist of site preparation, grading, building construction, paving, and architectural coating of the inside and outside of the building. In addition, the proposed project would require 0.83 mile of off-site roadway improvements, totaling 5.54 acres, along Houghton and Wible Road.

The anticipated construction schedule, as shown in Table 6, reflects the construction start date and construction phase durations assumed for the purposes of this environmental analysis. Based on applicant-provided information, construction of the proposed project would start in July 2024 and would take approximately 16 months concluding in October 2025. The off-site roadway construction is assumed to occur at the beginning of the construction, concurrent with the site preparation of the main site. The project is expected to be operational in late 2025. The construction schedule used in the analysis represents a "worst-case" analysis scenario since emission factors for construction equipment decrease as the analysis year increases, due to improvements in technology and compliance with more stringent regulatory requirements. Therefore, construction emissions would decrease if the construction schedule moved to later years. The duration of construction activity and associated equipment represent a reasonable approximation of the expected construction fleet as required by the CEQA Guidelines.

Table 6: Construction Schedule

On-Site Construction Activity	Start Date	End Date	Days per Week	Total Workdays
Site Preparation	7/1/2024	7/26/2024	5	20
Grading	7/29/2024	8/23/2024	5	20
Building Construction	8/26/2024	9/12/2025	5	275
Paving	8/18/2025	10/24/2025	5	50
Architectural Coating	9/15/2025	10/24/2025	5	30
Off-Site Construction Activity	**Start Date**	**End Date**	**Days per Week**	**Total Workdays**
Off-Site Prep	7/1/2024	7/12/2024	5	10
Paving Off-Site	7/15/2024	7/26/2024	5	10

Notes:
Proposed construction duration reflects the overall schedule as presented by the project applicant.

A summary of the on-site, off-road construction equipment usage assumptions used to estimate emissions is presented in Table 7.

Since the CalEEMod defaults were much longer than the project schedule, daily equipment amounts and average hours per day were adjusted upward to preserve the overall "default" construction intensity for a given building square foot or land acreage. This approach ensures that overall CalEEMod predicted emissions on a project-wide long-term (annual) basis are not underestimated, but it may overpredict short-term daily emissions compared to the actual project-specific construction schedule (which is not known at this preliminary time). For phases that are shortened by a factor of 2 (or half of the default length), the equipment number was doubled. Adjustments also

included increased daily hours of operation that are higher than defaults (which range from 6 to 8 hours per day) since construction would occur from 7:00 a.m. to 8:00 p.m. at the site.

For example, based on CalEEMod default construction phase durations and equipment inventory by phase,[13] grading 93.7 acres would be expected to take 145 days, assuming 8 hours per day and would use two excavators, one grader, one rubber tired bulldozer, two scrapers, and two backhoes. Since 144 is 7.25 times the modeled period of 20 days, the equipment was adjusted upward by a similar factor assuming 5 times the equipment number and an increase of daily hours up to 12 hours per day. The adjustments scale usage for all equipment by 5x (12/8) = 7.5 preserving the overall equipment usage. CalEEMod for the project was modeled assuming 12 hours per day for 10 excavators, five graders, five rubber tired bulldozers, 10 scrapers, and 10 backhoes.

Table 7: Project Construction Equipment Assumptions

Construction Activity	Equipment	Equipment Amount	Average Hours per Day	Horsepower	Load Factor
Site Preparation	Rubber Tired Bulldozers	6	11	367	0.4
	Tractors/Loaders/Backhoes	8	11	84	0.37
Grading	Excavators	10	12	158	0.38
	Graders	5	12	148	0.41
	Rubber Tired Bulldozers	5	12	367	0.4
	Tractors/Loaders/Backhoes	10	12	84	0.37
	Scrapers	10	12	423	0.48
Building Construction	Cranes	1	9	367	0.29
	Forklifts	3	9	82	0.2
	Generator Sets	1	9	14	0.74
	Tractors/Loaders/Backhoes	3	9	84	0.37
	Welders	1	9	46	0.45
Paving	Pavers	2	9	81	0.42
	Paving Equipment	2	9	89	0.36
	Rollers	2	9	36	0.38
Architectural Coating	Air Compressors	2	6	37	0.48
Off-site Road Grading	Excavators	3	8	36	0.38
	Crawler Tractors	1	8	87	0.43
	Graders	1	8	148	0.41
	Rollers	2	8	36	0.38
	Tractors/Loaders/Backhoes	2	8	84	0.37

[13] CalEEMod 2022 User Guide: Appendix G, Default Data Tables.

Construction Activity	Equipment	Equipment Amount	Average Hours per Day	Horsepower	Load Factor
	Rubber Tired Loaders	1	8	150	0.36
	Scrapers	1	8	423	0.48
Off-site Road Paving	Rollers	3	8	36	0.38
	Paving Equipment	1	8	89	0.36
	Pavers	1	8	81	0.42
	Tractors/Loaders/Backhoes	2	8	84	0.37
Source: CalEEMod Output (Appendix A). Equipment number and hours scaled from CalEEMod defaults to maintain the same equipment hp-hours as for default scenario of same acreage					

A summary of the construction-related vehicle trips is shown in Table 8. Based on project applicant-provided information, cut and fill would balance on-site following grading. CalEEMod default values for trip lengths and vehicle fleets were used. Note that the total number of off-site construction vehicle trips would not necessarily occur on the same day, since construction activities would vary each day during the construction period.

Vendor trips would include material delivered to the site for construction. The proposed project would utilize a temporary concrete batch plant such that concrete would not be delivered in individual concrete mix trucks but instead produced on-site. It is assumed that the vendor trips in CalEEMod that would normally represent concrete deliveries would account instead for vendor trips to accommodate the delivery of the raw materials for the plant. The use of an on-site concrete plant would eliminate on-site truck travel and unpaved fugitive dust as well as eliminate the queueing and idling of concrete mix trucks.

Table 8: Construction Off-site Trips

Construction Activity	Worker	Vendor	Haul
Project Main Site Construction (Trips per day)			
Site Preparation	35	0	0
Grading	100	0	0
Building Construction	275	107	0
Paving	15	25	188
Architectural Coating	19	0	0
Off-site Roadway Construction			
Preparation and Grading	30	1	66
Paving	20	0	12
Source: CalEEMod Output (Appendix A).			

Fugitive Dust

During grading activities, fugitive dust can be generated from the movement of dirt on the project site. CalEEMod estimates dust from bull dozers moving dirt around, dust from graders or scrapers leveling the land, and loading or unloading dirt into haul trucks. Every project within the SJVAPCD's jurisdiction is required to comply with the requirements of the SJVAPCD's Rules under Regulation VIII (Fugitive PM_{10} Prohibitions). Rule 8011 requires actions to prevent, reduce, or mitigate anthropogenic fugitive dust emissions during fugitive dust generating activities.

Operation

The major sources of operational emissions that would occur over the long-term operations of the project are summarized below.

Motor Vehicles

Motor vehicle emissions refer to exhaust and road dust emissions from the motor vehicles that would travel to and from and within the project site. The regional emissions from the project's mobile sources were estimated using CalEEMod. The proposed project would primarily generate passenger vehicle trips from employees and visitors traveling to and from the project site as well as truck trips for warehouse goods.[14] An estimate of the number of vehicle trips that the proposed project would generate is shown in Table 9.

Table 9: Proposed Project Trip Generation

Land Use	ITE Code[1]	Size (1,000 square feet)	Daily Trips	
			Rate	Total
Total Passenger Cars	155	629.2	6.21	3,097
Heavy-Duty Trucks	155	629.2	0.23	145

Source:
[1] Institute of Transportation Engineers (ITE). 2021. Trip Generation Manual, 11th Edition.

Industrial land use projects, including warehouse projects, can be expected to have longer than average truck trip lengths compared to the default trip length in CalEEMod (12 to 15 miles for Kern County).

CEQA requires full public disclosure of a project's anticipated truck trips, which entails calculating truck trip length based on likely truck trip destinations. Since the project does not yet have a dedicated end user, the estimate of an estimate of truck trip length was not available. However, information from the traffic study and assumptions appropriate for high-dock distribution warehouses

[14] Kimley-Horn. 2024. Traffic Analysis, Westside Industrial Project. February.

were used to develop an average one-way trip length estimate of 84 miles for the purpose of calculating truck emissions within the SJVAB.[15]

Goods movement studies,[16] show that south of Bakersfield truck traffic is almost exclusively headed to/from locations outside of the SJVAB. The primary truck route for trucks headed to/from this direction would be a merge from the SR-99 to/from the I-5 with entrance into the South Coast Area via the Tejon Pass. The geographic boundary of the SJVAB is near Lebec, along I-5, 32 miles from the project site by road.

In contrast, most of the truck traffic on the SR-99 north of Bakersfield origin/destinate within the San Joaquin Valley itself. While both the I-5 and the SR-99 play major roles in goods movements in the SJV, the I-5 is the favored route for truck movements through the State (e.g., between the Bay Area and Southern California). The I-5 is preferred for longer trips over other parallel routes due to faster speeds, less congestion, and greater safety. The SR-99 serves a more important role in trade origins and destination, as almost all the goods movement origins and destinations are located in the population centers along SR-99.[17] The SR-99 is therefore the preferred route, and the only practical route, for truck service ***within*** the Kern COG region. Therefore, it was assumed that trucks using SR-99 north of the site conservatively travel to/from the mid-basin location of Fresno, a roadway distance of 118 miles from the proposed project site. Recent studies of truck routes on the SR-99 and I-5 show that 85.7 percent of goods movement trips from Kern County travel within Kern County itself and only 5.8 percent travel to the rest of the SJV. [18] Therefore, the assumption of a northbound travel distance to Fresno represents a conservative one-way trip length distance for modeling.

Table 10 summarizes the percentage of trucks assumed to travel either northbound or southbound, their respective travel routes, assumed destination for the purpose of analysis, and the reasonable travel distance.

Table 10: Proposed Project Trip Generation

Land Use	Percentage	Travel Route	Destination	One-Way Travel Distance
Northbound Trucks	60%	SR-99	Fresno	118 miles
Southbound Trucks	40%	SR-99/I-5	South Coast Destinations	32 miles
All Trucks	100%	ALL	ALL	84 miles
Source: Kimley-Horn. 2024. Traffic Study, Westside Industrial Project. February.				

[15] Kern County Council of Governments (Kern COG). 2017. San Joaquin Valley I-5/SR-99 Goods Movement Corridor Study. Website: https://www.kerncog.org/wp-content/uploads/2019/01/SJV_Goods_Movement_I5_SR99_2017.pdf. Accessed November 13, 2023.
[16] Kern County Council of Governments (Kern COG). 2012. Kern County Goods Movement Strategy Final Report. Website: https://www.kerncog.org/wp-content/uploads/2010/03/Kern_Goods_Movement_Strategy.pdf. Accessed November 13, 2023.
[17] Ibid.
[18] Kern County Council of Governments (Kern COG). 2017. San Joaquin Valley I-5/SR-99 Goods Movement Corridor Study. Website: https://www.kerncog.org/wp-content/uploads/2019/01/SJV_Goods_Movement_I5_SR99_2017.pdf. Accessed on November 13, 2023.

Emission factors are assigned to the expected vehicle mix as a function of vehicle age, vehicle class, speed, and fuel type. The overall operational fleet mix used to assess emissions from the project is shown below in Table 11. Trips associated with office and warehouse trips were assumed to be passenger vehicles and distributed among the various light-duty and medium-duty classes characteristic of these vehicles. Trip counts were provided separately for the warehouse project and were conservatively assumed to be 100 percent heavy heavy-duty trucks.

Table 11: Vehicle Type Classification—Project Operational Fleet Mix

Vehicle Type	Classification	Fleet Mix
Passenger Vehicles	LDA	49.8%
	LDT1	4.2%
	LDT2	24.3%
	MDV	21.7%
Trucks	HHDT	100%

Notes: Adjusted based on Kern County – San Joaquin Valley 2026 EMFAC2021 Fleet Mix.
HHDT = heavy heavy-duty truck
LDA = light-duty auto
LDT = light-duty truck
MDV = medium-duty vehicle
Source: CalEEMod Output (Appendix A) and Additional Air Quality and Greenhouse Gas Emissions Supporting Information (Appendix A).

Other Emission Sources

Area Sources

In addition to typical mobile- and energy-source emissions, long-term operational emissions also include area source emissions. Area source emissions include occasional architectural coating activities for repainting and maintenance of the warehouse building associated with the proposed project. CalEEMod assumes that repainting occurs at a rate of 10 percent of the buildings per year. Therefore, on average, it is assumed that the building would be fully repainted every 10 years.

Emissions from the wastewater treatment facility were estimated based on estimates from the design package and based on the peak number of 1830 employees, assuming that each employee would generate 30 gallons per capita per day (gpcpd). As a result, the expected peak wastewater generation rate is 54,900, gallons per day (GPD).[19] Emissions from the Wastewater Treatment Plants (WWTPs) were calculated using methodologies for area source published by SJVAPCD. This methodology estimates fugitive VOC is emitted at a rate of 0.754 pounds per million gallons of wastewater received. VOC emissions were estimated as less than 0.05 lb per day and less than 20 lbs per year.

Other area source emissions include consumer products that involve solvents that emit VOCs during use. CalEEMod includes default consumer product use rates based on building square footage. The

[19] Kimley-Horn. 2022. Preliminary Design Report Project Ware Malcomb Wastewater Treatment Plant.

default emission factors developed for CalEEMod were used for consumer products associated with parking uses. Lastly, CalEEMod default emission factors for landscape maintenance equipment were used in this analysis.

Indirect Emissions

For GHG emissions, CalEEMod contains calculations to estimate indirect GHG emissions. Indirect emissions are emissions where the location of consumption or activity is different from where actual emissions are generated. For example, electricity would be consumed at the project site; however, emissions associated with producing that electricity are generated off-site at a power plant. For electricity-related emissions, CalEEMod contains default electricity intensity factors for various utilities throughout California for 2019, and projections for future years for some regions. The electrical energy intensity factors may also be updated by the user to reflect the current (or projected) content (emissions of CO_2e in pounds (lb)/MW-hour) of the purchased electricity for a project. Model Inputs for the energy intensity were updated to include the most currently available electricity intensity factor for Pacific Gas and Electric Company (PG&E) for 2021[20] which was 98 lb CO_2e/megawatt (MW)-hr.

The industrial warehouse facility is subject to new Title 24 requirements for warehouses to install a solar system and battery storage, with generation potential and capacities specified based on the square footage and climate zone. Another new Title 24 requirement (in the 2022 update) is the requirement for office spaces within warehouses that utilize separate climate zoning to use a heat pump for space heating. This requirement is Statewide, independent of climate zone and was not modeled in CalEEMod but should be taken into consideration when analyzing the proposed project's BMPs for reduction of GHG emissions.

CalEEMod includes calculations for indirect GHG emissions related to electricity consumption, water consumption, and solid waste disposal. For water consumption, CalEEMod calculates embedded energy (e.g., treatment, conveyance, distribution) based on the electricity required to provide and transport each gallon of potable water to the project site. For solid waste disposal, CalEEMod also calculates GHG emissions from methane emissions generated by solid waste decomposition at remote landfill sites.

Refrigerants

During operation, there may be leakages of refrigerants (hydrofluorocarbons) from air conditioners and any refrigeration systems. Hydrofluorocarbons are typically used for refrigerants, which are long-lived GHGs. The project does not include a cold storage facility. Any leakage of refrigerants associated with an unrefrigerated industrial building is expected to be minor; therefore, they were not estimated. All refrigerants would be compliant with California SNAP requirements using low GWP refrigerants, consistent with California's Short-Lived Climate Pollutant (SLCP) strategies and the 2022 Scoping Plan.

[20] California Energy Commission (CEC). 2023. Annual Power Content Labels for 2021. Website: https://www.energy.ca.gov/programs-and-topics/programs/power-source-disclosure/power-content-label/annual-power-content-2. Accessed on November 14, 2023.

Vegetation

The project site is currently undeveloped and contains some small amounts of vegetation. Therefore, there is currently some carbon sequestration occurring on-site. The project applicant proposes to plant trees and integrate landscaping into the project design, which would provide carbon sequestration. However, the number of trees to be planted is unknown and data are insufficient to accurately determine the impact that the existing landscaping has on carbon sequestration. For this analysis, it was assumed that the loss and addition of carbon sequestration due to the proposed project would be balanced; therefore, emissions due to carbon sequestration were not included.

4.3 - Dispersion Modeling

An air dispersion model is a mathematical formulation used to estimate air quality impacts at specific locations (receptors) surrounding a source of emissions given the rate of emissions and prevailing meteorological conditions. The air dispersion model applied in this assessment was the American Meteorological Society/EPA Regulatory Model (AERMOD), Version 22112, which is approved by the SJVAPCD for air dispersion assessments. Specifically, the AERMOD model was used to estimate levels of air emissions at sensitive receptor locations from project construction PM_{10} exhaust emissions. The AERMOD model provides a refined methodology for estimating localized construction and operational impacts by utilizing long-term, measured representative meteorological data for the project site and representative construction and operational schedules.

Terrain elevations were obtained for the project site using United Stated Geology Survey (USGS) 1/3rd arc-second Digital Elevation Models (DEMs) DEMS processed by the EPA Terrain Preprocessor (AERMAP) model, the AERMOD terrain data pre-processor. The rural dispersion option was used to describe air dispersion in the local vicinity of the project. The air dispersion model assessment utilized 5 years (2017–2022) of SJVAPCD-preprocessed meteorological data for the Bakersfield Station (KBFL WBAN 23155) which is located approximately 14 miles north of the project site.

The AERMOD model was used to estimate levels of air emissions at sensitive receptor locations from project construction PM_{10} exhaust and on-road diesel truck exhaust. Receptor locations within the AERMOD model were placed at locations of existing residences surrounding the project site and in the neighborhood to the east and immediately south of Houghton Road. The modeling domain was extended to this area since Houghton Road would carry the entirety of vendor and haul truck traffic during construction and heavy-duty truck traffic during operations. Receptors were also placed for the nearby off-site workers and for General Shafter Elementary School. A future school site at Wible Road and Engle Road was also included for evaluation in the operational scenario. Finally, a grid was superimposed over the area to allow for identification of the maximum impact and to provide spatial data to generate risk isopleths. All receptors were placed conservatively at ground level.

Air Dispersion Modeling–Construction

Each construction emission source to be evaluated requires geometrical and emission release specifications for use in the air dispersion model. The emission source configurations applied in this assessment are shown in Table 12.

The on-site construction area sources were assumed to cover the entire project site. Emissions from the on-site construction exhaust sources were assumed to be emitted at 5 meters above ground to account for the top of equipment exhaust stacks where emissions are released to the atmosphere and the increase in emission height due to its heated exhaust. The off-site (on-road) construction vehicle emissions were represented in the AERMOD model as line volume sources with a release height of 12.6 feet (3.8 meters) for diesel vehicles.

Table 12: Summary of Construction Diesel Emission Source Configurations

Emission Source Type	Configuration	Relevant Assumptions
Off-Road Construction Equipment	Area Source (Sitewide)	• Area Source of height 5 meters to account for plume rise from exhaust. • Emission factors: CalEEMOD (OFFROAD 2007)
Heavy-Duty Haul Truck Traffic	Line Volume Sources	• Truck travel was estimated for project-generated off-site travel extending from the site to the SR-99 to the east and 0.25 mile from the site in other directions. • Emission factors: CalEEMod (EMFAC2021)
Appendix B: Health Risk Assessments.		

The construction emissions were assumed to be distributed over the project area with a working schedule of up to 12 hours per day and 5 days per week. Emissions were adjusted by a factor of 2.8 in AERMOD "Variable Emission" Option to convert 12-hour 5 day per week construction emissions for use with a 24 hours per day, 365 days per year averaging period.

Air Dispersion Modeling–Operation

Each operational emission source to be evaluated requires geometrical and emission release specifications for use in the air dispersion model. The emission source configurations applied in this assessment are shown in Table 13. Note, passenger vehicles would not be a significant source of DPM emissions, because they are gasoline powered, which emits TACs in insignificant amounts, and do not emit DPM due not using diesel fuels.

Table 13: Summary of Operational Diesel Emission Source Configurations

Emission Source Type	Configuration	Relevant Assumptions
On-site Truck Traffic	Area Source (Sitewide)	• Area Source with vertical height accounting for exhaust from trucks over various roadway paths to buildings across entire facility • Vehicle Speed: 0-15 mph • Vehicle types: heavy heavy-duty (HHDT) delivery trucks • Emission factors: EMFAC2021
On-site Truck Idling	Line Volume and Point Sources	• Stack release height: 3.8 meter • Idle Instances: 20 minutes total

Emission Source Type	Configuration	Relevant Assumptions
		– Truck/Docking and Parking Areas – Entrance Gate Areas • Vehicle type: HHDT delivery trucks • Idle Emission rates (g/idle hour) • Emission factors: EMFAC2021-PL
Off-site Truck Traffic	Line Volume Sources	• Truck travel was estimated for project-generated off-site travel within approximately 1,000 feet of the project site. • Three travel links from the project to outlying areas were identified based on the truck travel distribution provided in the project-specific traffic report, and emissions were estimated along each travel link. • Vehicle speeds: 0 mph to 25 mph, aggregated. • Emission factors: EMFAC2021-PL.
Facility Operations	Project	• Trucking operations: 24 hours per day/365 days per year
Appendix B: Health Risk Assessments.		

Emissions were estimated using EMFAC Project Level Emission Factors assuming up to 20 minutes idling during each site visit, accounting for occurrences at entrances, exits, loading docks and parking areas. Running exhaust emissions during site circulation around the warehouse, in parking areas and along the private entry road were also accounted for in the Operational HRA.

4.4 - Health Risk Assessment

The primary TAC of concern for the proposed project would be diesel exhaust, characterized by the emissions of DPM as a surrogate, emitted both during construction and operation. The emissions of potential DPM associated with construction activities would be transient, temporary, and occur in varying locations within the project site. The exposure assessment for construction is limited to emissions over the time that construction is expected to occur (i.e., less than 2 years). Emissions from operation are assumed to be continuous and residents are assumed to be exposed for up to 70-years as per SJVAPCD guidance. According to OEHHA Guidelines, workers are exposed for up to 25 years.

Operational exposure is based on emissions for 70-years assuming the same emissions that occur during the initial year of operation (2026). While the number of trucks may increase from baseline in future years, these emissions would still represent a conservative emission estimate over 70-years since diesel emissions would decline over 20 years as diesel trucks are replaced by low-NOX Natural Gas or ZEV heavy-duty trucks. The emission reductions from the phaseout of diesel trucks would outpace any increase based on increases in truck trips due to growth.

Exhaust emissions of DPM (as PM_{10} exhaust) were obtained from the CalEEMod Version 2022.1 for the unmitigated emissions construction scenarios utilized for the criteria pollutant analysis (Appendix A). DPM emissions to be evaluated include on-site diesel exhaust from construction equipment and from diesel vendor and haul trucks along Houghton Road between the site and SR-

99. Air dispersion modeling (described above) was utilized to determine the concentration of DPM at different locations off-site from the proposed project. Receptors included off-site workers, residents and identified school receptors within the area of impact. The modeling domain of impact was extended outside of the typical 0.25-mile radius to evaluate the impact at residences adjacent to Houghton Road, a route that would carry 100 percent of the HHDT traffic generated by the proposed project during construction and operation.

The concentration output files from AERMOD were postprocessed in the Hot Spots Analysis and Reporting Program (HARP) Air Dispersion Modeling and Risk Tool (ADMRT) to determine the concentration of DPM at off-site receptors for the modeled emission scenarios. The HARP ADMRT program uses the concentrations, along with equations from the Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments,[21] to estimate the project's cancer and non-cancer chronic health risks. For DPM, the only exposure pathway is inhalation, and the HARP ADMRT tool evaluates exposure from this single pathway.[22] The risk assessment was carried out using recommended SJVAPCD assumptions.

The HRA evaluates cancer and chronic hazard risks for construction and operations at the point of maximum impact (PMI), Maximally Exposed Individual Resident (MEIR), Maximally Exposed Individual Worker (MEIW), and at other sensitive receptors of interest, such as schools.

Estimation of Cancer Risks

Cancer risks are estimated as the upper-bound incremental probability that an individual would develop cancer as a direct result of exposure to potential carcinogens over a specified exposure duration. The cancer risk attributed to a chemical is calculated by multiplying the chemical intake or dose at the human exchange boundaries (e.g., lungs) by the chemical-specific cancer potency factor (CPF). Cancer risk is expressed in terms of risk per million exposed individuals. A risk level of 10 in a million implies a likelihood (or risk) that up to 10 persons out of one million equally exposed people would contract cancer if exposed continuously (24 hours per day) to the levels of TACs over a specified duration of time. This risk would be an excess cancer risk that is in addition to any environmental cancer risk borne by a person not exposed to these toxic air contaminants.

The health risks associated with the exposure to these concentrations are then calculated for each individual receptor based on dose and response parameters. Factors such as an individual's age and body weight and breathing rate determine the dose. Individuals also have varying responses due to a number of factors, with children being more susceptible to health effects due to development. OEHHAs Risk assessment procedures were modified in 2015[23] to account for early childhood health effects and age sensitivity factors are applied to the cancer health risk values. An age sensitivity

[21] Office of Environmental Health Hazard Assessment (OEHHA). 2015. Air Toxics Hot Spots Program. Risk Assessment Guidelines – Guidance Manal for Preparation of Health Risk Assessments. February. Website: https://oehha.ca.gov/media/downloads/crnr/2015guidancemanual.pdf. Accessed November 28, 2023.

[22] Air Resources Board (ARB) and California Air Pollution Control Officers Association (CAPCOA). 2015. Risk Management Guidance for Stationary Sources of Air Toxics. Website: https://ww2.arb.ca.gov/sites/default/files/classic/toxics/rma/rmgssat.pdf. Accessed November 13, 2023.

[23] Office of Environmental Health Hazard Assessment (OEHHA). 2015. Risk Assessment Guidelines Guidance Manual for Preparation of Health Risk Assessments. February. Website: https://oehha.ca.gov/media/downloads/crnr/2015guidancemanual.pdf. Accessed November 15, 2023.

factor of 10 is applied for infants with exposure starting in the third trimester until age 2. Children from ages 2 to 16 are assumed to be 3 times more sensitive than adults. No adjustments are made for adult exposure for ages greater than 16. OEHHA Health Risk assessment protocols specify HRAs for residential exposure should start with exposure starting at third trimester and this approach is used for both the Construction and Operational HRA for the project.

The analysis utilized the Risk Management Plan (RMP) for evaluating an individual receptor based on a 70-year residential exposure over a 70-year averaging period. Specifically, the policy recommends using the 95th percentile breathing rate for age groups less than 2 years old and the 80th percentile breathing rate for age groups that are greater than or equal to 2 years old.

Point of Maximum Impact Risk

The PMI is defined as the receptor point(s) with the highest acute, 8-hour, chronic, or cancer health impact outside the facility boundary. It is often at the property line or boundary. There may not be any workers or residents at this location. Its identification provides an upper-bound cancer risk for the project for all locations.

Residential Cancer Risk

Residents less than 16 years of age are assumed to be exposed continuously 24 hours per day, 7 days per week and represent the maximally exposed sensitive receptor. The Construction HRA considers exposure starting in third trimester for 16 months. The Operational HRA also assumes exposure starting in infancy, over 70 years, following an individual through exposure during infancy (0<2 years), childhood (2 to 16) and then adulthood (16-70 years).

Off-site Worker Cancer Risk

Workers are assumed to have exposure 8 hours per day, 250 days per year and therefore experience a lower dose than residents at the same location. In addition, workers are assumed to be 16 years of age or older and age sensitivity factors are not applied to the risk values. Worker inhalation rates are specified to account for moderate activity. Finally, because AERMOD calculates a concentration based on a 365 day per year, 24-hour averages, receptors such as workers may experience higher than estimated coincident exposures when the source emits only when the receptor is present. One of the methods to address the higher exposure is to apply a worker adjustment factor (WAF) in HARP2 to align the worker hours with the times when the source is emitting. It should be noted that this method can be applied for adjusting the cancer risk for workers or students but not for residents. The WAF is estimated by first adjusting for the hours that a source is emitted and then making a corresponding adjustment accounting for the hours when a receptor would be present at the site: A worker adjustment factor of 2.8 is used in this analysis to properly evaluate the risks to off-site workers. The factor adjusts the AERMOD 24 -hour, 7 day a week average to the concentrations coincident with the 5-day, 12-hour week construction schedule when DPM is emitted [(24x7)/(12x5)].

School Cancer Risk

Similarly, students would be present less than 24 hours per day and utilizing exposure times of less than 24-hours. AERMOD long-term concentrations may underestimate student risk. The use of the residential cancer risk to evaluate maximum risk student locations would provide conservative estimate since it would assume students are exposed to the entirety of the source emissions. Students at schools are typically present for approximately 3–8 years depending on the grade span of the school, but staff could be present at the site for up to 25 years. Therefore, the use of residential cancer risk at the school location would be a conservative estimate (overestimate) of any risks to student or staff and would encompass any sensitive receptors from infancy onwards.

Estimation of Chronic Non-Cancer Hazards

An evaluation of potential non-cancer effects of chronic chemical exposures was also conducted.

Risk characterization for non-cancer health hazards from TACs is expressed as a hazard index (HI). The HI is a ratio of the predicted concentration of the project's emissions to a concentration considered acceptable to public health professionals, termed the REL. The HI assumes that chronic exposures to TACs adversely affect a specific organ or organ system (toxicological endpoint) of the body. For each discrete chemical exposure, target organs presented in regulatory guidance were used. To calculate the HI, each chemical concentration or dose is divided by the appropriate toxicity REL. For compounds affecting the same toxicological endpoint, this ratio is added together. Where the total equals or exceeds 1, a health hazard is presumed to exist.

To quantify non-carcinogenic impacts, the chronic HI is derived by using the annual average concentration of TAC as derived from the air dispersion model ($\mu g/m^3$). This value is then compared to the REL above which a significant impact is assumed to occur ($\mu g/m^3$).

OEHHA has defined a REL for Diesel Exhaust of 5 $\mu g/m^3$. The principal toxicological endpoint assumed in this assessment was the respiratory system via the inhalation exposure pathway. DPM does not have any identified short-term or acute recent exposure levels (RELs).

Estimation of Acute Non-Cancer Hazards

The project's non-cancer acute health risks were not estimated because OEHHA has not established an acute reference exposure level for DPM and there are no acute non-cancer risk values associated with DPM.

4.5 - Cumulative Setting and Impacts

The Kern County's Guidelines for Preparing an Air Quality Assessment for Use in Environmental Impact Reports require three steps for estimating the potential significance of cumulative impacts:

(1) evaluate localized impacts
(2) evaluate consistency with existing air quality plans, and
(3) summarize ARB air basin emissions.

The geographic scope for cumulative air quality impacts is a 6-mile radius for regional impacts and a 1-mile radius for impacts on sensitive receptors. These geographic scopes of analysis are appropriate for determining air quality impacts because of the Statewide, regional, and localized nature of air quality impacts, which could occur cumulatively with the proposed project.

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SECTION 5: AIR QUALITY ANALYSIS

This section calculates expected emissions from project construction and operation as a necessary requisite for assessing the regulatory significance of project emissions on a regional and local level. The methodology follows the SJVAPCD's CEQA Guidelines, which set forth recommended thresholds of significance and analysis methodologies and provides guidance on mitigating significant impacts.

5.1 - CEQA Guidelines

The CEQA Guidelines define a significant effect on the environment as "a substantial, or potentially substantial, adverse change in the environment." To determine whether a project would have a significant impact on air quality, the type, level, and impact of emissions generated by the proposed project must be evaluated.

5.1.1 - Thresholds of Significance

This analysis uses the air quality significance thresholds contained in Appendix G of the CEQA Guidelines, guidelines established by the Kern County Planning Department, and the SJVAPCD. A significant impact would occur if the proposed project would:

a) Conflict with or obstruct implementation of the applicable air quality plan.

b) 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, would implementation of the proposed project exceed any of the following adopted thresholds:
   i. Operational and Area Sources
      10 tons per year for **ROG**
      10 tons per year for **NO_X**
      15 tons per year for **PM_{10}**
   ii. Stationary Sources as Determined by District Rules
      Severe Nonattainment: 25 tons per year
      Extreme Nonattainment: 10 tons per year

c) Expose sensitive receptors to substantial pollutant concentrations.

d) Create objectionable odors affecting a substantial number of people.

The final determination of whether a project is significant is within the purview of the Lead Agency pursuant to Section 15064(b) of the CEQA Guidelines; however, the SJVAPCD recommends that its quantitative air pollution thresholds be used to determine the significance of project emissions. The SJVAPCD's quantitative air pollution significance thresholds are the following:

- 10 tons per year for **ROG**
- 10 tons per year for **NO_X**
- 100 tons per year for **CO**

- 27 tons per year for **SO_X**
- 15 tons per year for **PM_{10}**
- 15 tons per year for **$PM_{2.5}$**

SJVAPCD also provides thresholds for localized significance and that project-related impacts on air quality may be significant when on-site emission increases from construction activities or operational activities exceed the 100 pounds per day screening level of any criteria pollutant after implementation of all enforceable mitigation measures. Impacts from projects with on-site criteria pollutant emissions below these levels are not expected to result in concentrations exceeding the Ambient Air Quality Standard (AAQS) and considered to be less than significant. Projects with emissions above these thresholds would be required to conduct an Ambient Air Quality Analysis to demonstrate the emissions of criteria pollutants would not cause localized impacts or concentrations exceeding ambient air quality standards.

In addition, the SJVAPCD also contains the following significance thresholds for toxic air contaminants:

- **Carcinogens:** Maximally exposed individual risk equals or exceeds 20 in one million.
- **Non-Carcinogens, Acute:** Hazard Index equals or exceeds 1 for the maximally exposed individual.
- **Non-Carcinogens, Chronic:** Hazard Index equals or exceeds 1 for the maximally exposed individual.

If the Lead Agency finds that the project has the potential to exceed these air pollution thresholds, the project should be considered to have significant air quality impacts.

5.2 - Analysis

Consistency with Air Quality Management Plan In general, a project would not interfere with the applicable Air Quality Plan (AQP) if it were consistent with growth assumptions used to form the applicable AQP and if the project implements all reasonably available and feasible air quality control measures.

Air quality impacts are controlled through policies and provisions of the SJVAPCD, the Kern County General Plan, and the Kern County Code of Building Regulations. The CCAA requires air pollution control districts with severe or extreme air quality problems to provide for a 5 percent reduction in nonattainment emissions per year. The Attainment Plans prepared for the SJVAPCD comply with this requirement. ARB reviewers approve or amend the document and forward the plan to EPA for final review and approval within the SIP.

Implementation of the proposed project would generate both temporary (construction) and long-term (operational) emissions, which could conflict with or obstruct with an applicable AQP.

Air quality impacts are controlled through policies and provisions of the SJVAPCD, the Kern County General Plan, and the Kern County Code of Building Regulations. Each project should also demonstrate consistency with the SJVAPCD's adopted AQP for ozone and PM_{10}. The SJVAPCD is required to submit a "Rate of Progress" document to the ARB that demonstrates past and planned progress toward reaching attainment for all criteria pollutants. The CCAA requires air pollution control districts with severe or extreme air quality problems to provide for a 5 percent reduction in nonattainment emissions per year. The AQP prepared for the San Joaquin Valley by SJVAPCD complies with this requirement. ARB reviewers approve or amend the document and forward the plan to EPA for final review and approval within the SIP.

This document proposes the following criteria for determining project consistency with the current AQPs:

Criterion 1: Will the project support the primary goals of the AQP?
Criterion 2: Will the project comply with applicable control measures in the AQP?
Criterion 3: Will the project disrupt or hinder implementation of any AQP control measures?

Required Evaluation Guidelines

CEQA Guidelines and the CAA (Sections 176 and 316) contain specific references regarding the need to evaluate consistencies between the proposed project and the applicable AQP for the projects. To accomplish this, the ARB has developed a three-step approach to determine project conformity with the applicable AQP:

1. *Determination that an AQP is being implemented in the area where the project is being proposed.* SJVAPCD's most recently adopted air quality management plan is its current, modified 2016 8-hour AQP that is approved by the ARB and EPA for the 2008 8-hour O_3 standard.
2. *The project must be consistent with the growth assumptions of the applicable AQP.* The Kern COG growth modeling for the 2018 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) provides for future employment/population factors.
3. *The project must contain in its design all reasonably available and feasible air quality control measures.* The project incorporates Regulation VIII dust measures and will comply with the SR rule (Rule 9510).

Implementation of the proposed project would generate both temporary construction and long-term operational emissions, which could conflict with or obstruct air quality attainment and maintenance planning efforts. Consistency with AQPs is typically conducted based on a comparison of project-generated growth in employment, population, and VMT within the region, which is used for development of the emissions inventories contained in the AQPs. In addition, projects that exceed applicable project-level CEQA significance thresholds would also be considered to have a potentially significant cumulative impact to regional air quality, which could interfere with regional air quality attainment and maintenance planning efforts.

The proposed project is not consistent with current zoning and general plan land use designations. As such, the proposed project would not automatically be considered consistent with employment and VMT growth projections identified in local plans, upon which applicable ambient AQPs are based.

Under current policies, only after a General Plan Amendment (GPA) is approved can housing and employment assumptions be updated to reflect capacity changes. Since the proposed project requires a GPA from R-IA to LI. The existing growth forecast would eventually be modified to reflect these changes.

Construction

The proposed project would comply with all applicable SJVAPCD Rules and Regulations. The proposed project would not exceed any SJVAPCD significance thresholds on an annual basis, as shown in Table 17 under Impact AIR-4. Additionally, as shown in IMPACT AIR-4, the emissions from construction of the proposed project would not exceed the SJVAPCD daily localized significance thresholds for NOx, CO, and PM_{10}. Therefore, emissions are presumed to be below levels that would result in localized exceedances of the AAQS and a project-specific Ambient Air Quality Analysis (AAQA) was not required. Moreover, emissions would be further reduced with the required compliance of the project with SJVAPCD's Rule 9510 (ISR Rule), which requires projects to reduce NO_x emissions by 20 percent. Therefore, the proposed project would not result in emissions of a magnitude that would obstruct the air quality planning goals set forth by the SJVAPCD and would have a less than significant impact. During construction, the proposed project would incorporate MM Air-1 through MM AIR-9 in order to further reduce impacts from fugitive dust, including applying dust suppressant material; limiting vehicle speeds; and watering exposed areas during construction, among others.

Because the project does not include any stationary sources, the stationary control measures identified in the SJVAPCD's *2016 Ozone Plan* and Kern County's *2017 Ozone Attainment Plan* are not applicable. Similarly, the project's construction emissions from heavy-duty, off-road equipment would not exceed the SJVAPCD's significance thresholds, as shown in Table 19 (IMPACT AIR-4). The mobile source control measures pertaining to heavy-duty, off-road equipment identified in the SJVAPCD's *2016 Ozone Plan* are also not applicable.

Operation

The project is not consistent with the existing land use designations in the current Metropolitan Bakersfield General Plan and would require a zoning change. As such the proposed project introduces employment and an increase in VMT and associated criteria pollutant emissions. When compared against the current zoning of the project site that would allow for the development of agricultural uses, the facility would result in increased emissions from baseline emissions for mobile and area source. However, as shown in Table 18, the proposed project would not exceed the SJVAPCD operational threshold for any criteria air pollutant.

5.2.1 - Sensitive Receptors

Those who are sensitive to air pollution include children, the elderly, and people with pre-existing respiratory or cardiovascular illness. The SJVAPCD considers a sensitive receptor to be a location that houses or attracts children, the elderly, people with illnesses, or others who are especially sensitive to the effects of air pollutants. Examples of sensitive receptors include hospitals, residences, convalescent facilities, and schools.

The immediate project area has a few nearby residences. The nearest residence is approximately 400 feet to the southwest. In addition, the General Shafter Elementary School is located approximately 0.8 mile southeast of the project site at South H Street and Shafter Road, and the Kern High School District has identified a new school site located approximately 1 mile north of the project site at Wible Road and Engle Road and approved a new high school to be constructed at the intersection of Panama Lane and Cottonwood Road, approximately 3 miles northeast of the project site.

Construction: Reactive Organic Gases

ROG is emitted during the application of architectural coatings (painting). The amount emitted is dependent on the amount of ROG (or VOC) in the paint. ROG emissions are typically an indoor air quality health hazard concern rather than an outdoor air quality health hazard concern. Therefore, exposure to ROG during architectural coatings is a less than significant health impact.

There are three types of asphalt that are typically used in paving: asphalt cement, cutback asphalts, and emulsified asphalts. However, SJVAPCD Rule 4641 prohibits the use of the following types of asphalt: rapid cure cutback asphalt; medium cure cutback asphalt; slow cure asphalt that contains more than 0.5 percent of organic compounds that evaporate at 500°F or lower; and emulsified asphalt containing organic compounds, in excess of 3 percent by volume, that evaporate at 500°F or lower. An exception to this is medium cure asphalt when the National Weather Service official forecast of the high temperature for the 24-hour period following application is below 50°F.

The acute (short-term) health effects from worker direct exposure to asphalt fumes include irritation of the eyes, nose, and throat. Other effects include respiratory tract symptoms and pulmonary function changes. The studies were based on occupational exposure of fumes. Residents are not in the immediate vicinity of the fumes; therefore, they would not be subjected to concentrations high enough to evoke a negative response. In addition, the restrictions that are placed on asphalt in the San Joaquin Valley reduce ROG emissions from asphalt and exposure. The impact to nearby sensitive receptors from ROG during construction is less than significant.

Operation: Reactive Organic Gases

During operation, ROG would be emitted primarily from motor vehicles. Direct exposure to ROG from project motor vehicles would not result in health effects, because the ROG would be distributed across miles and miles of roadway and in the air. The concentrations would not be great enough to result in direct health effects.

Construction: NO_X, PM_{10}, and $PM_{2.5}$

As discussed in Impact AIR-2, emissions during construction would not exceed the significance thresholds and would not be expected to result in concentrations that would exceed ambient standards or contribute substantially to an existing exceedance of an AAQS.

Operation: NO_X, PM_{10}, and $PM_{2.5}$,

As discussed in Impact AIR-2, localized concentrations of NO_X, PM_{10}, and $PM_{2.5}$ would not exceed the ambient air quality standards. Therefore, the proposed project would not expose sensitive receptors to substantial criteria air pollutant concentrations during operation.

Construction: Toxic Air Contaminants

During construction and operation, the proposed project would result in emissions of several TACs that could potentially impact nearby sensitive receptors. The principal TAC emission analyzed in this assessment was DPM from operation of off-road equipment and diesel-powered delivery and worker vehicles during construction and operation. For purposes of this analysis, DPM is represented as exhaust emissions of PM_{10}. DPM represented as exhaust PM_{10} adequately addresses impacts from PM_{10} and $PM_{2.5}$ emissions, as $PM_{2.5}$ comprises a component of PM_{10}.

Exposures to TACs can also result in both short-term (acute) or long-term (chronic) non-cancer health impacts. Such impacts could include illnesses related to reproductive effects, respiratory effects, eye sensitivity, immune effects, kidney effects, blood effects, central nervous system, birth defects, or other adverse environmental effects.

Toxic Air Pollutants—On-site Workers

A variety of State and national programs protect workers from safety hazards, including high air pollutant concentrations.[24,25,26]

On-site workers are not required to be addressed through this Health Risk Assessment (HRA) process. A document published by CAPCOA, Health Risk Assessments for Proposed Land Use Projects, indicates that on-site receptors are included in risk assessments if they are persons not employed by the proposed project.[27] Therefore, an HRA for on-site workers is not required or recommended. No further discussion is necessary.

Toxic Air Pollutants—Sensitive Receptors

During construction and operation, the proposed project would result in emissions of several TACs that could potentially impact nearby sensitive receptors. The SJVAPCD has defined health risk significance thresholds. These thresholds are represented as a cancer risk to the public and a non-

[24] Southern California Gas Company (SoCalGas). 2023. Methane and Health and Safety. Website: https://www.socalgas.com/stay-safe/methane-emissions/methane-and-health-and-safety#:~:text=Methane%20is%20non%2Dtoxic%20and,oxygen%20may%20result%20in%20suffocation. Accessed November 14, 2023.

[25] Centers for Disease Control and Prevention (CDC). 2012. Construction. Website: www.cdc.gov/niosh/construction/. Accessed March 21, 2023.

[26] Centers for Disease Control and Prevention (CDC). 2012. Indoor Environmental Quality.

[27] California Air Pollution Control Officers Association (CAPCOA). 2009. Health Risk Assessments for Proposed Land Use Projects.

cancer hazard from exposures to TACs. Cancer risk represents the probability (in terms of risk per million individuals) that an individual would contract cancer resulting from exposure to TACs continuously over a period of several years. The SJVAPCD's latest threshold of significance for TAC emissions is an increase in cancer risk for the maximally exposed individual of 20 in a million. Chronic and short-term thresholds are based on HI and are used to evaluate short-term (acute) or long-term (chronic) non-cancer health impacts. Such impacts could include illnesses related to reproductive effects, respiratory effects, eye sensitivity, immune effects, kidney effects, blood effects, central nervous system, birth defects, or other adverse environmental effects. The HI are ratios which compare the long-term and short-term ambient concentrations to their respective reference exposure limits, as previously described in Section 4.4. An HI of 1 indicates a concentration equal to the reference level. Therefore, the SJVAPCD has established a significance threshold of less than 1, equivalent to concentrations below the established reference level or REL. The principal TAC emission analyzed in this assessment was DPM from operation of off-road equipment and diesel-powered delivery and worker vehicles during construction and operation. DPM has been identified by the ARB as a carcinogenic substance. For purposes of this analysis, DPM is represented as exhaust emissions of PM_{10}. DPM represented as exhaust PM_{10} adequately addresses impacts from PM_{10} and $PM_{2.5}$ emissions, as $PM_{2.5}$ comprises a component of PM_{10}. Fugitive dust components of PM_{10} and $PM_{2.5}$ would be controlled through the use of required dust control practices during project construction.

Toxic Air Pollutants—Off-Site Workers

During construction and operation, the proposed project would result in emissions of several TACs that could potentially impact nearby sensitive receptors.

The maximum risks are identified by location and are provided in Table 14. The PMI is located on the eastern site boundary in agricultural land. The maximum impacted residence was determined to be a single-family home located 400 feet southwest of the project site. The table also summarizes the results at the nearest school, and for the nearest off-site worker.

Table 14: Estimated Health Risks and Hazards During Project Construction

Receptor	UTM Easting (m)	UTM Northing (m)	DPM Concentration (ug/m^3)	Cancer Risk (risk per million)	Chronic Non-Cancer HI[1]
Point of Maximum Impact	314,994	3,900,713	0.0773	17.9	0.015
Maximum Impacted Residential Receptor	314352.3	3900458	0.009	2.1	0.002
General Shafter Elementary	315894	3,899,563	0.004	0.9	0.001
Off-site Worker	314,565	3,901,240	0.02	0.2	0.004

Notes:
$\mu g/m^3$ = micrograms per cubic meter
HI = hazard index
m = meters

As noted in Table 14, the proposed project's construction DPM emissions would not exceed the cancer risk significance threshold or non-cancer HI significance threshold at the MIR. Therefore, the proposed project would not result in a significant impact on nearby sensitive receptors from TACs during construction.

Operation: Toxic Air Contaminants

During operation, the proposed project would generate passenger vehicle trips from employees, visitors, and light-duty delivery vehicles traveling to and from the project site; however, the proposed project would also be served with daily truck deliveries. The main source of DPM from the long-term operations of warehouses is from combustion of diesel fuel in diesel-powered engines in heavy-duty trucks. Motor vehicle emissions refer to DPM exhaust emissions from the motor vehicle traffic that would travel to and from the project site each day.

An estimate of the number of vehicle trips that the proposed project would generate was provided in the project-specific traffic analysis, included in Table 9 which indicates the proposed project would generate 145 truck trips per day. An HRA was conducted assuming that all delivery trucks were heavy heavy-duty diesel vehicles.

Table 15 summarizes the health risks from operations for the maximally exposed resident which is a residence south of the Houghton Road to the east of the proposed project. The table also summarizes the results at the nearest school, and for the nearest off-site worker.

Table 15: Estimated Health Risks and Hazards During Project Operation

Source	UTM Easting (m)	UTM Northing (m)	DPM Concentration (ug/m^3)	Cancer Risk (risk per million)	Chronic Non-Cancer HI[1]
Point of Maximum Impact	316094	3901262	0.0008	0.59	<0.001
Maximum Impacted Residential Receptor (MIR)	316093	3901224	0.00047	0.35	<0.001
General Shafter Elementary	315894	3899563	0.00003	0.02	<0.001
Off-Site Worker Receptor	314565	3901240	0.00026	0.04	<0.001

Notes:
µg/m3 = micrograms per cubic meter
HI = hazard index
m = meters
MIR = Maximally Impacted Sensitive Receptor
[1] Chronic non-cancer HI was estimated by dividing the maximum annual DPM concentration (as PM_{10} exhaust) by the REL of 5 µg/m^3.
[2] Risk is based on Infant Exposure starting in Third Trimester and over the construction period.
Source: Appendix B.
The MIR was determined to be a residence located approximately at 316093 m E 3901224 m N along Houghton Road.

Based on the results from Table 15, health risks from operation of the facility from DPM emissions from trucks idling and running on and in the vicinity of the site are below SJVAPCD thresholds or 20 in a million and chronic HI of 1 and risks to off-site receptors would be less than significant.

CO Hot Spots Analysis

Emissions occurring at or near the project have the potential to create a localized impact also referred to as an air pollutant.

Valley Fever

The project has the potential to generate fugitive dust and suspend Valley Fever spores with the dust that could then reach nearby sensitive receptors. It is possible that on-site workers could be exposed to Valley Fever as fugitive dust is generated during construction. However, as discussed in Section 2.1.2, due to its former agricultural/cultivated land use, the project site would have low probability of *C. immitis* (Valley Fever) growth on-site or exposure from disturbed soil.

During construction, Compliance with dust control regulations would further reduce the potential to expose sensitive receptors to Valley Fever. The proposed project would be required to comply with Rule 8021 Section 6.3, which requires applicants to develop, prepare, submit, obtain approval of, and implement a Dust Control Plan, which would reduce fugitive dust impacts to less than significant for all construction phases of the project, which would also control the release of the *Coccidioides immitis* fungus from construction activities.

During operations, the project site would be built up and would not provide a conducive environment for Valley Fever. No further analysis is needed.

Therefore, the exposure to Valley Fever would be minimized and impacts would be reduced to less than significant levels with implementation of the mitigation measures identified above.

Asbestos

Naturally occurring asbestos can be released from serpentinite and ultramafic rocks when the rock is broken or crushed. As discussed in more detail in Section 2.1.2, exposure to naturally occurring asbestos can occur during soil-disturbing activities in areas with deposits present. At the point of release, the asbestos fibers may become airborne, causing air quality and human health hazards. These rocks have been commonly used for unpaved gravel roads, landscaping, fill projects, and other improvement projects in some localities. Asbestos may be released to the atmosphere due to vehicular traffic on unpaved roads, during grading of development projects, and at mining operations.

Review of the Department of Conservation maps indicates that the project site and San Joaquin County do not have reported historic asbestos mines, historic asbestos prospects, and other natural occurrences of asbestos.[28]

[28] California Department of Conservation, Division of Mine Reclamation. 2000. A General Location Guide for Ultramafic Rocks in California—Areas More likely to Contain Naturally Occurring Asbestos. August.

Objectionable Odors Odor impacts on residential areas and other sensitive receptors, such as hospitals, daycare centers, schools, etc. warrant the closest scrutiny, but consideration should also be given to other land uses where people may congregate, such as recreational facilities, worksites, and commercial areas.

Odors can cause a variety of responses. The impact of an odor is dependent on interacting factors such as frequency (how often), intensity (strength), duration (in time), offensiveness (unpleasantness), location, and sensory perception. While offensive odors rarely cause any physical harm, they still can be very unpleasant, leading to considerable distress and often generating citizen complaints to local governments and regulatory agencies.

According to the SJVAPCD, analysis of potential odor impacts should be conducted for the following two situations:

- **Generators:** projects that would potentially generate odorous emissions proposed to locate near existing sensitive receptors or other land uses where people may congregate, and
- **Receivers:** residential or other sensitive receptor projects or other projects built for the intent of attracting people locating near existing odor sources.

The SJVAPCD provides a suggested screening distance for a variety of odor-generating land uses and operations. Those distances are used as a guide to assess whether nearby facilities could be sources of significant odors. Projects that would site a new sensitive receptor farther than the applicable screening distances from an existing odor source are not likely to have a significant impact. These screening distances by type of odor generator are listed in Table 16.

Table 16: Screening Levels for Potential Odor Sources

Odor Generator	Screening Distance
Wastewater Treatment Facilities	2 miles
Sanitary Landfill	1 mile
Transfer Station	1 mile
Composting Facility	1 mile
Petroleum Refinery	2 miles
Asphalt Batch Plant	1 mile
Chemical Manufacturing	1 mile
Fiberglass Manufacturing	1 mile
Painting/Coating Operations (e.g., auto body shop)	1 mile
Food Processing Facility	1 mile
Feed Lot/Dairy	1 mile
Rendering Plant	1 mile
Source: Source: San Joaquin Valley Air Pollution Control District (SJVAPCD). 2015. Guidance for Assessing and Mitigating Air Quality Impacts (GAMAQI). February 19.	

The proposed warehouse project is not in the category of generator sources listed in Table 16 and warehouses are not known sources of odorous emissions. However, the project includes a small pre-packaged wastewater treatment plant to meet its utility requirements. The WWTP is a source of potential odor. However, the plant is equipped with an odor control facility and the WWTP design specifications specify that "Nuisance odors shall not be perceivable beyond the property line of the wastewater treatment facility."

Furthermore, the project is an industrial project and is not considered a sensitive receptor that would need to consider impacts as a "receiver." There are no significant concerns related to odors or a need for further odor assessment of the project operations.

The proposed project has the potential to emit odors during construction activities from sources such as the exhaust from diesel-fueled construction equipment, or during the application of architectural coatings. However, because of the low intensity of these emissions, intermittent and short-term nature of construction activities, and highly diffusive properties of diesel exhaust, a substantial number of nearby receptors would not be affected by odors associated with project construction. Odors from these sources would be localized and generally confined to the immediate area surrounding the project site.

Cumulative Criteria Pollutant Emissions Impacts Regional Emissions

Air pollutant emissions have regional effects and localized effects. This analysis assesses the regional effects of the proposed project's criteria pollutant emissions in comparison to SJVAPCD thresholds of significance for short-term construction activities and long-term operation of the proposed project.

The primary pollutants of concern during project construction and operation are ROG, NO_x, PM_{10}, and $PM_{2.5}$. The SJVAPCD GAMAQI adopted in 2015 contains thresholds for CO, NO_x, ROG, SO_x, PM_{10}, and $PM_{2.5}$.[29]

Ozone is a secondary pollutant that can be formed miles from the source of emissions, through reactions of ROG and NO_x emissions in the presence of sunlight. Therefore, ROG and NO_x are termed ozone precursors. The Air Basin often exceeds the State and national ozone standards. Therefore, if the project emits a substantial quantity of ozone precursors, the project may contribute to an exceedance of the ozone standard. The Air Basin also exceeds air quality standards for PM_{10} and $PM_{2.5}$; therefore, substantial project emissions may contribute to an exceedance for these pollutants. The SJVAPCD's annual emission significance thresholds used for the project define the substantial contribution for both operational and construction emissions as follows:

- 100 tons per year CO
- 10 tons per year NO_X
- 10 tons per year ROG
- 27 tons per year SO_X
- 15 tons per year PM_{10}
- 15 tons per year $PM_{2.5}$

[29] San Joaquin Valley Air Pollution Control District (SJVAPCD). 2015. Guidance for Assessing and Mitigating Air Quality Impacts.

The proposed project does not contain sources that would produce substantial quantities of SO_2 emissions during construction and operation.

Construction Emissions

As discussed in Section 2, the proposed project construction would start with site preparation beginning in July of 2024 and would end in September 2025. In addition, the proposed project would require the construction of approximately 5.54 acres of off-site dedicated improvements, located along the project frontage to Houghton Road and Wibble Road. The off-site construction would occur in concurrence with on-site construction. The proposed construction schedule and equipment assignment presented in Table 6 and Table 7 are based on CalEEMod defaults with a building construction duration to match the applicant's schedule for the warehouse construction, by shortening the construction slightly appropriate to the type of construction and assuming that painting and paving occur at the same time.

Table 17 shows that criteria pollutant emissions would not exceed any of the SJVAPCD's regional thresholds of significance during unmitigated construction of the proposed warehouse project. It should be noted that unmitigated construction emissions incorporate the basic dust control measures required under SJVAPCD Rule 8201, which requires that vehicle speeds on unpaved roads and surfaces be reduced to no more than 15 miles per hour and exposed construction areas are watered during earthmoving activities.

Table 17: Construction Air Pollutant Emissions

Project Construction Activity	Emissions (Tons)					
	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Site Preparation	0.10	0.99	0.93	0.013	0.26	0.15
Grading	0.28	2.66	2.66	0.0052	0.96	0.27
Building Construction (2024)	0.15	0.93	1.95	0.0025	0.30	0.09
Building Construction (2025)	0.24	1.66	2.98	0.0049	0.44	0.14
Paving	0.11	0.63	0.39	0.0027	0.11	0.04
Architectural Coating	1.26	0.01	0.03	0.0000	0.00	0.00
Off-Site Improvements						
Off-Site Preparation	0.01	0.15	0.14	0.0004	0.06	0.01
Paving Off-Site	0.01	0.05	0.06	0.0001	0.004	0.002
Total Emissions (On and Off-Site)	2.16	7.08	8.77	0.017	2.06	0.7
SJVAPCD Annual Thresholds	10	10	100	27	15	15
Do Construction Emissions Exceed Regional Thresholds?	No	No	No	No	No	No

Project Construction Activity	Emissions (Tons)					
	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Notes: Total emissions occur over 2 years such that partial year emissions are not representative of potential annual emissions should scheduling or phasing shift. The total emissions over 16 months would be conservative for any schedule. CO = carbon monoxide NO_X = nitrogen oxides PM_{10} = particulate matter less than 10 microns in diameter $PM_{2.5}$ = particulate matter less than 2.5 microns in diameter ROG = reactive organic gases SO_X = sulfur oxides Totals may not add up due to rounding. CalEEMod 2022 Output files are contained in Appendix A.						

Operational Emissions

Emissions from the operation of the facility would be from area sources of emissions at the project site itself and from mobile sources (i.e., vehicles) associated with the operation of the warehouse. Direct energy related emissions from the facility associated with natural gas usage are zero since the facility would not utilize natural gas for water and space heating at the facility.

There are no sources of air pollutant related to the industrial operations inside of the warehouse since all of the material handling equipment is electric (e.g., battery electric forklifts and electric pallet jacks). Area sources refer to volatile organic compound emissions from use of consumer products by employee (cosmetics and personal care products) and also include emissions from cleaning products including detergents, cleaning compounds, polishes, floor finishes. Emissions from exhaust of any gasoline-fueled landscaping equipment also contribute to, and are included in, the area source emissions.

The warehouse operations would generate both employee and visitor passenger vehicle trips and truck trips which are mobile sources of both criteria pollutant and TAC emissions. ARB regulations limit on-site idling to less than 5 minutes per occurrence. Signs would be posted at the facility to facilitate compliance with the regulation. Signs also directing truck traffic into and out of the facility would ensure smooth traffic flow and avoid wasteful queueing and idling. Consultants Kimley-Horn produced a Traffic Study for the proposed project that estimated the proposed project would generate 3907 daily passenger vehicle trips and 145 daily truck trips.[30] The Air Quality Analysis and CalEEMod estimates are conservatively based on CalEEMod defaults for VMT trip length for passenger vehicles and project-specific estimates for warehouse-based truck trips.

Table 18 summarizes the proposed project's emissions from these sources.

[30] Kimley-Horn. 2024. Traffic Analysis, Westside Industrial Project. February.

Table 18: Unmitigated Operational Pollutant Emissions (2026)

Emission Source	Emissions (Tons)					
	ROG	NO_x	CO	SO_X	PM_{10}	$PM_{2.5}$
Area	3.13	0.02	2.56	0.000	0.005	0.003
Energy–Natural Gas	0	0	0	0	0	0
Stationary Source	0	0	0	0	0	0
Mobile–Cars	1.72	1.61	21.48	0.07	6.83	1.74
Mobile–Trucks	0.08	7.82	0.95	0.07	2.14	0.67
Project Total	4.93	9.45	25.0	0.1	8.97	2.41
SJVAPCD Annual Thresholds	10	10	100	27	15	15
Do Operational Emissions Exceed Thresholds?	No	No	No	No	No	No

Notes:
CO = carbon monoxide
NO_X = nitrogen oxides
PM_{10} = particulate matter less than 10 microns in diameter
$PM_{2.5}$ = particulate matter less than 2.5 microns in diameter
ROG = reactive organic gases
SO_X = sulfur oxides
Totals may not add up due to rounding.
Source: CalEEMod Output files are contained in Appendix A.

Note: Mobile Source Emissions from EMFAC2021 v.1.0.2 presented in this table do not account for reductions from recently promulgated rules such as the Advanced Clean Cars II, Advanced Clean Fleet Rule or the H&D IM Rule.

As shown in Table 18, operational emissions are well below the SJVAPCD's regional significance thresholds for all pollutants.

Localized Pollutant Analysis

Emissions occurring at or near the project have the potential to create a localized impact also referred to as an air pollutant hotspot. Localized emissions are considered significant if when combined with background emissions, they would result in exceedance of any health-based air quality standard. In locations that already exceed standards for these pollutants, significance is based on a significant impact level (SIL) that represents the amount that is considered a cumulatively considerable contribution to an existing violation of an air quality standard.

The SJVAPCD's GAMAQI includes screening thresholds for identifying projects that need detailed analysis for localized impacts. Projects with on-site emission increases from construction activities or operational activities that exceed the 100 pounds per day screening level of any criteria pollutant after compliance with Rule 9510 and implementation of all enforceable mitigation measures would require preparation of an AAQA. The criteria pollutants of concern for localized impact in the Air

Basin are PM_{10}, $PM_{2.5}$, NO_2, and CO. CO violations require heavy traffic volumes and extreme traffic congestion that would not occur at or near the project site; therefore, operational CO emission hotspots are highly unlikely.

An analysis of average daily emissions during construction and operation was conducted to determine whether emissions would exceed the localized SJVAPCD 100 pounds per day screening threshold for any pollutant of concern. The on-Site Construction Emissions were based on the average daily for on-site trucks and construction exhaust equipment based on the CalEEMod Construction Modeling (Appendix A). This approach is recommended by SJVAPCD Guidance[31] for evaluating projects where site-specific construction phasing is not yet available. The emissions were determined from the sum of all on-site emissions (exhaust from on-site trucks and construction equipment, architectural coating and paving emissions and fugitive dust from material handling and roadways) and dividing by the number of overall days of active construction (345 days).

Maximum daily on-site criteria pollutant emissions for operation were determined by conducting a project-specific analysis using EMFAC-PL for the first full year of operations 2026. This project-specific analysis considered emissions from passenger vehicles and trucks based on predicted daily vehicle from the traffic study. Emissions were calculated for summer and winter conditions and accounted for cold-starts from passenger vehicles in the parking lot for up to 9-hours as well as hot soak and diurnal losses from vehicles on-on-site. The analysis also included the Running Exhaust of Passenger Vehicles within 0.25 mile of the site considering traffic distributions from the traffic study along Wible and Houghton Roads. Truck emissions include starting and idle emissions on-site (at various locations) and low-speed traveling on trucks within the boundaries of the site including the private entrance road. Car and truck emissions were included for travel extending off-site within 0.25 mile of the facility in accordance with SJVAPCD CEQA Guidance.[32] The proposed project would not exceed daily emission thresholds during construction and operation for any pollutant of concern. Operational emissions include emissions generated on-site by area sources such as natural gas combustion and landscape maintenance, and on-site travel from motor vehicles accessing the project.

The results of the analysis are presented in Table 19 and Table 20, for construction and operations, respectively. Details of the calculations are included in Appendix B.

Table 19: Localized Daily Air Pollutant Emissions During Construction

Source	Construction Emissions (pounds)[1]				
	ROG	NO_x	CO	PM_{10}	$PM_{2.5}$
Off-Road Equipment Exhaust	1,219	11,620	12323	504	464
Dust from Material Movement	0	0	0	968	431
On-site trucks	0.1	5.0	1.7	1203.6	120.2

[31] San Joaquin Valley Air Pollution Control District (SJVAPCD). 2018. APR-2030 Project Ambient Air Quality Analysis Applicability Determination under CEQA, June 2018 Guidance.
[32] Ibid.

Source	Construction Emissions (pounds)[1]				
	ROG	NO_x	CO	PM_{10}	$PM_{2.5}$
Worker, Vendor, Haul (local)	21.7	126.7	298.6	79.9	20.72
Architectural Coating	2522	0	0	0	0
Paving	150	0	0	0	0
Total Emissions (lbs)	3,913	11,752	12,623	2,756	1,036
Average Daily Emissions (lbs/day)	11	34	37	8	3
Screening threshold	100	100	100	100	100
Exceed screening threshold?	No	No	No	No	No

Notes: includes sources operating within 0.25 mile of the site boundary.
CO = carbon monoxide
NO_X = nitrogen oxides
PM_{10} = particulate matter less than 10 microns in diameter
$PM_{2.5}$ = particulate matter less than 2.5 microns in diameter
ROG = reactive organic gases
[1] PM_{10} and $PM_{2.5}$ emissions are from the mitigated output to reflect compliance with Regulation VIII—Fugitive PM_{10} Prohibitions.
Source of Emissions: CalEEMod Output (Appendix A). Average Daily Emissions are determined by dividing total on-site construction emissions by days where construction occurs (345 net working days). This follows guidance from SJVAPCD for projects where project-specific construction schedule is unknown.

Source of Thresholds: San Joaquin Valley Air Pollution Control District (SJVAPCD). 2015. Guidance for Assessing and Mitigating Air Quality Impacts. February 19.

Table 20: Maximum On-site Daily Air Pollutant Emissions During Operations

Source	On-site Emissions (pounds per day)[1]				
	ROG	NO_x	CO	PM_{10}	$PM_{2.5}$
Summer					
Area (Landscaping)	19.85	0.24	28.45	0.05	0.04
Mobile (Passenger Vehicles + Trucks)	8.19	7.49	53.49	0.09	0.08
Total On-Site/Localized (Summer)	*28.04*	*7.73*	*81.94*	*0.14*	*0.12*
Winter					
Area (Landscaping)	15.18	0.00	0.00	0.00	0.00
Mobile (Passenger Vehicles + Trucks)	6.39	10.80	78.99	0.09	0.09
Total On-Site/Localized (Winter)	*21.57*	*10.80*	*78.99*	*0.09*	*0.09*
Maximum Daily Emissions from Either Scenario					
Maximum Daily Emissions	28.04	10.8	81.94	0.14	0.12
Screening threshold	100	100	100	100	100

Source	On-site Emissions (pounds per day)[1]				
	ROG	NO_x	CO	PM_{10}	$PM_{2.5}$
Exceed screening threshold?	No	No	No	No	No

Notes:
Operational Emissions include cars and trucks from project operations on-site and off-site within 0.25-mile of the site boundary.
Highest of Winter and Summer Operational Emissions, based on 100 F Summer Days and 45 F Winter Days.
NO_X = nitrogen oxides
PM_{10} = particulate matter less than 10 microns in diameter
$PM_{2.5}$ = particulate matter less than 2.5 microns in diameter
ROG = reactive organic gases
Source of Emissions: CalEEMod Output (Appendix A).
Source of Thresholds: San Joaquin Valley Air Pollution Control District (SJVAPCD). 2015. Guidance for Assessing and Mitigating Air Quality Impacts. February 19.

The proposed project would not exceed SJVAPCD screening thresholds for requiring additional ambient air quality modeling.

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SECTION 6: GREENHOUSE GAS EMISSIONS ANALYSIS

An individual project cannot generate enough GHG emissions to effect a discernible change in global climate. However, the project participates in the potential for global climate change by its incremental contribution of GHGs combined with the cumulative increase of all other sources of GHGs, which when taken together constitute potential influences on global climate change.

6.1 - CEQA Guidelines

The CEQA Guidelines define a significant effect on the environment as "a substantial, or potentially substantial, adverse change in the environment." To determine whether a project would have a significant impact on GHGs, the type, level, and impact of emissions generated by the project must be evaluated.

The following GHG significance thresholds are contained in Appendix G of the CEQA Guidelines, which were amendments adopted into the Guidelines on March 18, 2010, pursuant to SB 97. A significant impact would occur if the project 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 of an agency adopted for the purpose of reducing the emissions of GHGs.

6.2 - Thresholds of Significance

The Kern County CEQA Implementation Document and Kern County Environmental Checklist identify the following criteria, as established in *CEQA Guidelines* Appendix G, to determine whether a project could potentially have a significant adverse effect on GHGs.

A project would have a significant impact on GHGs if it would:

a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; or

b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

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.

Section 15064.4(b) of the CEQA Guidelines' 2018 amendments for GHG emissions states that a lead agency may take into account the following three considerations in assessing the significance of impacts from GHG emissions.

- **Consideration No. 1**: The extent to which the project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting.
- **Consideration No. 2**: Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project.
- **Consideration No. 3**: The extent to which the project complies with regulations or requirements adopted to implement a Statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions. Such regulations or requirements must be adopted by the relevant public agency through a public review process and must include specific requirements that reduce or mitigate the project's incremental contribution of greenhouse gas emissions. If there is substantial evidence that the possible effects of a particular project are still cumulatively considerable notwithstanding compliance with the adopted regulations or requirements, an EIR must be prepared for the project. In determining the significance of impacts, the lead agency may consider a project's consistency with the State's long-term climate goals or strategies, provided that substantial evidence supports the agency's analysis of how those goals or strategies address the project's incremental contribution to climate change and its conclusion that the project's incremental contribution is not cumulatively considerable.

A quantitative analysis was prepared for this project to determine the extent to which it may increase or reduce GHG emissions as compared to the existing environmental setting to fulfill Consideration 1; however, this analysis was completed for informational purposes only.

Regarding Consideration 2, the SJVAPCD implemented a tiered approach to determining significance with respect to GHG emissions; however, in light of *Center for Biological Diversity v. California Department of Fish and Wildlife* and SB 32, the quantitative threshold presented in their CAP is no longer appropriate for determining significance of project-related GHG emissions Moreover, the SJVAPCD BAU thresholds of 29 percent were developed for consistency with AB32 2020 target reductions, which is a past goal. The district has not developed new inventories or targets for reductions aligned with 2030 SB32 GHG reductions, or beyond. Therefore, use of the SJVAPCD thresholds under consideration 2 are not applied to this project.

Consideration 3 described above, the analysis prepared for the project is based on a qualitative evaluation of the project's consistency with State and local regulations and policies adopted to for the reduction and/or mitigation of greenhouse gas emissions. Kern County has not developed a quantified threshold of significance for GHG emissions, but a project found to contribute to a net decrease in GHG emissions and found to be consistent with the adopted implementation of the ARB Climate Change Scoping Plan and progress toward 2030 goals is presumed to have less-than-significant GHG impacts. This includes qualitative assessments of compliance of ARB applicable regulations as well as the 2017 Scoping Plan and the 2022 Scoping Plan.

Analysis Implementation of the proposed project would contribute to global climate change through direct emissions of GHG from on-site area sources and vehicle trips generated by the proposed project, and indirectly through off-site energy production required for on-site activities, water use, and waste disposal. Three GHGs associated with the proposed project would be CO_2, CH_4, and N_2O,

and would be emitted from on-road vehicles and nonroad equipment during construction and from vehicles used during routine operational activities. The estimated GHG emissions from construction and operational activities associated with the project are shown in Table 21 and Table 22.

GHG Emissions From the Proposed Project

Table 21 and Table 22 present the proposed project's GHG emissions, as predicted using CalEEMod. These emissions are provided to show (1) the magnitude of the proposed project's GHG emissions relative to overall local and regional levels, and (2) the breakdown of emissions from the project by category (e.g., mobile, stationary source, building electrical energy, building natural gas etc.). The results were obtained using CalEEMod default values for various sectors and do not capture nuanced emission reductions improvements in energy efficiency beyond the Title 24 2022 standards since these are not included in the CalEEMod emission model. Moreover, many assumptions used in the modeling such as the operational testing hours for the air conditioning and heating requirements for the warehouse are also extremely conservative and likely to overestimate the greenhouse gas burden of the proposed project. Modeling for transportation and VMT for calculation of CO_2e were based on the proposed project's unmitigated emissions using CalEEMod defaults. It is important to note that because there are no GHG emission thresholds to compare the project's CalEEMod emission numbers against, Table 19 and 20 are provided for informational purposes only.

Construction Emissions

Total GHG emissions generated during all phases of construction were combined and are presented in Table 21. The SJVAPCD does not recommend assessing the significance of construction-related emissions. However, other jurisdictions, such as the South Coast Air Quality Management District (SCAQMD) and the Sacramento Metro Air Quality Management District, have concluded that construction emissions should be included since they may remain in the atmosphere for years after construction is complete. The total emissions generated from construction were therefore amortized over the life of the development (30 years) and this annualized value was added to the operational emissions.

Table 21: Construction Greenhouse Gas Emissions

Construction Year	Total MT CO_2e per year
2024 + 2025	2,346
Amortized over 30 years	78
Notes: Because of rounding, total MT CO_2e may be marginally different from CalEEMod output. MT CO_2e = metric tons of carbon dioxide equivalents Source: CalEEMod output (Appendix A).	

Operational Emissions

Operational or long-term emissions occur over the life of the project. Sources of emissions may include motor vehicles and trucks, energy usage, water usage, waste generation and emissions from area sources, such as landscaping activities.

Full assumptions and model outputs are provided in Appendix A and results of this analysis for 2026 (the first full year of proposed project operations) are presented in Table 22.

Table 22: Unmitigated Project Operational Greenhouse Gases 2026

Source	Emissions (MT CO_2e per year)	
	2026	% of Total
Area (Landscaping)	10	< 0.5%
Energy–Electrical	400	3%
Mobile–Trucks	6997	49%
Mobile–Cars[1]	6335	44%
Solid Waste	185	1%
Water/Wastewater	227	2%
Stationary	–	–
Amortized Construction Emissions	78	1%
Total	14,232	100

Notes:
MT CO_2e = metric tons of carbon dioxide equivalent

[1] Modeling for transportation and VMT for calculation of CO_2e were based on the proposed project's unmitigated emissions using CalEEMod defaults.

Source of 2026 Emissions: CalEEMod output (Appendix A).

Reported operational emissions are considered to represent unmitigated project conditions. Many project design features such as those related to water efficient landscape ordinances, updated 2022 Energy and 2022 CALGreen Standards would reduce GHG emissions to levels below the estimates in CalEEMod, as quantitative inputs for these updated operational assumptions are not included within its database yet. Other reductions not accounted for in the baseline emissions include the on-site production of electricity via rooftop solar.

It should be noted that inclusion of mitigation measure MM GHG-1 as an emission reduction measure for ZEV material handling equipment in the model predicted no emissions for forklifts. The project's reduction of GHG emissions from this sector is ahead of any State or local regulatory mandate and would be considered a reduction from BAU in a quantitative greenhouse analysis. A warehouse of 629,000 square feet could have, on average, 0.12 pallet jacks or forklifts per 1,000 square feet of building area, 75 forklifts in operation[33] (each utilizing one 8-gallon LPG tank per day, 250 working days per year for an estimated emissions impact of 11.5 MT per year CO_2 per forklift). The project's commitment to ZEV forklifts, therefore, represents an emission reduction of approximately 860 MT CO_2e per year.

[33] South Coast Air Quality Management District (SCAQMD). 2014. High-Cube Warehouse Truck Trip Rate Study for Air Quality Analysis. Website: https://www.aqmd.gov/home/rules-compliance/ceqa/air-quality-analysis-handbook/high-cube-warehouse. Accessed November 14, 2023.

Project Mobile Emissions Compared to RTP/SCS Goals

As explained in Section 2.3, the California ARB set targets for Kern COG'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.

According to the project's traffic study, the proposed project area VMT per employee is 26.23 compared to the VMT threshold of 19.80 (15 percent reduction from existing County average VMT of 23.29). Although the proposed project would be required to implement Transportation Demand Management (TDM) program to reduce VMT, it is unclear whether the TDM program would reduce project VMT by 6.43 VMT per employee to below 19.80 VMT per capita. Therefore, the proposed project would not be consistent with the VMT reduction targets set forth in the Kern COG RTP/SCS.

Furthermore, the RTP/SCS set forth CO_2 emission reduction targets that are based on the SB 375 VMT targets. Because the proposed project would not meet the VMT target in the RTP/SCS, the proposed project's mobile emissions would also exceed the CO_2 emissions in the RTP/SCS.

Future Operational Emissions Based on Project Regulatory Compliance and Proposed Mitigation Measures

Since the emissions from the project are primarily from off-site mobile source emissions and indirect electricity emissions, emissions would continue to decline rapidly for future buildout years based on currently applicable regulations and mitigation measures adopted by the project. CEQA requires all feasible mitigation measures, and the project is doing its fair share to contribute to GHG emission reductions with measures that have immediate impacts (such as building decarbonization). However, other commitments and regulations (such as the conversion to ZEV trucks and implementation of the advanced clean fleets) are on future timelines based on technical feasibility and as such the project is aligned with the states 2030 and 2045 greenhouse goals. ARB has carefully considered technology availability and infrastructure, in relationship to truck travel and fleet usage in its development of the Advanced Clean Fleet Regulation. Elements of the projects such as ZEV infrastructure for cars and trucks, would support the implementation of these regulations and are consistent with State GHG reduction policies.

Emissions of indirect GHG from the facility operation itself as indirect emissions related to solid waste and water, would also continue to decline as the State moves toward and achieves its RPS goal of 100 percent by 2045. PG&E, the local electricity is already ahead of schedule with its RPS goals and 70 percent of its power was renewable and 94 percent was carbon free in 2021. Solar produced on-site by the warehouse was not quantified in CalEEMod since the exact quantity of the PV produced on-site is not yet known and these amounts are not represented in this analysis.

Finally, emissions from direct area sources (landscaping emissions) may be mitigated via use of electric landscaping equipment and recently promulgated SORE Regulations address the electrification of this equipment. The 2021 SORE amendments[34] require the sale of electric landscaping equipment starting in 2023. It is assumed that by 2030 the facility would be utilizing 100 percent electric landscaping equipment.

[34] California Air Resources Board (ARB). 2021 Amendments to the Small Off-Road Engine Regulations. Website: https://ww2.arb.ca.gov/sites/default/files/2023-05/2021%20Amendments%20Fact%20Sheet%20-%20English_0.pdf. Accessed November 14, 2023.

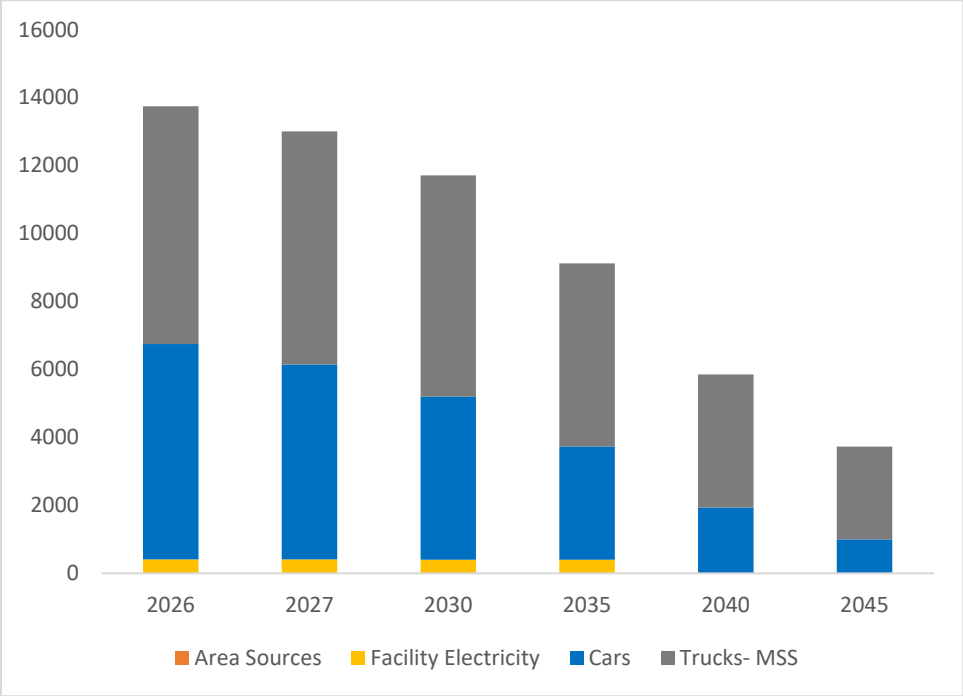

Figure 2: GHG Trends (MT CO_2e) based on Promulgated Regulations and Mobile Source Strategy for San Joaquin Valley On-road Heavy-Duty Trucks

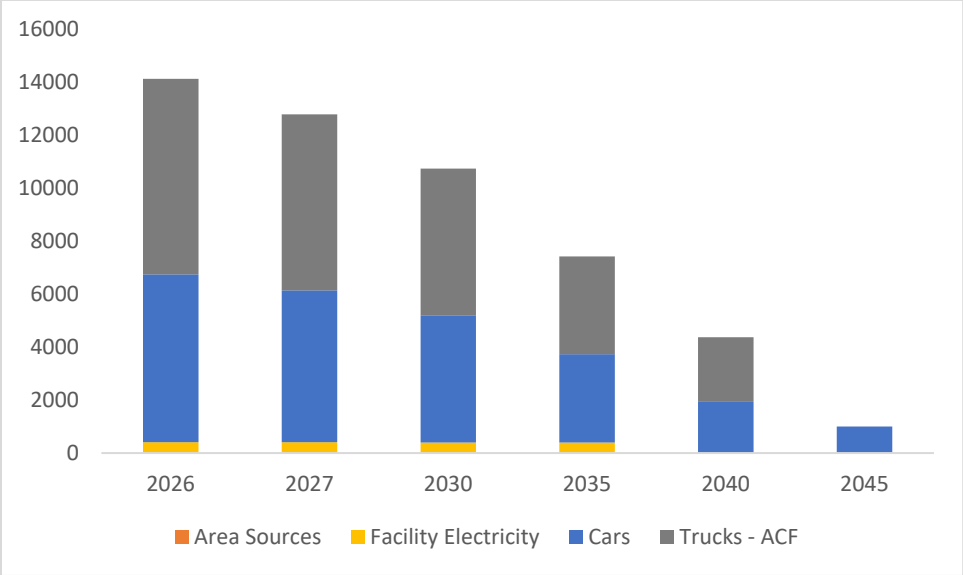

Figure 3: GHG Trends (MT CO_2e) based on Promulgated Regulations and Advanced Clean Fleet Regulation for Day Cab Tractor Trailer Trucks

Best Management Practices for Warehouses

There are several resources outlining BMPs for warehouses, including the California Office of the Attorney Generals Guidance for Best Practices to comply with CEQA[35] and the ARB Concept Paper for the Freight Handbook.[36] Both guidance documents provide suggestions for mitigation measures, commitments to investments in zero-emission infrastructure at the project design stage; deployment of zero-emission technologies, and the incorporation of contractual language requiring tenants to utilize zero-emission technologies to the maximum extent possible.

Design features and best management strategies, to minimize and reduce GHG from the project include:

- Provisions for all ZEV material handling equipment (e.g., forklifts and pallet jacks).
- Restrictions to dry storage, with provisions for BMPs and mitigation measures should a future tenant utilize cold storage.
- Use of compliant low GWP refrigerants.
- Rooftop Solar Photovoltaic system with Battery Storage (Title 24 Part 6 Section 140.10(a)).
- Heat pump for space Conditioning in Single-Zoned Office Spaces (Title 24 Part 6 Section 140.4(a).2.).
- Electrical Infrastructure to support ZEV Material Handling equipment.
- Electrical Infrastructure ready to support future ZEV MHDT and HHDT. (California Building Standards Code [CBC] 5.106.5.4.1 Electric vehicle charging readiness requirements for warehouses with planned off-street loading spaces).
- Water Efficient Landscaping.
- Low-flow water fixtures.
- Energy Efficient LED Lighting.

Conclusion

Table 19 and 20 provide an estimate of construction and operation GHG emissions. As discussed above, it was determined 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.

Consistency with Local GHG Reduction Plans

There are none.

[35] California Office of the Attorney General. 2022. Warehouse Projects: Best Practices and Mitigation Measures to Comply with the California Environmental Quality Act. Website: https://oag.ca.gov/system/files/media/warehouse-best-practices.pdf. Accessed November 14, 2023.

[36] California Air Resources Board (ARB). 2020. California Sustainable Freight Initiative: Concept Paper for the Freight Handbook. Website: https://ww2.arb.ca.gov/resources/documents/concept-paper-freight-handbook. Accessed November 14, 2023.

Consistency with Regional GHG Reduction Plans

As explained in Section 2.3, the California ARB set targets for Kern COG'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.

According to the project's Final Traffic Study dated February 2024, the proposed project would have a project area VMT of 26.23 per employee, and would exceed the threshold of 19.80 VMT which represents a 15 percent reduction from the County Average 23.29 VMT. Although the proposed project would be required to implement a TDM program to reduce VMT, it is unclear whether the TDM program would reduce project VMT by 6.43 VMT per employee to below 19.80 VMT per capita. Therefore, the proposed project would not be consistent with the VMT reduction targets set forth in the Kern COG RTP/SCS

Consistency with 2017 and 2022 Scoping Plans

A project comparison for consistency with measures for the 2017 and 2022 Scoping Plan updates addresses alignment with the State's planning goals and milestones under SB 32 and AB 1279, respectively.

An evaluation of the project's consistency with the Scoping Plan serves as a roadmap for evaluating a project's current design, and to determine whether it complies with current policies and is in compliance with planned reduction measures for greenhouse gas emissions. The comparison of a project design to Scoping Plan proposals is not by itself a metric for determining project-level significance, but a step in showing how the project supports current regulations and is aligned with future GHG reduction strategies in development stages. The proposed project would comply with all regulations adopted in furtherance of the Scoping Plan to the extent required by law and to the extent that they are applicable to the proposed project.

Table 23 and Table 24 summarize the measures included 2017 and 2022 Scoping Plans, respectively, and analyzes project consistency compared to these elements.

Table 23: Proposed Project Consistency with 2017 Scoping Plan Greenhouse Gas Emission Reduction Strategies

Scoping Plan Measure	Project Consistency
SB 350 50 percent Renewable Mandate. Utilities subject to the legislation will be required to increase their renewable energy mix from 33 percent in 2020 to 50 percent in 2030.	**Not applicable.** This measure would apply to utilities and not to individual development projects. The proposed project would purchase electricity from a utility subject to the SB 350 Renewable Mandate and the RPS requirements. SB 100 has increased the 2030 RPS standards to 60 percent by 2030, superseding the increase required by SB 350.
SB 350 Double Building Energy Efficiency by 2030. This is equivalent to a 20 percent reduction from 2014 building energy usage compared to current projected 2030 levels.	**Not applicable**. This measure applies to existing buildings. New structures are required to comply with Title 24 Energy Efficiency Standards that are expected to increase in stringency over time. The proposed project would comply with the applicable Title 24

Scoping Plan Measure	Project Consistency
	Energy Efficiency Standards in effect at the time building permits are received.
Low Carbon Fuel Standard. This measure requires fuel providers to meet an 18 percent reduction in carbon content by 2030.	**Not applicable.** This is a Statewide measure that cannot be implemented by a project applicant or lead agency. However, vehicles accessing the project site would benefit from the standards.
Mobile Source Strategy (Cleaner Technology and Fuels Scenario). Vehicle manufacturers will be required to meet existing regulations mandated by the LEV III and Heavy-Duty Vehicle programs. The strategy includes a goal of having 4.2 million ZEVs on the road by 2030 and increasing numbers of ZEV trucks and buses.	**Consistent**. The proposed project is industrial in nature and would support truck and freight operations. It is expected that deliveries throughout the State would be made with an increasing number of ZEV delivery trucks, including trips that would be coming to and from the project site. The proposed project would not inhibit the Mobile Source Strategy as the proposed project would include infrastructure for EV charging stations, into a minimum of 20 percent of all vehicle parking spaces (including parking for trucks), consistent with the applicable California Green Building Standards Code Tier 1 Nonresidential Mandatory Measure.
Sustainable Freight Action Plan. The plan's target is to improve freight system efficiency 25 percent by increasing the value of goods and services produced from the freight sector, relative to the amount of carbon that it produces by 2030. This would be achieved by deploying over 100,000 freight vehicles and equipment capable of zero-emission operation and maximize near-zero-emission freight vehicles and equipment powered by renewable energy by 2030.	**Consistent with mitigation.** This measure applies to owners and operators of trucks and freight operations. The proposed project is industrial in nature and would support truck and freight operations. The proposed project would include infrastructure for EV charging stations, including for trucks, into a minimum of 20 percent of all vehicle parking spaces (including parking for trucks), consistent with the applicable California Green Building Standards Code Tier 1 Nonresidential Mandatory Measure. Additionally, MMs GHG-1a would require that all on-site off-road equipment be all electric. Therefore, the proposed project would support the sustainable Freight Action Plan by providing EV charging infrastructure and zero-emission support equipment.
Short-Lived Climate Pollutant (SLCP) Reduction Strategy. The strategy requires the reduction of SLCPs by 40 percent from 2013 levels by 2030 and the reduction of black carbon by 50 percent from 2013 levels by 2030.	**Consistent.** The proposed project would not include major sources of black carbon. This measure revolves around ARB's SLCP Reduction Strategy that was released in April 2016 as a result of SB 650. SB 650 required the State to develop a strategy to reduce emissions of SLCPs. DPM reductions have come from strong efforts to reduce on-road vehicle emissions. Car and truck engines used to be the largest sources of anthropogenic black carbon emissions in California, but the State's existing air quality policies would virtually eliminate black carbon emissions from on-road diesel engines within 10 years. These policies are based on existing technologies.

Scoping Plan Measure	Project Consistency
SB 375 Sustainable Communities Strategies. Requires Regional Transportation Plans to include a Sustainable Communities Strategy for reduction of per capita vehicle miles traveled.	**Not applicable.** The proposed project does not include the development of a Regional Transportation Plan (RTP).
Post-2020 Cap-and-Trade Program. The Post 2020 Cap-and-Trade Program continues the existing program for another 10 years. The Cap-and-Trade Program applies to large industrial sources such as power plants, refineries, and cement manufacturers.	**Not applicable.** The proposed project is not one targeted by the cap-and-trade system regulations, and, therefore, this measure does not apply to the project. However, the post-2020 Cap-and-Trade Program indirectly affects people and entities who use the products and services produced by the regulated industrial sources when increased cost of products or services (such as electricity and fuel) are transferred to the consumers.
Natural and Working Lands Action Plan. The ARB is working in coordination with several other agencies at the federal, State, and local levels, stakeholders, and with the public, to develop measures as outlined in the Scoping Plan Update and the Governor's Executive Order B-30-15 to reduce GHG emissions and to cultivate net carbon sequestration potential for California's natural and working land.	**Not applicable**. California's natural and working land includes cropland. Although the proposed project would convert existing agricultural uses to industrial use, it would not conflict with the ARB's Natural and Working Lands Action Plan, which, among other initiatives, aims to permanently protect croplands through acquisition.[1,2] Because the project site is private land, it is not part of the Action Plan initiatives and the proposed project would not conflict with the Action Plan.

Source: California Air Resources Board (ARB). 2017. California's 2017 Climate Change Scoping Plan. November.

[1] California Air Resources Board (ARB). January 2019 Draft California 2023 Natural and Working Lands Climate Change Implementation Plan. Website: https://ww2.arb.ca.gov/sites/default/files/2019-06/draft-nwl-ip-040419.pdf. Accessed November 14, 2023.

[2] California Climate Investments. Cap and Trade Dollars at Work. Website: https://www.caclimateinvestments.ca.gov/. Accessed November 14, 2023.

Table 24: Proposed Project Consistency with 2022 Scoping Plan Greenhouse Gas Emission Reduction Strategies

Scoring Plan Measure	Project Consistency
Light-Duty Vehicles: Smart Growth/Reduce Vehicle Miles Traveled. VMT per capita reduced 25 percent below 2019 levels by 2030, and 30 percent below 2019 levels by 2045.	**Inconsistent.** As explained above, the project VMT would exceed the VMT per capita target set for Kern COG and reflected in the RTP/SCS. Therefore, the proposed project would not be consistent with this measure related to reducing VMT per capita.
Deploy ZEVs. Medium-Heavy and Heavy Heavy-Duty Trucks. This measure is supported by Executive Order N79-20 and plans in the AB 74 ITS Report: 100 percent of MD/HDV sales are ZEV by 2040.	**Consistent.** Medium-heavy and heavy heavy-duty trucks would be compliant with truck Fuel Economy Standards: California Phase II GHG Standards. Infrastructure for the proposed project would be designed to support this transition to ZEV as per CALGreen Building Code Standards. Priority Fleets utilizing the facility that are subject to the Advanced Clean Fleet Rule and meet ZEV fleet conversion

Scoring Plan Measure	Project Consistency
	milestones as specified by ARB. Fleets not covered under the Advanced Clean Fleet Rule would convert to ZEV trucks as truck manufacturers implement the Advanced Clean Truck Regulation. The Scoping Plan does not rely upon on VMT reductions from the freight and truck transportation sector.
Decarbonize buildings. All electric appliances beginning 2026 (residential) and 2029 (commercial), contributing to 6 million heat pumps installed Statewide by 2030.	**Consistent.** The proposed project would not utilize natural gas and support the States Building decarbonization initiatives.
Low Carbon Fuels for Transportation. Biomass supply is used to produce conventional and advanced biofuels, as well as hydrogen.	**Consistent.** Off-road construction equipment would utilize renewable diesel in compliance with the In-Use Off-Road rule. On-road diesel trucks would also utilize these fuels consistent with the Low Carbon Fuel Standard (LCFS). The proposed project would provide infrastructure for ZEV trucks and passenger vehicles for up to 20 percent of all vehicle parking spaces (including parking for trucks), consistent with the applicable California Green Building Standards Code Tier 1 Nonresidential Mandatory Measure. Therefore, the proposed project would support the sustainable Freight Action Plan by providing EV charging infrastructure and zero-emission support equipment.
Low Carbon Fuels for Fuels for Buildings and Industry. In 2030s renewable natural gas (RNG) blended in pipeline, ramping up to 2040. Dedicated hydrogen pipelines constructed to serve certain industrial clusters.	**Not applicable.** The proposed project would not utilize natural gas for building use.
Coordinate supply of liquid fossil fuels with declining CA fuel demand. Phaseout oil and gas extraction operations by 2045. Carbon Capture and Sequestration (CCS) on majority of petroleum refining operations by 2030. Interim goals are to reduce petroleum production reduced in line with its demand.	**Not applicable.** The proposed project is not related to the petroleum industry.
Generate clean electricity. Electric sector GHG target of 38 $MMTCO_2e$ in 2030 and 31 $MMTCO_2e$ in 2045. This GHG target is determined to meet the loads associated with the scenario and corresponds to meeting the 2021 SB 100 Joint Agency Report's 100 percent of retail sales with eligible renewable and zero-carbon resources definition.	**Not applicable**. The proposed project would benefit indirectly from these goals; however, there are no actions related to the project itself.
Decarbonize industrial energy supply. Electrification goals by industry sector specific to Food Industry,	**Consistent.** Construction equipment used for the proposed project would comply with ARB off-road

Scoring Plan Measure	Project Consistency
Agriculture, and Chemical and Allied Products and Pulp and Paper Industry for milestone years 2030 and 2045. Other Industrial Manufacturing: 0 percent energy electrified by 2030 and 50 percent by 2045. Construction Equipment: 25 percent energy demand electrified by 2030 and 75 percent by 2045. Retire all combined heat and power facilities by 2040.	regulations meeting milestones for electrification as required by regulations as promulgated. Starting in 2024, amendments to the off-road In-Use Diesel Rule require use of renewable diesel consistent with the 2022 Scoping Plan and implementing the LCFS.
Reduce non-combustion emissions. This involves two strategies targeting methane and HFCs. • Increase capture of methane and from landfill and dairy digester and from the oil and gas infrastructure components. • Introduction of low GWP refrigerants introduced as building electrification increases mitigating HFC emissions.	**Consistent.** The proposed project would use low GWP refrigerants consistent with current California SNAP regulations.
Compensate for remaining emissions. This measure uses Carbon Dioxide Removal to compensate for remaining emissions.	**Not applicable.** This measure relates to remaining emissions and is not applicable at the individual project level.
Source: California Air Resources Board (ARB). 2022. Scoping Plan for Achieving Carbon Neutrality. November.	

As shown in Table 23 and Table 24 above, the proposed project is consistent with most of the applicable measures in the 2017 Scoping Plan and the 2022 Scoping Plan Update. However, the proposed project would not achieve the VMT reduction as described in the 2017 Scoping Plan and therefore is not consistent with the Scoping Plan in this regard. Therefore, the proposed project would not align with the State's planning goals and milestones under SB 32 and AB 1279.

SECTION 7: ENERGY ANALYSIS

7.1 - CEQA Guidelines

CEQA Guidelines define a significant effect on the environment as "a substantial, or potentially substantial, adverse change in the environment." To determine whether a project would have a significant impact on Energy, the type, level, and impact of emissions generated by the project must be evaluated by the lead agency.

The following significance thresholds are contained in Appendix G of the CEQA Guidelines, which includes amendments that were amendments adopted into the Guidelines on March 18, 2010, pursuant to SB 97. In addition, the Kern County CEQA Implementation Document and Kern County Environmental Checklist identify, per *CEQA Guidelines* Appendix G, a project would have a significant impact on energy and energy resources if it would:

- Result in potentially significant environmental impact due to 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.

7.2 - Analysis

Project Energy Consumption A discussion of the proposed project's anticipated energy usage is presented below. Energy use consumed by the proposed project was estimated and includes natural gas, electricity, and fuel consumption for project construction and operation. Energy calculations are included as part of Appendix C.

Construction

The project construction schedule was assumed to begin in July 2025 and conclude in October 2025. If the construction schedule moves to later years, construction emissions would likely decrease because of improvements in technology and more stringent regulatory requirements as older, less efficient equipment is replaced by newer and cleaner equipment. The proposed project would require demolition, site preparation, grading, building construction, architectural coating, and paving. The construction phase would require energy for the manufacture and transportation of building materials, preparation of the site (e.g., demolition, site clearing, and grading), and the actual construction of the building. Petroleum-based fuels such as diesel fuel and gasoline would be the primary sources of energy for these tasks.

The types of on-site equipment used during construction of the proposed project could include gasoline- and diesel-powered construction and transportation equipment, including trucks, graders, tractors, and cranes. Main site construction equipment is estimated to consume a total of 109,276 gallons of diesel fuel over the entire construction duration (Appendix C).

Fuel use associated with construction vehicle trips generated by the proposed project was also estimated; trips include construction worker trips, haul truck trips for material transport, and vendor trips for construction material deliveries. Fuel use from these vehicles traveling to the project site was based on (1) the projected number of trips the proposed project would generate during construction, (2) average trip distances by trip type, and (3) fuel efficiencies estimated in the ARB EMFAC mobile source emission model. The specific parameters used to estimate fuel usage are included in Appendix C. In total, the proposed project is estimated to generate 1,926,189 VMT and 136,478 gallons of combined gasoline and diesel for vehicle travel during construction.

The overall construction schedule and process is already designed to be efficient in order to avoid excess monetary costs. For example, equipment and fuel are not typically used wastefully due to the added expense associated with renting the equipment, maintaining it, and fueling it. Therefore, the opportunities for future efficiency gains during construction are limited. Therefore, it is anticipated that the construction phase of the proposed project would not result in wasteful, inefficient, and unnecessary consumption of energy.

Operation

The proposed project would consume energy as part of building operations and transportation activities. Project energy consumption is summarized in Table 25.

Table 25: Estimated Annual Project Energy Consumption in 2026

Energy Consumption Activity	Annual Consumption
Electricity Consumption	9,009,866 kWh
Building Natural Gas Consumption	0 kBTU
Operational Fuel Consumption-Natural Gas	7,616 gallons
Operational Fuel Consumption-Gasoline	723,186 gallons
Operational Fuel Consumption–Diesel	696,061 gallons
Operational Fuel Consumption–Electricity	436,088 kWh
Notes: kWh = kilowatt-hour kBTU = kilo-British Thermal Unit VMT = Vehicle Miles Traveled Source: Appendix C.	

Operation of the proposed warehouse would consume an estimated 9,009,866 of electricity on an annual basis. Natural gas would not be utilized as a building fuel. The proposed project's building would be designed and constructed in accordance with the latest adopted energy efficiency standards, which are based on the State's Building Energy Efficiency Standards. These are widely regarded as the most advanced building energy efficiency standards and compliance would ensure that building energy consumption would not be wasteful, inefficient, or unnecessary.

Project-related vehicle trips would consume an estimated 1,419,278 gallons of gasoline and diesel annually and would involve activities and travel routes typical of a warehouse-type project. ZEV passenger vehicles represent approximately 5 percent of the light-duty passenger vehicle fleet based on EMFAC 2021 projection for 2026 and electricity consumption associated with this for the proposed project was estimated as 436,088 kWh for 2026.

Thes fossil fuels consumed by the project annually would decrease and shift to electricity consumption as the on-road passenger vehicle and heavy- duty truck fleets shifts from gasoline and diesel to zero-emission electric vehicles. The ARB Mobile Source Strategy Vision Model[37] predicts on-road populations of 14 percent ZEV light-duty vehicles by 2026, 28 percent by 2030 and 50 percent by 2035. The ARB heavy-duty on-road META tool calculates MS projections for the on-road population of ZEV class 8 heavy-duty trucks in San Joaquin Valley which are projected as 2 percent of the HHDT population in 2026, 7 percent in 2030, 23 percent in 2035, and 61 percent by 2045.[38] Class-8 day cab tractor trailer trucks used in priority fleets following the ARB Advanced Clean Fleet Rule and following the Group 2 Milestone Option[39] will be 50 percent ZEV by 2035 and 100 percent ZEV by 2045. Table 26 shows the estimated annual energy consumption in 2030 and 2045.

Table 26: Estimated Annual Project Energy Consumption in 2026, 2030, and 2045

Energy Consumption	2026	2030	2045	Percent Increase/Decrease between 2026 and 2045
Gasoline (gallons)	723,186	515,768	107,452	- 85.1 percent
Diesel (gallons)	696,061	314,977	136,490	- 80.4 percent
Natural Gas (gallons)	7,616	376,714	163,243	2,043 percent
Electricity (kw-hr)	436,088	2,963,716	11,453,493	2,526 percent
Notes: Based on Statewide estimates for light-duty ZEVs and San Joaquin Valley Heavy-Duty Vehicle ZEVs based on 2020 Mobile Source Strategy (MSS) Estimates.				

Energy Plan Consistency Analysis

The proposed project would be served with electricity provided by PG&E. In 2021, PG&E obtained 47.7 percent of its electricity from renewable energy sources.[40] PG&E also offers a 50 percent and 100 percent solar choice that source 70.9 and 93.9 percent of its power mix from eligible renewable energy sources respectively, as well as a Green Saver option that sources 89.9 percent of its power mix from eligible renewable energy sources.[41] The utility would be required to meet the future

[37] California Air Resources Board (ARB). 2023. 2020 Mobile Source Strategy. Website: https://ww2.arb.ca.gov/resources/documents/2020-mobile-source-strategy. Accessed November 14, 2023.
[38] California Air Resources Board (ARB). 2023. 2020 Mobile Source Strategy, On-Road Heavy Duty Tool. Website: https://arb.ca.gov/emfac/meta/on-road-hdv. Accessed November 14, 2023.
[39] California Air Resources Board (ARB). 2022. Final Regulation Order: High Priority and Federal Fleet Requirements. Website: https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/acf22/ac/acffro21.pdf. Accessed November 14, 2023.
[40] California Energy Commission (CEC). 2023. Annual Power Content Labels for 2021. Website: https://www.energy.ca.gov/programs-and-topics/programs/power-source-disclosure/power-content-label/annual-power-content-2. Accessed November 14, 2023.
[41] Ibid.

objective of 60 percent of electricity from renewable energy sources by 2030. The proposed warehouse building would be designed in accordance with Title 24, California's Energy Efficiency Standards for Nonresidential Buildings. These standards include minimum energy efficiency requirements related to building envelope, mechanical systems (e.g., heating, ventilation, and air conditioning [HVAC] and water heating systems), and indoor and outdoor lighting. The incorporation of the Title 24 standards into the design of the proposed project would ensure that the proposed project would not result in the use of energy in a wasteful manner.

The proposed project would comply with existing State energy standards and with energy conservation policies contained in the General Plan. As such, the proposed project would not conflict with State or local renewable or energy efficiency objectives.

Appendix A: CalEEMod Output

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Appendix A: CalEEMod Output

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Westside Industrial Project
Site Preparation Asphalt Removal Calculations

Description	Size	Unit	In Place Compacted Density (ton/CY)	Debris Weight (tons)	C&D Density (tons/CY)	Haul Volume (CY)
Off-Site Pavement[2]	64,445	SF	1.89	2255.6	0.43	5,246

Assume 6 inch of pavement and gravel removed

In-Place Density	lb/ft3	ton/CY
cement	140	1.89

CalRecycle Construction & Demolition (C&D) Density[3]

Concrete	860	lb/CY
	0.43	ton/CY

Notes:
cy = cubic yard
sf = square feet
ft3 = cubic feet

[1] Source: Applicant information

[2] Source: DC Construction Services. 2017. How Thick Is Parking Lot Asphalt? Website: https://dccpaving.com/how-thick-is-parking-lot-asphalt/.

[3] Source: CalRecycle, 2015. 2014 Disposal-Facility-Based Characterization of Solid Waste in California.

Westside Industrial Project
On-Site Paving Haul Trip Calculation

Paved Parking/Truck Yard (acres)	51.7
Paved Parking/Truck Yard (SF)	2,251,850
Asphalt volume (cubic feet) assume 6 inch pavement	1,125,951
Asphalt volume (cy)	41,702
Asphalt Density (ton/cy)	2.025
Asphalt weight (ton)	84,446
Capacity per vendor truck (ton per truck)	18
Asphalt Vendor Deliveries (# of trucks)	4691
Days in paving phase	50
Truck visits per day	94
One-Way Trips per day	**188**

Westside Industrial Project
Off-Site Roadway Paving Haul Trip Calculation

Off-Site Roadway Improvements (acres)	3.55	acres
Roadway Improvements (sf)	154,638	
Asphalt volume (cubic feet) assume 6 inch pa	77,319	
Asphalt volume (cy)	2,864	
Asphalt Density (ton/cy)	2.025	
Asphalt weight (ton)	5,799	
Capacity per vendor truck (ton per truck)	18	
Asphalt Vendor Deliveries (# of trucks)	322	
Days in paving phase	10	
Truck visits per day	32	
One-Way Trips per day	**64**	

Westside Industrial Project
Passenger Vehicle Fleet Mix Adjustments

Kern-San Joaquin
2026

	HHDT	LDA	LDT1	LDT2	LHDT1	LHDT2	MCY	MDV	MH	MHDT	OBUS	SBUS	UBUS	**Total**
Default Region Fleet %	3.7%	43.5%	3.7%	21.23414%	3.5%	1.1%	2.1%	19.0%	0.4%	1.6%	0.1%	0.2%	0.0%	**100.0%**

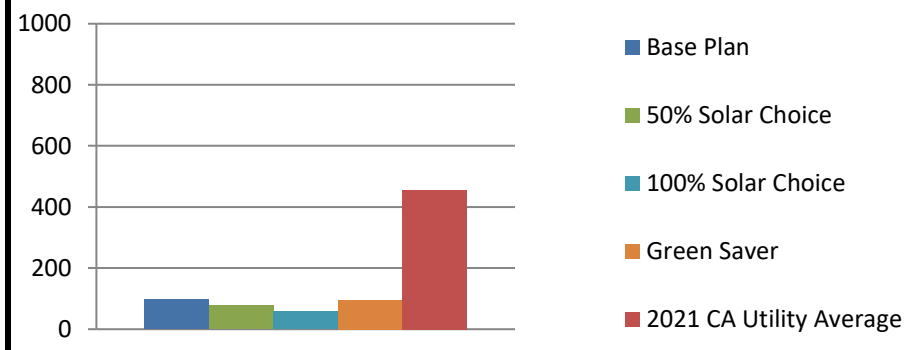
User Defined Industrial Land Use
CALEEMOD Adjustment

Passenger Cars Only	HHDT	LDA	LDT1	LDT2	LHDT1	LHDT2	MCY	MDV	MH	MHDT	OBUS	SBUS	UBUS	TOTAL
Default Light Duty Fleet Mix	0.00%	**49.8%**	**4.2%**	**24.3%**	0.0%	0.0%	0.0%	21.7%	0.0%	0.0%	0.00%	0.00%	0.00%	100%

2021 POWER CONTENT LABEL
Pacific Gas and Electric Company
www.pge.com/billinserts

Greenhouse Gas Emissions Intensity (lbs CO_2e/MWh)

Base Plan	50% Solar Choice	100% Solar Choice	Green Saver	2021 CA Utility Average
98	**78**	**58**	**95**	**456**



Energy Resources	Base Plan	50% Solar Choice	100% Solar Choice	Green Saver	2021 CA Power Mix
Eligible Renewable[1]	**47.7%**	**70.9%**	**93.9%**	**89.9%**	**33.6%**
Biomass & Biowaste	4.2%	2.1%	0.0%	0.0%	2.3%
Geothermal	5.2%	2.6%	0.0%	0.0%	4.8%
Eligible Hydroelectric	1.8%	0.9%	0.0%	0.0%	1.0%
Solar	25.7%	59.8%	93.9%	89.9%	14.2%
Wind	10.9%	5.5%	0.0%	0.0%	11.4%
Coal	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**3.0%**
Large Hydroelectric	**4.0%**	**2.0%**	**0.0%**	**0.0%**	**9.2%**
Natural Gas	**8.9%**	**7.4%**	**0.0%**	**0.0%**	**37.9%**
Nuclear	**39.3%**	**19.7%**	**0.0%**	**0.0%**	**9.3%**
Other	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.2%**
Unspecified Power[2]	**0.0%**	**0.0%**	**6.1%**	**10.1%**	**6.8%**
TOTAL	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
Percentage of Retail Sales Covered by Retired Unbundled RECs[3]**:**	**4%**	**0%**	**0%**	**0%**	

[1]The eligible renewable percentage above does not reflect RPS compliance, which is determined using a different methodology.

[2]Unspecified power is electricity that has been purchased through open market transactions and is not traceable to a specific generation source.

[3]Renewable energy credits (RECs) are tracking instruments issued for renewable generation. Unbundled renewable energy credits (RECs) represent renewable generation that was not delivered to serve retail sales. Unbundled RECs are not reflected in the power mix or GHG emissions intensities above.

For specific information about this electricity portfolio, contact:	**Pacific Gas and Electric Company** **1-800-743-5000**
For general information about the Power Content Label, visit:	http://www.energy.ca.gov/pcl/
For additional questions, please contact the California Energy Commission at:	Toll-free in California: 844-454-2906 Outside California: 916-653-0237

Westside Industrial Project - Construction Custom Report

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1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Westside Industrial Project - Construction
Construction Start Date	9/9/2024
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.70
Precipitation (days)	18.0
Location	35.234212, -119.037197
County	Kern-San Joaquin
City	Unincorporated
Air District	San Joaquin Valley APCD
Air Basin	San Joaquin Valley
TAZ	2891
EDFZ	5
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Southern California Gas
App Version	2022.1.1.20

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description

Unrefrigerated Warehouse-No Rail	629	1000sqft	42.0	654,269	1,259,504	0.00	—	Warehouse + Bldgs + Land (minus Parking)
Parking Lot	51.7	Acre	51.7	0.00	0.00	0.00	—	Parking and Paved Areas
Road Construction	0.83	Mile	5.54	0.00	0.00	—	—	—

2. Emissions Summary

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	33.4	28.1	266	268	0.52	11.5	87.0	98.5	10.6	16.9	27.4	—	57,271	57,271	2.32	0.94	24.4	57,491
2025	4.82	88.5	42.4	54.0	0.16	1.23	8.20	9.43	1.15	2.11	3.26	—	25,897	25,897	0.51	2.86	57.8	26,819
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	3.23	2.75	19.8	33.0	0.05	0.66	4.31	4.97	0.61	1.05	1.66	—	9,869	9,869	0.33	0.67	0.63	10,078
2025	3.03	88.5	26.7	31.5	0.11	0.68	4.31	4.89	0.65	1.11	1.76	—	16,056	16,056	0.22	2.20	0.93	16,718
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	3.43	2.89	26.0	29.3	0.05	1.08	7.16	8.24	0.99	1.81	2.80	—	6,797	6,797	0.25	0.23	3.01	6,875
2025	1.76	8.81	12.6	18.7	0.04	0.38	2.68	3.05	0.35	0.67	1.02	—	7,099	7,099	0.13	0.64	7.05	7,299
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.63	0.53	4.74	5.36	0.01	0.20	1.31	1.50	0.18	0.33	0.51	—	1,125	1,125	0.04	0.04	0.50	1,138
2025	0.32	1.61	2.30	3.41	0.01	0.07	0.49	0.56	0.06	0.12	0.19	—	1,175	1,175	0.02	0.11	1.17	1,208

3. Construction Emissions Details

3.1. Site Preparation (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	11.9	10.0	98.9	90.5	0.13	4.40	—	4.40	4.05	—	4.05	—	14,563	14,563	0.59	0.12	—	14,613
Dust From Material Movement	—	—	—	—	—	—	21.1	21.1	—	10.8	10.8	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.65	0.55	5.42	4.96	0.01	0.24	—	0.24	0.22	—	0.22	—	798	798	0.03	0.01	—	801
Dust From Material Movement	—	—	—	—	—	—	1.16	1.16	—	0.59	0.59	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.99	0.91	< 0.005	0.04	—	0.04	0.04	—	0.04	—	132	132	0.01	< 0.005	—	133

Dust From Material Movement	—	—	—	—	—	—	0.21	0.21	—	0.11	0.11	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.20	0.19	0.16	2.89	0.00	0.00	0.43	0.43	0.00	0.10	0.10	—	483	483	0.02	0.02	1.87	490
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.12	0.00	0.00	0.02	0.02	0.00	0.01	0.01	—	24.1	24.1	< 0.005	< 0.005	0.04	24.4
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.99	3.99	< 0.005	< 0.005	0.01	4.04
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.3. Grading (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	32.9	27.6	266	260	0.51	11.5	—	11.5	10.6	—	10.6	—	55,748	55,748	2.26	0.45	—	55,939
Dust From Material Movement	—	—	—	—	—	—	26.9	26.9	—	10.7	10.7	—	—	—	—	—	—	—
Onsite truck	0.01	< 0.005	0.20	0.06	< 0.005	< 0.005	58.9	58.9	< 0.005	5.88	5.88	—	145	145	< 0.005	0.02	0.34	152
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.80	1.51	14.6	14.3	0.03	0.63	—	0.63	0.58	—	0.58	—	3,055	3,055	0.12	0.02	—	3,065
Dust From Material Movement	—	—	—	—	—	—	1.48	1.48	—	0.59	0.59	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	3.07	3.07	< 0.005	0.31	0.31	—	7.93	7.93	< 0.005	< 0.005	0.01	8.32
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.33	0.28	2.66	2.60	0.01	0.11	—	0.11	0.11	—	0.11	—	506	506	0.02	< 0.005	—	507
Dust From Material Movement	—	—	—	—	—	—	0.27	0.27	—	0.11	0.11	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.56	0.56	< 0.005	0.06	0.06	—	1.31	1.31	< 0.005	< 0.005	< 0.005	1.38
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.58	0.53	0.46	8.25	0.00	0.00	1.22	1.22	0.00	0.29	0.29	—	1,379	1,379	0.06	0.05	5.35	1,400
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.03	0.34	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	68.8	68.8	< 0.005	< 0.005	0.13	69.8
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.06	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	11.4	11.4	< 0.005	< 0.005	0.02	11.6
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.5. Building Construction (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.74	1.46	13.7	16.0	0.03	0.61	—	0.61	0.56	—	0.56	—	2,959	2,959	0.12	0.02	—	2,969
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.74	1.46	13.7	16.0	0.03	0.61	—	0.61	0.56	—	0.56	—	2,959	2,959	0.12	0.02	—	2,969
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.44	0.37	3.43	4.01	0.01	0.15	—	0.15	0.14	—	0.14	—	741	741	0.03	0.01	—	744
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.07	0.63	0.73	< 0.005	0.03	—	0.03	0.03	—	0.03	—	123	123	< 0.005	< 0.005	—	123
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.59	1.46	1.26	22.7	0.00	0.00	3.36	3.36	0.00	0.79	0.79	—	3,790	3,790	0.15	0.13	14.7	3,847
Vendor	0.18	0.11	4.18	1.41	0.03	0.05	0.95	1.00	0.05	0.26	0.31	—	3,585	3,585	0.04	0.52	9.75	3,750
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.32	1.18	1.61	15.5	0.00	0.00	3.36	3.36	0.00	0.79	0.79	—	3,322	3,322	0.18	0.13	0.38	3,365
Vendor	0.17	0.10	4.47	1.43	0.03	0.05	0.95	1.00	0.05	0.26	0.31	—	3,588	3,588	0.04	0.52	0.25	3,744
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.34	0.30	0.37	4.22	0.00	0.00	0.83	0.83	0.00	0.19	0.19	—	865	865	0.04	0.03	1.59	877
Vendor	0.04	0.03	1.10	0.36	0.01	0.01	0.24	0.25	0.01	0.07	0.08	—	898	898	0.01	0.13	1.05	938
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.07	0.77	0.00	0.00	0.15	0.15	0.00	0.04	0.04	—	143	143	0.01	0.01	0.26	145
Vendor	0.01	< 0.005	0.20	0.07	< 0.005	< 0.005	0.04	0.05	< 0.005	0.01	0.01	—	149	149	< 0.005	0.02	0.17	155
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.7. Building Construction (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.63	1.37	12.7	15.9	0.03	0.52	—	0.52	0.48	—	0.48	—	2,959	2,959	0.12	0.02	—	2,969
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.63	1.37	12.7	15.9	0.03	0.52	—	0.52	0.48	—	0.48	—	2,959	2,959	0.12	0.02	—	2,969
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.81	0.68	6.35	7.94	0.01	0.26	—	0.26	0.24	—	0.24	—	1,477	1,477	0.06	0.01	—	1,482

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.12	1.16	1.45	< 0.005	0.05	—	0.05	0.04	—	0.04	—	244	244	0.01	< 0.005	—	245
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.40	1.28	1.14	20.7	0.00	0.00	3.36	3.36	0.00	0.79	0.79	—	3,706	3,706	0.15	0.13	13.3	3,762
Vendor	0.15	0.11	4.00	1.32	0.03	0.05	0.95	1.00	0.05	0.26	0.31	—	3,519	3,519	0.04	0.52	9.68	3,684
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.25	1.12	1.39	14.2	0.00	0.00	3.36	3.36	0.00	0.79	0.79	—	3,250	3,250	0.07	0.13	0.34	3,291
Vendor	0.14	0.10	4.29	1.35	0.03	0.05	0.95	1.00	0.05	0.26	0.31	—	3,522	3,522	0.04	0.52	0.25	3,678
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.63	0.57	0.63	7.72	0.00	0.00	1.66	1.66	0.00	0.39	0.39	—	1,685	1,685	0.03	0.06	2.86	1,708
Vendor	0.07	0.05	2.10	0.67	0.01	0.03	0.47	0.50	0.03	0.13	0.16	—	1,756	1,756	0.02	0.26	2.09	1,836
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.12	0.10	0.11	1.41	0.00	0.00	0.30	0.30	0.00	0.07	0.07	—	279	279	< 0.005	0.01	0.47	283
Vendor	0.01	0.01	0.38	0.12	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	291	291	< 0.005	0.04	0.35	304
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.9. Paving On-Site (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.07	0.90	8.39	11.2	0.02	0.39	—	0.39	0.36	—	0.36	—	1,700	1,700	0.07	0.01	—	1,706
Paving	—	3.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.07	0.90	8.39	11.2	0.02	0.39	—	0.39	0.36	—	0.36	—	1,700	1,700	0.07	0.01	—	1,706
Paving	—	3.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.12	1.15	1.54	< 0.005	0.05	—	0.05	0.05	—	0.05	—	233	233	0.01	< 0.005	—	234
Paving	—	0.41	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.02	0.21	0.28	< 0.005	0.01	—	0.01	0.01	—	0.01	—	38.6	38.6	< 0.005	< 0.005	—	38.7
Paving	—	0.07	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.06	1.13	0.00	0.00	0.18	0.18	0.00	0.04	0.04	—	202	202	0.01	0.01	0.73	205
Vendor	0.04	0.03	0.93	0.31	0.01	0.01	0.22	0.23	0.01	0.06	0.07	—	820	820	0.01	0.12	2.26	859
Hauling	0.45	0.24	15.1	3.34	0.09	0.25	3.49	3.73	0.25	0.95	1.20	—	12,990	12,990	0.11	2.04	31.9	13,633
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.08	0.78	0.00	0.00	0.18	0.18	0.00	0.04	0.04	—	177	177	< 0.005	0.01	0.02	180
Vendor	0.03	0.02	1.00	0.31	0.01	0.01	0.22	0.23	0.01	0.06	0.07	—	821	821	0.01	0.12	0.06	857
Hauling	0.43	0.22	16.3	3.42	0.09	0.25	3.49	3.73	0.25	0.95	1.20	—	12,999	12,999	0.11	2.05	0.83	13,613
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.12	0.00	0.00	0.02	0.02	0.00	0.01	0.01	—	25.2	25.2	< 0.005	< 0.005	0.04	25.6
Vendor	< 0.005	< 0.005	0.13	0.04	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	112	112	< 0.005	0.02	0.13	118
Hauling	0.06	0.03	2.18	0.46	0.01	0.03	0.47	0.51	0.03	0.13	0.16	—	1,780	1,780	0.02	0.28	1.88	1,866
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	4.18	4.18	< 0.005	< 0.005	0.01	4.24
Vendor	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	18.6	18.6	< 0.005	< 0.005	0.02	19.5
Hauling	0.01	0.01	0.40	0.08	< 0.005	0.01	0.09	0.09	0.01	0.02	0.03	—	295	295	< 0.005	0.05	0.31	309

3.11. Architectural Coating (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.13	0.88	1.14	< 0.005	0.03	—	0.03	0.03	—	0.03	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	84.1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.13	0.88	1.14	< 0.005	0.03	—	0.03	0.03	—	0.03	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	84.1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.07	0.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	11.0	11.0	< 0.005	< 0.005	—	11.0
Architectural Coatings	—	6.91	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.82	1.82	< 0.005	< 0.005	—	1.82
Architectural Coatings	—	1.26	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.09	0.08	1.43	0.00	0.00	0.23	0.23	0.00	0.05	0.05	—	256	256	0.01	0.01	0.92	260
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.10	0.98	0.00	0.00	0.23	0.23	0.00	0.05	0.05	—	225	225	< 0.005	0.01	0.02	228
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.09	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	19.2	19.2	< 0.005	< 0.005	0.03	19.4
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.18	3.18	< 0.005	< 0.005	0.01	3.22
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.13. Off-Site Prep (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.10	2.61	23.0	24.3	0.04	1.10	—	1.10	1.02	—	1.02	—	4,601	4,601	0.19	0.04	—	4,617
Dust From Material Movement	—	—	—	—	—	—	0.84	0.84	—	0.09	0.09	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.08	0.05	< 0.005	< 0.005	8.83	8.83	< 0.005	0.88	0.88	—	28.0	28.0	< 0.005	< 0.005	0.05	29.4
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.07	0.63	0.67	< 0.005	0.03	—	0.03	0.03	—	0.03	—	126	126	0.01	< 0.005	—	126
Dust From Material Movement	—	—	—	—	—	—	0.02	0.02	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.23	0.23	< 0.005	0.02	0.02	—	0.77	0.77	< 0.005	< 0.005	< 0.005	0.81
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.01	0.12	0.12	< 0.005	0.01	—	0.01	0.01	—	0.01	—	20.9	20.9	< 0.005	< 0.005	—	20.9
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.04	0.04	< 0.005	< 0.005	< 0.005	—	0.13	0.13	< 0.005	< 0.005	< 0.005	0.13
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.17	0.16	0.14	2.47	0.00	0.00	0.37	0.37	0.00	0.09	0.09	—	414	414	0.02	0.01	1.61	420
Vendor	< 0.005	< 0.005	0.04	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	33.4	33.4	< 0.005	< 0.005	0.09	35.0
Hauling	0.16	0.08	5.46	1.20	0.03	0.09	1.22	1.30	0.09	0.33	0.42	—	4,621	4,621	0.04	0.74	11.3	4,854
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	10.3	10.3	< 0.005	< 0.005	0.02	10.5
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.92	0.92	< 0.005	< 0.005	< 0.005	0.96
Hauling	< 0.005	< 0.005	0.16	0.03	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	127	127	< 0.005	0.02	0.13	133
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.71	1.71	< 0.005	< 0.005	< 0.005	1.73
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.15	0.15	< 0.005	< 0.005	< 0.005	0.16
Hauling	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	21.0	21.0	< 0.005	< 0.005	0.02	22.0

3.15. Paving Off-Site (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.14	0.96	8.15	10.9	0.01	0.39	—	0.39	0.36	—	0.36	—	1,620	1,620	0.07	0.01	—	1,626
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.03	0.22	0.30	< 0.005	0.01	—	0.01	0.01	—	0.01	—	44.4	44.4	< 0.005	< 0.005	—	44.5
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	< 0.005	0.04	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	7.35	7.35	< 0.005	< 0.005	—	7.37
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.12	0.11	0.09	1.65	0.00	0.00	0.24	0.24	0.00	0.06	0.06	—	276	276	0.01	0.01	1.07	280
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.02	1.00	0.22	0.01	0.02	0.22	0.24	0.02	0.06	0.08	—	845	845	0.01	0.14	2.06	888
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.88	6.88	< 0.005	< 0.005	0.01	6.98
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	23.2	23.2	< 0.005	< 0.005	0.02	24.3
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.14	1.14	< 0.005	< 0.005	< 0.005	1.16
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Hauling	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.84	3.84	< 0.005	< 0.005	< 0.005	4.02

4. Operations Emissions Details

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Site Preparation	Site Preparation	7/1/2024	7/26/2024	5.00	20.0	—
Grading	Grading	7/29/2024	8/23/2024	5.00	20.0	—
Building Construction	Building Construction	8/26/2024	9/12/2025	5.00	275	—
Paving On-Site	Paving	8/18/2025	10/24/2025	5.00	50.0	—
Architectural Coating	Architectural Coating	9/15/2025	10/24/2025	5.00	30.0	—
Off-Site Prep	Linear, Grading & Excavation	7/1/2024	7/12/2024	5.00	10.0	Pavement Removal
Paving Off-Site	Linear, Paving	7/15/2024	7/26/2024	5.00	10.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Site Preparation	Rubber Tired Dozers	Diesel	Average	6.00	11.0	367	0.40
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	8.00	11.0	84.0	0.37
Grading	Excavators	Diesel	Average	10.0	12.0	158	0.38
Grading	Graders	Diesel	Average	5.00	12.0	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	5.00	12.0	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Average	10.0	12.0	84.0	0.37
Grading	Scrapers	Diesel	Average	10.0	12.0	423	0.48
Building Construction	Cranes	Diesel	Average	1.00	9.00	367	0.29
Building Construction	Forklifts	Diesel	Average	3.00	9.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	9.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	9.00	84.0	0.37
Building Construction	Welders	Diesel	Average	1.00	9.00	46.0	0.45
Paving On-Site	Pavers	Diesel	Average	2.00	9.00	81.0	0.42
Paving On-Site	Paving Equipment	Diesel	Average	2.00	9.00	89.0	0.36
Paving On-Site	Rollers	Diesel	Average	2.00	9.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48
Off-Site Prep	Excavators	Diesel	Average	3.00	8.00	36.0	0.38
Off-Site Prep	Crawler Tractors	Diesel	Average	1.00	8.00	87.0	0.43
Off-Site Prep	Graders	Diesel	Average	1.00	8.00	148	0.41
Off-Site Prep	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Off-Site Prep	Signal Boards	Electric	Average	1.00	8.00	6.00	0.82

Off-Site Prep	Tractors/Loaders/Backh	Diesel	Average	2.00	8.00	84.0	0.37
Off-Site Prep	Rubber Tired Loaders	Diesel	Average	1.00	8.00	150	0.36
Off-Site Prep	Scrapers	Diesel	Average	1.00	8.00	423	0.48
Paving Off-Site	Rollers	Diesel	Average	3.00	8.00	36.0	0.38
Paving Off-Site	Paving Equipment	Diesel	Average	1.00	8.00	89.0	0.36
Paving Off-Site	Pavers	Diesel	Average	1.00	8.00	81.0	0.42
Paving Off-Site	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Paving Off-Site	Signal Boards	Electric	Average	1.00	8.00	6.00	0.82

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Preparation	—	—	—	—
Site Preparation	Worker	35.0	17.3	LDA,LDT1,LDT2
Site Preparation	Vendor	—	10.6	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	100	17.3	LDA,LDT1,LDT2
Grading	Vendor	—	10.6	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	4.00	10.0	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	275	17.3	LDA,LDT1,LDT2
Building Construction	Vendor	107	10.6	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT

Building Construction	Onsite truck	—	—	HHDT
Paving On-Site	—	—	—	—
Paving On-Site	Worker	15.0	17.3	LDA,LDT1,LDT2
Paving On-Site	Vendor	25.0	10.6	HHDT,MHDT
Paving On-Site	Hauling	188	20.0	HHDT
Paving On-Site	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	19.0	17.3	LDA,LDT1,LDT2
Architectural Coating	Vendor	0.00	10.6	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT
Off-Site Prep	—	—	—	—
Off-Site Prep	Worker	30.0	17.3	LDA,LDT1,LDT2
Off-Site Prep	Vendor	1.00	10.6	HHDT,MHDT
Off-Site Prep	Hauling	65.6	20.0	HHDT
Off-Site Prep	Onsite truck	4.00	1.50	HHDT
Paving Off-Site	—	—	—	—
Paving Off-Site	Worker	20.0	17.3	LDA,LDT1,LDT2
Paving Off-Site	Vendor	0.00	10.6	HHDT,MHDT
Paving Off-Site	Hauling	12.0	20.0	HHDT
Paving Off-Site	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	0.00	0.00	490,702	327,135	135,123

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Cubic Yards)	Material Exported (Cubic Yards)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Site Preparation	0.00	0.00	90.0	0.00	—
Grading	0.00	0.00	180	0.00	—
Paving On-Site	0.00	0.00	0.00	0.00	57.2
Off-Site Prep	0.00	5,246	5.54	0.00	—

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	2	61%	61%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Unrefrigerated Warehouse-No Rail	0.00	0%
Parking Lot	51.7	100%
Road Construction	5.54	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O

2025	0.00	204	0.03	< 0.005
2024	58.7	204	0.03	< 0.005

8. User Changes to Default Data

Screen	Justification
Land Use	The land use summary is based on site plan and applicant-provided information.
Construction: Construction Phases	No demolition is needed. CalEEMod Defaults. Construction includes off-site dedication area construction for roadways/sidewalks.
Construction: Trips and VMT	On and Off-Site Haul Trips for Delivery of Aspahlt are calculated based on 12 inch (base + paving) of asphalt. On-Site Water Truck Trips added for on and Off-Site Grading- assuming 30 ft watering width and watering twice per day.
Construction: Architectural Coatings	Proposed warehouse construction exterior coating. Few interior walls, thus have an interior factor of 1.5 to exterior walls.
Construction: Paving	The paved area is based on land use summary.
Operations: Architectural Coatings	Based on applicant-provided information, the interior painting is not needed.
Construction: Dust From Material Movement	Off-Site Improvement Removal of 64,445 SF of pavement, calculated as 5246 CY.
Construction: Off-Road Equipment	Equipment number and hours per day to adjust for scheduling differences from CalEEMod defaults to preserve hp-hrs of operation. Only 1 Scraper assigned to 0.83 miles of off-site roadway improvements.
Characteristics: Utility Information	2021 Power Content Label - PG&E Base Plan

Westside Industrial Project - Operations 2026 Custom Report

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8. User Changes to Default Data

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Westside Industrial Project - Operations 2026
Operational Year	2026
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.70
Precipitation (days)	18.0
Location	35.234212, -119.037197
County	Kern-San Joaquin
City	Unincorporated
Air District	San Joaquin Valley APCD
Air Basin	San Joaquin Valley
TAZ	2891
EDFZ	5
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Southern California Gas
App Version	2022.1.1.21

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Unrefrigerated Warehouse-No Rail	629	1000sqft	42.0	653,442	1,194,114	976,615	—	Warehouse + All Land Except Parking

User Defined Industrial	629	User Defined Unit	0.00	0.00	0.00	0.00	—	Parking/Truck Yard
Parking Lot	2,252	1000sqft	51.7	0.00	0.00	0.00	—	Parking/Truck Yard
Industrial Park	0.83	1000sqft	0.00	827	0.00	0.00	—	Guard House/Pump House

2. Emissions Summary

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	10.8	48.7	161	0.79	0.91	48.8	49.7	0.87	12.5	13.3	81,705	1.19	7.22	84,113
Area	19.5	0.24	28.5	< 0.005	0.05	—	0.05	0.04	—	0.04	117	< 0.005	< 0.005	117
Energy	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	2,419	0.00	0.00	2,419
Water	—	—	—	—	—	—	—	—	—	—	458	28.6	0.68	1,375
Waste	—	—	—	—	—	—	—	—	—	—	319	31.9	0.00	1,115
Total	30.4	48.9	189	0.79	0.96	48.8	49.7	0.91	12.5	13.4	85,018	61.6	7.90	89,140
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	9.82	53.6	115	0.74	0.91	48.8	49.7	0.87	12.5	13.3	76,894	1.34	7.35	79,125
Area	14.9	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	2,419	0.00	0.00	2,419
Water	—	—	—	—	—	—	—	—	—	—	458	28.6	0.68	1,375
Waste	—	—	—	—	—	—	—	—	—	—	319	31.9	0.00	1,115
Total	24.7	53.6	115	0.74	0.91	48.8	49.7	0.87	12.5	13.3	80,090	61.8	8.03	84,034

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	9.87	51.7	123	0.75	0.91	48.2	49.1	0.87	12.3	13.2	78,228	1.25	7.28	80,528
Area	17.2	0.12	14.0	< 0.005	0.02	—	0.02	0.02	—	0.02	57.7	< 0.005	< 0.005	57.9
Energy	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	2,419	0.00	0.00	2,419
Water	—	—	—	—	—	—	—	—	—	—	458	28.6	0.68	1,375
Waste	—	—	—	—	—	—	—	—	—	—	319	31.9	0.00	1,115
Total	27.0	51.8	137	0.75	0.94	48.2	49.2	0.89	12.3	13.2	81,482	61.7	7.96	85,495
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.80	9.43	22.4	0.14	0.17	8.80	8.97	0.16	2.25	2.41	12,952	0.21	1.21	13,332
Area	3.13	0.02	2.56	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	9.55	< 0.005	< 0.005	9.59
Energy	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	401	0.00	0.00	401
Water	—	—	—	—	—	—	—	—	—	—	75.8	4.73	0.11	228
Waste	—	—	—	—	—	—	—	—	—	—	52.8	5.27	0.00	185
Total	4.93	9.45	25.0	0.14	0.17	8.80	8.97	0.16	2.25	2.41	13,490	10.2	1.32	14,155

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Unrefrigerated Warehouse-No Rail	10.4	7.94	155	0.41	0.16	37.7	37.9	0.14	9.50	9.64	41,392	0.83	0.85	41,798
User Defined Industrial	0.47	40.7	5.16	0.38	0.76	11.1	11.8	0.72	2.97	3.69	40,312	0.36	6.36	42,315
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Industrial Park	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	10.8	48.7	161	0.79	0.91	48.8	49.7	0.87	12.5	13.3	81,705	1.19	7.22	84,113
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	9.36	9.86	110	0.36	0.16	37.7	37.9	0.14	9.50	9.64	36,574	0.97	0.99	36,897
User Defined Industrial	0.46	43.7	5.22	0.38	0.76	11.1	11.8	0.72	2.97	3.69	40,320	0.36	6.36	42,228
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Industrial Park	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	9.82	53.6	115	0.74	0.91	48.8	49.7	0.87	12.5	13.3	76,894	1.34	7.35	79,125
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	1.72	1.61	21.5	0.07	0.03	6.80	6.83	0.03	1.71	1.74	6,277	0.15	0.15	6,335
User Defined Industrial	0.08	7.82	0.95	0.07	0.14	2.00	2.14	0.13	0.54	0.67	6,675	0.06	1.05	6,997

Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Industrial Park	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	1.80	9.43	22.4	0.14	0.17	8.80	8.97	0.16	2.25	2.41	12,952	0.21	1.21	13,332

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	1,884	0.00	0.00	1,884
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00
Parking Lot	—	—	—	—	—	—	—	—	—	—	530	0.00	0.00	530
Industrial Park	—	—	—	—	—	—	—	—	—	—	5.21	0.00	0.00	5.21
Total	—	—	—	—	—	—	—	—	—	—	2,419	0.00	0.00	2,419
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	1,884	0.00	0.00	1,884

User Defined Industrial	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00
Parking Lot	—	—	—	—	—	—	—	—	—	—	530	0.00	0.00	530
Industrial Park	—	—	—	—	—	—	—	—	—	—	5.21	0.00	0.00	5.21
Total	—	—	—	—	—	—	—	—	—	—	2,419	0.00	0.00	2,419
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	312	0.00	0.00	312
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00
Parking Lot	—	—	—	—	—	—	—	—	—	—	87.7	0.00	0.00	87.7
Industrial Park	—	—	—	—	—	—	—	—	—	—	0.86	0.00	0.00	0.86
Total	—	—	—	—	—	—	—	—	—	—	401	0.00	0.00	401

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00

User Defined Industrial	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Industrial Park	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
User Defined Industrial	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Industrial Park	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
User Defined Industrial	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Industrial Park	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	14.2	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.69	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	4.67	0.24	28.5	< 0.005	0.05	—	0.05	0.04	—	0.04	117	< 0.005	< 0.005	117
Total	19.5	0.24	28.5	< 0.005	0.05	—	0.05	0.04	—	0.04	117	< 0.005	< 0.005	117
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	14.2	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.69	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	14.9	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	2.59	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.13	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.42	0.02	2.56	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	9.55	< 0.005	< 0.005	9.59

Total	3.13	0.02	2.56	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	9.55	< 0.005	< 0.005	9.59

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	458	28.6	0.68	1,375
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00
Industrial Park	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	458	28.6	0.68	1,375
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	458	28.6	0.68	1,375
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00

Industrial Park	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	458	28.6	0.68	1,375
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	75.8	4.73	0.11	228
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00
Industrial Park	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	75.8	4.73	0.11	228

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	319	31.9	0.00	1,115
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00

Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00
Industrial Park	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	319	31.9	0.00	1,115
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	319	31.9	0.00	1,115
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00
Industrial Park	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	319	31.9	0.00	1,115
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	52.8	5.27	0.00	185
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00
Industrial Park	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	52.8	5.27	0.00	185

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Unrefrigerated Warehouse-No Rail	3,907	3,907	3,907	1,426,144	54,292	54,292	54,292	19,816,427
User Defined Industrial	145	145	145	52,820	12,156	12,156	12,156	4,436,894
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Industrial Park	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0	0.00	490,702	327,135	135,112

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Unrefrigerated Warehouse-No Rail	7,017,846	98.0	0.0000	0.0000	0.00
User Defined Industrial	0.00	98.0	0.0000	0.0000	0.00
Parking Lot	1,972,629	98.0	0.0000	0.0000	0.00
Industrial Park	19,390	98.0	0.0000	0.0000	0.00

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Unrefrigerated Warehouse-No Rail	145,499,263	38,943,475
User Defined Industrial	0.00	0.00
Parking Lot	0.00	0.00
Industrial Park	0.00	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Unrefrigerated Warehouse-No Rail	591	—
User Defined Industrial	0.00	—
Parking Lot	0.00	—
Industrial Park	0.00	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

8. User Changes to Default Data

Screen	Justification
Land Use	The land use summary is based on site plan and applicant-provided information. Total 93.74 acres. Does not include the Off-Site Improvements.
Construction: Construction Phases	No demolition is needed. CalEEMod Defaults. Construction includes off-site dedication area construction.
Construction: Trips and VMT	Paving Phase's Vendor Trips are calculated based on 12 inch (base + paving) of asphalt.
Construction: Architectural Coatings	Based on applicant-provided information
Construction: Paving	The paved area is based on land use summary.
Operations: Architectural Coatings	Interior Architectural Requirements adjusted for warehouse, accounting for interior walls for breakrooms, restrooms, mechanical rooms
Operations: Vehicle Data	Trip Rates based on Traffic Study ITE Trip Rates Land Use 155 (High Cube Fulfillment Warehouse) Trip Length for Passenger Trips - Default Trip Length for Trucks based based on Kern County Logisitics
Operations: Fleet Mix	Passenger Car amd Truck Fleet mix
Operations: Energy Use	All-Electric Buildings, Natural Gas = 0
Operations: Water and Waste Water	No water usage at pump/guard house
Operations: Solid Waste	No Waste generation at pump/guard house
Operations: Refrigerants	Refrigerant emissions not calculated.
Characteristics: Utility Information	2021 Power Content - PG&E Base Plan

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

8. User Changes to Default Data

Screen	Justification
Land Use	The land use summary is based on site plan and applicant-provided information. Total 93.74 acres. Does not include the Off-Site Improvements.
Construction: Construction Phases	No demolition is needed. CalEEMod Defaults. Construction includes off-site dedication area construction.
Construction: Trips and VMT	Paving Phase's Vendor Trips are calculated based on 12 inch (base + paving) of asphalt.
Construction: Architectural Coatings	Based on applicant-provided information
Construction: Paving	The paved area is based on land use summary.
Operations: Architectural Coatings	Interior Architectural Requirements adjusted for warehouse, accounting for interior walls for breakrooms, restrooms, mechanical rooms
Operations: Vehicle Data	Trip Rates based on Traffic Study ITE Trip Rates Land Use 155 (High Cube Fulfillment Warehouse)
Operations: Fleet Mix	Passenger Car amd Truck Fleet mix
Operations: Energy Use	All-Electric Buildings, Natural Gas = 0
Operations: Water and Waste Water	No water usage at pump/guard house
Operations: Solid Waste	No Waste generation at pump/guard house
Operations: Refrigerants	Refrigerant emissions not calculated.

Characteristics: Utility Information	2021 Power Content - PG&E Base Plan

Westside Industrial Project
Local On-Site and Vicinity Emissions (including emissions within 1/4 mile of site boundary)
For Ambient Air Quality Applicability Analysis (AAQA) Determination Under CEQA

Operations - Maximum Daily Localized Emissions (lb/day)

On-Site and Local Mobile Source Emissions		One-Way Trips/day	Round-Trips (Daily Truck Visits)	Process	Quantity per Vehicle Visit (RT)	Daily Quantity	ROG	NOx	PM10	PM2_5	PM10_DUST	PM2.5_DUST	CO
On-Site Start & Evaporative	Cars	3,907	1,954	Starts/Trips	1	1,953.5	9.6569	1.5637	0.0171	0.0157	-	-	63.1175
On-Site Running (includes idle)	Cars	3,907	1,954	Car Miles/day	1.85	3,614.0	0.4662	0.9474	0.0534	0.0491	2.3941	0.5985	22.0674
Off-Site Local (within 1/4 mile)	Cars	3,907	1,954	Car Miles/day	0.72	1,398.7	0.1139	0.3069	0.0130	0.0120	0.9151	0.2288	7.4384
On-Site Start	Trucks	145	73	Starts	1	72.5	-	1.3192	-	-	-	-	-
On-Site Idle	Trucks	145	73	Idle-hours/day	0.33	24.2	0.1337	1.5357	0.0007	0.0006	-	-	1.8921
On-Site Running	Trucks	145	73	Truck Miles/day	2.4	174.0	0.0456	4.3188	0.0044	0.0042	0.1153	0.0288	0.4073
Off-Site Local (within 1/4 mile)	**Trucks**	145	73	Truck Miles/day	0.5	36.3	0.0006	0.0006	0.0006	0.0006	0.0237	0.0059	0.0006
						Totals	10.4	10.0	0.1	0.1	3.448	0.862	94.9

Operations - Average Daily Localized Emissions (lb/day)

On-Site and Local Mobile Source Emissions		One-Way Trips/day	Round-Trips (Daily Truck Visits)	Process	Quantity per Vehicle Visit (RT)	Daily Quantity	ROG	NOx	PM10	PM2_5	PM10_DUST	PM2.5_DUST	CO
On-Site Start & Evaporative	Cars	3,907	1,954	Starts/Trips	1	1954	5.8912	1.1956	0.0171	0.0157	-	-	17.9999
On-Site Running (includes idle)	Cars	3,907	1,954	Car Miles/day	1.85	3614	0.4688	0.6064	0.0563	0.0518	2.3941	0.5985	13.6056
Off-Site Local (within 1/4 mile)	Cars	3,907	1,954	Car Miles/day	0.72	1399	0.1146	0.1964	0.0137	0.0126	0.9151	0.2288	4.5776
On-Site Start	Trucks	145	73	Starts	1	73	-	1.3192	-	-	-	-	-
On-Site Idle	Trucks	145	73	Idle-hours/day	0.33	24	0.1262	1.4389	0.0006	0.0006	-	-	1.8580
On-Site Running	Trucks	145	73	Truck Miles/day	2.4	174	0.0456	3.8054	0.0044	0.0042	0.1153	0.0288	0.4073
Off-Site Local (within 1/4 mile)	**Trucks**	145	73	Truck Miles/day	0.5	36	0.0040	0.4436	0.0006	0.0006	0.0237	0.0059	0.0401
						Totals	6.7	9.0	0.1	0.1	3.448	0.862	38.5

truck on-site driving @ speeds of <5 mph.

car on-site driving @ speeds of <10 mph

Passenger vehicle emissions include cold start emissions, hot soak, and diurnal emissions based on 9 hour on-site time and running loss emissions for 10 minute driving time on-site.

Assume trucks idle up to 20 **minute** on site which includes idle at idle at entrance/exit, and on entrance and exit to dock and entrance/exit to parking

Assume truck speed off-site as an aggregate of emissions from 0-25 miles per hour, ALL trucks go East to SR-99.

EMFAC2021 v1.02 Emission Factors - Project Level for Cars and Trucks (2026 First Year of Full Operation)

Vehicle	Season	Process	Units	ROG	NOx	PM10	PM2_5	PM10_DUST	PM2.5_DUST	CO
Car	Annual	Start/Evap(on-site)	g/start or g/trip	1.368	0.278	0.004	0.004	-	-	4.18
Car	Summer	Start/Evap(on-site)	g/start or g/trip	1.726	0.284	0.004	0.004	-	-	5.05
Car	Winter	Start/Evap(on-site)	g/start or g/trip	2.242	0.363	0.004	0.004	-	-	14.66
Car	Annual	Running (on-site)	g/mi	0.059	0.076	0.007	0.007	0.297	0.074	1.71
Car	Summer	Running (on-site)	g/mi	0.059	0.050	0.007	0.006	0.300	0.075	2.77
Car	Winter	Running (on-site)	g/mi	0.048	0.119	0.007	0.006	0.300	0.075	1.35
Car	Annual	Running (off-site)	g/mi	0.037	0.064	0.004	0.004	0.297	0.074	1.48
Car	Summer	Running (off-site)	g/mi	0.037	0.042	0.004	0.004	0.300	0.075	2.41
Car	Winter	Running (off-site)	g/mi	0.030	0.100	0.004	0.004	0.300	0.075	1.17
Truck	Annual	Start (on-site)	g/start	-	8.253	-	-	-	-	-
Truck	Summer	Start (on-site)	g/start	-	8.253	-	-	-	-	-
Truck	Winter	Start (on-site)	g/start	-	8.253	-	-	-	-	-
Truck	Annual	Idle (on-site)	g/idle-hour	2.369	27.007	0.011	0.010	-	-	34.87
Truck	Summer	Idle (on-site)	g/idle-hour	2.509	25.692	0.010	0.009	-	-	34.41
Truck	Winter	Idle (on-site)	g/idle-hour	2.175	28.824	0.013	0.012	-	-	35.51
Truck	Annual	Running (on-site)	g/mi	0.119	9.920	0.011	0.011	0.297	0.074	1.06
Truck	Summer	Running (on-site)	g/mi	0.119	7.930	0.011	0.011	0.300	0.075	1.06
Truck	Winter	Running (on-site)	g/mi	0.119	11.258	0.011	0.011	0.300	0.075	1.06
Truck	Annual	Running (off-site)	g/mi	0.051	5.550	0.008	0.008	0.297	0.074	0.50
Truck	Summer	Running (off-site)	g/mi	0.051	5.550	0.008	0.008	0.300	0.075	0.50
Truck	Winter	Running (off-site)	g/mi	0.051	5.550	0.008	0.008	0.300	0.075	0.50

Appendix B:
Health Risk Assessment Supporting Information

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Appendix B: Health Risk Assessment Supporting Information

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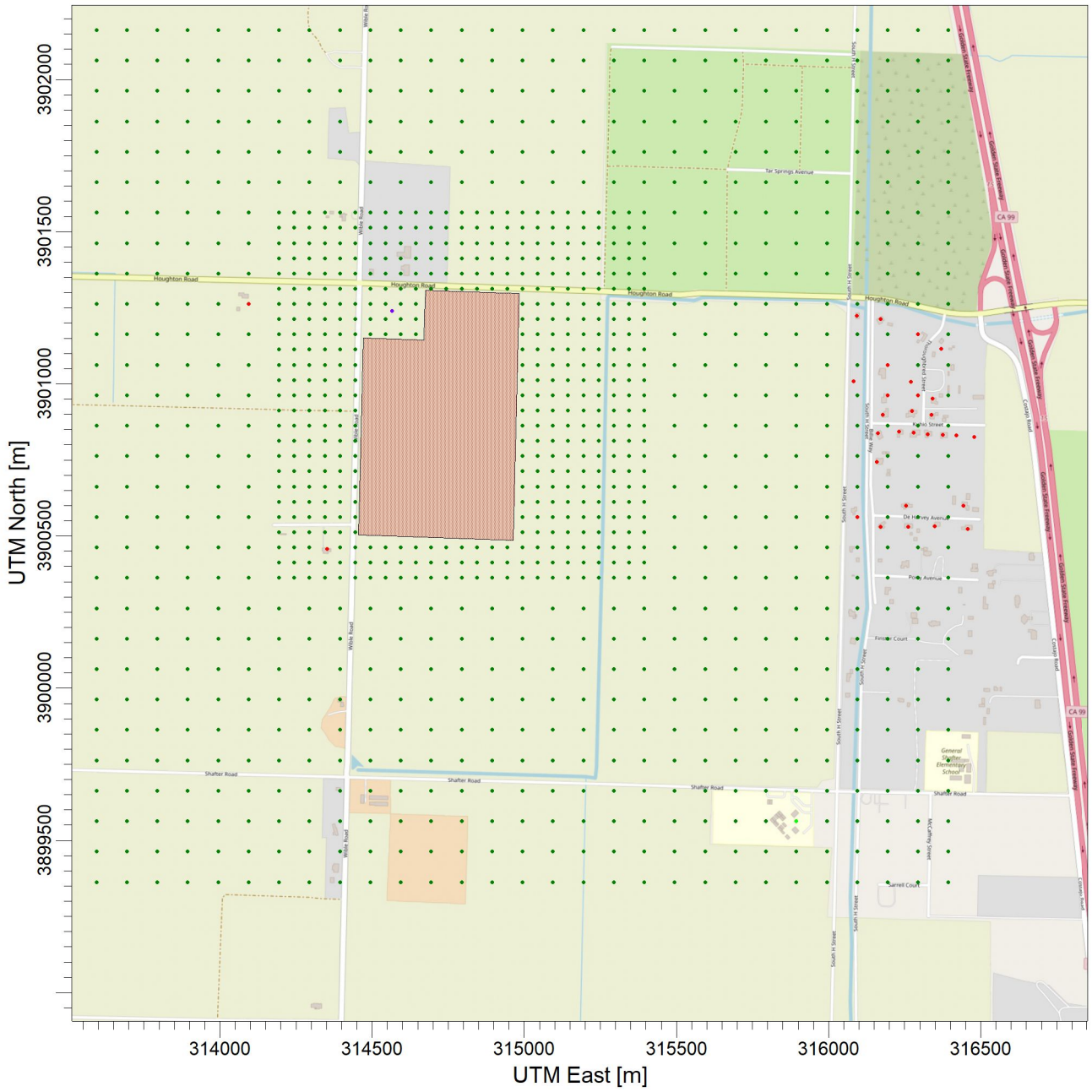
PROJECT TITLE:

Westside Industrial Project
Receptor Set-Up



COMMENTS:	SOURCES: **31**	COMPANY NAME:	
	RECEPTORS: **1422**	MODELER:	
		SCALE: 1:21,000 0 0.5 km	
		DATE: **11/8/2023**	PROJECT NO.:

Westside Industrial Project
Modeling Parameters for Construction HRA

Phase	Source	Description	Source Type	Size	Units	Release Height (m)	Source Width (m)	Initial Lateral Dimension (m)	Initial Vertical Dimension (m)
Construction	Off-Road Construction Equipment[1]	Construction Site	Area	380850	m2	5	—	—	1.4
Construction	On-Road Construction Trucks[2]	Houghton Road to SR-99	Line-Volume	1676	meters	3.26		7.44	3.04

1 Construction exhaust modeled as an area source. Release parameters for construction equipment exhaust modeling from SCAQMD (2008) for gaseous exhaust from construction equipment.

2 On-Road construction trucks are Vendor and Haul Trucks, as estimated in CalEEMod.

Trucks were modeled as adjacent volume sources following US EPA Haul Road Guidance. Roadway width -= physical width plus 3 meters on each side for mixing., Truck Height = 12.6 ft or 3.84 meters

Haul Road Calculator is based on the US EPA Haul Road Workgroup Final Report released on March 2, 2012 which suggests the use of Adjacent Volume Sources to represent the haul road.

Trucks height 12.6 feet = 3.84 meters, Release Height = 1/2 Plume Height, Sigmaz = Release Height/2.15

Control Pathway

AERMOD

Dispersion Options

Titles

F:\Jobs\41150044HZ\ConHRA\ConHRA.isc

Dispersion Options

☑ Regulatory Default ☐ Non-Default Options

Dispersion Coefficient

Rural

Output Type

☑ Concentration
☐ Total Deposition (Dry & Wet)
☐ Dry Deposition
☐ Wet Deposition

Plume Depletion

☐ Dry Removal
☐ Wet Removal

Output Warnings

☐ No Output Warnings
☐ Non-fatal Warnings for Non-sequential Met Data

Pollutant / Averaging Time / Terrain Options

Pollutant Type

SO2

Averaging Time Options

Hours ☑ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 6 ☐ 8 ☐ 12 ☐ 24

☐ Month ☑ Period ☐ Annual

☐ 1-Hour SO2 Non-NAAQS
☑ 1-Hour SO2 NAAQS

Exponential Decay

Option not available

Terrain Height Options

☐ Flat ☑ Elevated

SO: Meters
RE: Meters
TG: Meters

Flagpole Receptors

☐ Yes ☑ No

Default Height = 0.00 m

Control Pathway

Optional Files

Re-Start File	Init File	Multi-Year Analyses	Event Input File	Error Listing File
☐	☐	☐	☐	■

Detailed Error Listing File

Filename: ConHRA.err

Source Pathway - Source Inputs

Polygon Area Sources

Source Type: AREA POLY

Source: SITE (Construction Site)

Base Elevation (Optional)	Release Height [m]	Emission Rate [g/ (s-m^2)]	Initial Vertical Dim. [m]	Number of Vertices (or sides)	X Coordinate for Vertices [m]	Y Coordinate for Vertices [m]
101.52	5.00	2.63E-6	1.40	7	314474.90	3901152.23
		2.63E-6			314670.37	3901146.53
		2.63E-6			314674.93	3901306.00
		2.63E-6			314843.17	3901300.82
		2.63E-6			314981.60	3901298.35
		2.63E-6			314966.42	3900484.23
		2.63E-6			314452.13	3900503.20

Line Volume Sources

Source Type: LINE VOLUME

Source: HAULROAD (Construction truck trip route.)

Length of Side [m]	Emission Rate [g/ s]	Building Height [m]	X Coordinate for Points [m]	Y Coordinate for points [m]	Base Elevation [m]	Release Height [m]
16.00	1.00000		314702.60	3900922.65	101.47	3.40
			314716.43	3901319.50	101.72	3.40
			315499.00	3901295.58	101.34	3.40
			315592.92	3901302.41	101.16	3.40
			316141.05	3901281.92	101.31	3.40
			316378.40	3901234.11	101.20	3.40
			316496.22	3901228.99	101.22	3.40
			316625.99	3901246.06	101.27	3.40

Source Pathway - Source Inputs

Volume Sources Generated from Line Sources

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
HAULROAD	L0000001	314702.87	3900930.65	101.47	3.40	0.00690	16.00		7.44	3.16
	L0000002	314703.43	3900946.64	101.48	3.40	0.00690	16.00		7.44	3.16
	L0000003	314703.99	3900962.63	101.49	3.40	0.00690	16.00		7.44	3.16
	L0000004	314704.55	3900978.62	101.50	3.40	0.00690	16.00		7.44	3.16
	L0000005	314705.10	3900994.61	101.51	3.40	0.00690	16.00		7.44	3.16
	L0000006	314705.66	3901010.60	101.52	3.40	0.00690	16.00		7.44	3.16
	L0000007	314706.22	3901026.59	101.53	3.40	0.00690	16.00		7.44	3.16
	L0000008	314706.78	3901042.58	101.54	3.40	0.00690	16.00		7.44	3.16
	L0000009	314707.33	3901058.57	101.55	3.40	0.00690	16.00		7.44	3.16
	L0000010	314707.89	3901074.56	101.55	3.40	0.00690	16.00		7.44	3.16
	L0000011	314708.45	3901090.55	101.56	3.40	0.00690	16.00		7.44	3.16
	L0000012	314709.01	3901106.54	101.57	3.40	0.00690	16.00		7.44	3.16
	L0000013	314709.57	3901122.53	101.58	3.40	0.00690	16.00		7.44	3.16
	L0000014	314710.12	3901138.52	101.59	3.40	0.00690	16.00		7.44	3.16
	L0000015	314710.68	3901154.51	101.61	3.40	0.00690	16.00		7.44	3.16
	L0000016	314711.24	3901170.50	101.62	3.40	0.00690	16.00		7.44	3.16
	L0000017	314711.80	3901186.49	101.63	3.40	0.00690	16.00		7.44	3.16
	L0000018	314712.35	3901202.48	101.65	3.40	0.00690	16.00		7.44	3.16
	L0000019	314712.91	3901218.47	101.66	3.40	0.00690	16.00		7.44	3.16
	L0000020	314713.47	3901234.46	101.66	3.40	0.00690	16.00		7.44	3.16
	L0000021	314714.03	3901250.45	101.67	3.40	0.00690	16.00		7.44	3.16
	L0000022	314714.58	3901266.44	101.69	3.40	0.00690	16.00		7.44	3.16
	L0000023	314715.14	3901282.44	101.70	3.40	0.00690	16.00		7.44	3.16
	L0000024	314715.70	3901298.43	101.71	3.40	0.00690	16.00		7.44	3.16

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
HAULROAD	L0000025	314716.26	3901314.42	101.72	3.40	0.00690	16.00		7.44	3.16
	L0000026	314727.34	3901319.17	101.72	3.40	0.00690	16.00		7.44	3.16
	L0000027	314743.33	3901318.68	101.72	3.40	0.00690	16.00		7.44	3.16
	L0000028	314759.32	3901318.19	101.73	3.40	0.00690	16.00		7.44	3.16
	L0000029	314775.31	3901317.71	101.73	3.40	0.00690	16.00		7.44	3.16
	L0000030	314791.31	3901317.22	101.73	3.40	0.00690	16.00		7.44	3.16
	L0000031	314807.30	3901316.73	101.73	3.40	0.00690	16.00		7.44	3.16
	L0000032	314823.29	3901316.24	101.73	3.40	0.00690	16.00		7.44	3.16
	L0000033	314839.28	3901315.75	101.73	3.40	0.00690	16.00		7.44	3.16
	L0000034	314855.28	3901315.26	101.73	3.40	0.00690	16.00		7.44	3.16
	L0000035	314871.27	3901314.77	101.73	3.40	0.00690	16.00		7.44	3.16
	L0000036	314887.26	3901314.28	101.73	3.40	0.00690	16.00		7.44	3.16
	L0000037	314903.25	3901313.79	101.72	3.40	0.00690	16.00		7.44	3.16
	L0000038	314919.25	3901313.31	101.72	3.40	0.00690	16.00		7.44	3.16
	L0000039	314935.24	3901312.82	101.71	3.40	0.00690	16.00		7.44	3.16
	L0000040	314951.23	3901312.33	101.71	3.40	0.00690	16.00		7.44	3.16
	L0000041	314967.22	3901311.84	101.70	3.40	0.00690	16.00		7.44	3.16
	L0000042	314983.22	3901311.35	101.70	3.40	0.00690	16.00		7.44	3.16
	L0000043	314999.21	3901310.86	101.70	3.40	0.00690	16.00		7.44	3.16
	L0000044	315015.20	3901310.37	101.69	3.40	0.00690	16.00		7.44	3.16
	L0000045	315031.19	3901309.88	101.68	3.40	0.00690	16.00		7.44	3.16
	L0000046	315047.19	3901309.39	101.68	3.40	0.00690	16.00		7.44	3.16
	L0000047	315063.18	3901308.91	101.68	3.40	0.00690	16.00		7.44	3.16
	L0000048	315079.17	3901308.42	101.67	3.40	0.00690	16.00		7.44	3.16
	L0000049	315095.16	3901307.93	101.66	3.40	0.00690	16.00		7.44	3.16

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
HAULROAD	L0000050	315111.16	3901307.44	101.66	3.40	0.00690	16.00		7.44	3.16
	L0000051	315127.15	3901306.95	101.64	3.40	0.00690	16.00		7.44	3.16
	L0000052	315143.14	3901306.46	101.64	3.40	0.00690	16.00		7.44	3.16
	L0000053	315159.13	3901305.97	101.63	3.40	0.00690	16.00		7.44	3.16
	L0000054	315175.13	3901305.48	101.62	3.40	0.00690	16.00		7.44	3.16
	L0000055	315191.12	3901305.00	101.61	3.40	0.00690	16.00		7.44	3.16
	L0000056	315207.11	3901304.51	101.60	3.40	0.00690	16.00		7.44	3.16
	L0000057	315223.10	3901304.02	101.59	3.40	0.00690	16.00		7.44	3.16
	L0000058	315239.10	3901303.53	101.58	3.40	0.00690	16.00		7.44	3.16
	L0000059	315255.09	3901303.04	101.57	3.40	0.00690	16.00		7.44	3.16
	L0000060	315271.08	3901302.55	101.55	3.40	0.00690	16.00		7.44	3.16
	L0000061	315287.07	3901302.06	101.54	3.40	0.00690	16.00		7.44	3.16
	L0000062	315303.07	3901301.57	101.52	3.40	0.00690	16.00		7.44	3.16
	L0000063	315319.06	3901301.08	101.51	3.40	0.00690	16.00		7.44	3.16
	L0000064	315335.05	3901300.60	101.50	3.40	0.00690	16.00		7.44	3.16
	L0000065	315351.04	3901300.11	101.48	3.40	0.00690	16.00		7.44	3.16
	L0000066	315367.04	3901299.62	101.47	3.40	0.00690	16.00		7.44	3.16
	L0000067	315383.03	3901299.13	101.45	3.40	0.00690	16.00		7.44	3.16
	L0000068	315399.02	3901298.64	101.44	3.40	0.00690	16.00		7.44	3.16
	L0000069	315415.01	3901298.15	101.42	3.40	0.00690	16.00		7.44	3.16
	L0000070	315431.01	3901297.66	101.41	3.40	0.00690	16.00		7.44	3.16
	L0000071	315447.00	3901297.17	101.39	3.40	0.00690	16.00		7.44	3.16
	L0000072	315462.99	3901296.69	101.38	3.40	0.00690	16.00		7.44	3.16
	L0000073	315478.98	3901296.20	101.36	3.40	0.00690	16.00		7.44	3.16
	L0000074	315494.98	3901295.71	101.34	3.40	0.00690	16.00		7.44	3.16

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
HAULROAD	L0000075	315510.94	3901296.45	101.32	3.40	0.00690	16.00		7.44	3.16
	L0000076	315526.90	3901297.61	101.30	3.40	0.00690	16.00		7.44	3.16
	L0000077	315542.86	3901298.77	101.25	3.40	0.00690	16.00		7.44	3.16
	L0000078	315558.82	3901299.93	101.22	3.40	0.00690	16.00		7.44	3.16
	L0000079	315574.78	3901301.10	101.20	3.40	0.00690	16.00		7.44	3.16
	L0000080	315590.73	3901302.26	101.17	3.40	0.00690	16.00		7.44	3.16
	L0000081	315606.72	3901301.90	101.15	3.40	0.00690	16.00		7.44	3.16
	L0000082	315622.71	3901301.30	101.13	3.40	0.00690	16.00		7.44	3.16
	L0000083	315638.70	3901300.70	101.10	3.40	0.00690	16.00		7.44	3.16
	L0000084	315654.68	3901300.11	101.08	3.40	0.00690	16.00		7.44	3.16
	L0000085	315670.67	3901299.51	101.05	3.40	0.00690	16.00		7.44	3.16
	L0000086	315686.66	3901298.91	101.04	3.40	0.00690	16.00		7.44	3.16
	L0000087	315702.65	3901298.31	101.03	3.40	0.00690	16.00		7.44	3.16
	L0000088	315718.64	3901297.71	101.03	3.40	0.00690	16.00		7.44	3.16
	L0000089	315734.63	3901297.12	101.02	3.40	0.00690	16.00		7.44	3.16
	L0000090	315750.62	3901296.52	101.02	3.40	0.00690	16.00		7.44	3.16
	L0000091	315766.61	3901295.92	101.02	3.40	0.00690	16.00		7.44	3.16
	L0000092	315782.59	3901295.32	101.03	3.40	0.00690	16.00		7.44	3.16
	L0000093	315798.58	3901294.73	101.03	3.40	0.00690	16.00		7.44	3.16
	L0000094	315814.57	3901294.13	101.04	3.40	0.00690	16.00		7.44	3.16
	L0000095	315830.56	3901293.53	101.06	3.40	0.00690	16.00		7.44	3.16
	L0000096	315846.55	3901292.93	101.08	3.40	0.00690	16.00		7.44	3.16
	L0000097	315862.54	3901292.34	101.10	3.40	0.00690	16.00		7.44	3.16
	L0000098	315878.53	3901291.74	101.14	3.40	0.00690	16.00		7.44	3.16
	L0000099	315894.52	3901291.14	101.16	3.40	0.00690	16.00		7.44	3.16

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
HAULROAD	L0000100	315910.51	3901290.54	101.19	3.40	0.00690	16.00		7.44	3.16
	L0000101	315926.49	3901289.94	101.20	3.40	0.00690	16.00		7.44	3.16
	L0000102	315942.48	3901289.35	101.22	3.40	0.00690	16.00		7.44	3.16
	L0000103	315958.47	3901288.75	101.23	3.40	0.00690	16.00		7.44	3.16
	L0000104	315974.46	3901288.15	101.23	3.40	0.00690	16.00		7.44	3.16
	L0000105	315990.45	3901287.55	101.24	3.40	0.00690	16.00		7.44	3.16
	L0000106	316006.44	3901286.96	101.27	3.40	0.00690	16.00		7.44	3.16
	L0000107	316022.43	3901286.36	101.28	3.40	0.00690	16.00		7.44	3.16
	L0000108	316038.42	3901285.76	101.28	3.40	0.00690	16.00		7.44	3.16
	L0000109	316054.41	3901285.16	101.28	3.40	0.00690	16.00		7.44	3.16
	L0000110	316070.39	3901284.57	101.29	3.40	0.00690	16.00		7.44	3.16
	L0000111	316086.38	3901283.97	101.30	3.40	0.00690	16.00		7.44	3.16
	L0000112	316102.37	3901283.37	101.30	3.40	0.00690	16.00		7.44	3.16
	L0000113	316118.36	3901282.77	101.30	3.40	0.00690	16.00		7.44	3.16
	L0000114	316134.35	3901282.17	101.30	3.40	0.00690	16.00		7.44	3.16
	L0000115	316150.16	3901280.09	101.30	3.40	0.00690	16.00		7.44	3.16
	L0000116	316165.85	3901276.93	101.29	3.40	0.00690	16.00		7.44	3.16
	L0000117	316181.53	3901273.77	101.29	3.40	0.00690	16.00		7.44	3.16
	L0000118	316197.22	3901270.61	101.29	3.40	0.00690	16.00		7.44	3.16
	L0000119	316212.90	3901267.45	101.28	3.40	0.00690	16.00		7.44	3.16
	L0000120	316228.59	3901264.29	101.28	3.40	0.00690	16.00		7.44	3.16
	L0000121	316244.27	3901261.13	101.27	3.40	0.00690	16.00		7.44	3.16
	L0000122	316259.96	3901257.97	101.27	3.40	0.00690	16.00		7.44	3.16
	L0000123	316275.64	3901254.81	101.27	3.40	0.00690	16.00		7.44	3.16
	L0000124	316291.33	3901251.65	101.26	3.40	0.00690	16.00		7.44	3.16

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
HAULROAD	L0000125	316307.01	3901248.49	101.25	3.40	0.00690	16.00		7.44	3.16
	L0000126	316322.70	3901245.33	101.25	3.40	0.00690	16.00		7.44	3.16
	L0000127	316338.38	3901242.17	101.24	3.40	0.00690	16.00		7.44	3.16
	L0000128	316354.07	3901239.01	101.24	3.40	0.00690	16.00		7.44	3.16
	L0000129	316369.75	3901235.85	101.22	3.40	0.00690	16.00		7.44	3.16
	L0000130	316385.57	3901233.80	101.21	3.40	0.00690	16.00		7.44	3.16
	L0000131	316401.55	3901233.11	101.22	3.40	0.00690	16.00		7.44	3.16
	L0000132	316417.54	3901232.41	101.21	3.40	0.00690	16.00		7.44	3.16
	L0000133	316433.52	3901231.72	101.21	3.40	0.00690	16.00		7.44	3.16
	L0000134	316449.51	3901231.02	101.21	3.40	0.00690	16.00		7.44	3.16
	L0000135	316465.49	3901230.33	101.21	3.40	0.00690	16.00		7.44	3.16
	L0000136	316481.48	3901229.63	101.22	3.40	0.00690	16.00		7.44	3.16
	L0000137	316497.45	3901229.15	101.22	3.40	0.00690	16.00		7.44	3.16
	L0000138	316513.32	3901231.24	101.22	3.40	0.00690	16.00		7.44	3.16
	L0000139	316529.18	3901233.33	101.23	3.40	0.00690	16.00		7.44	3.16
	L0000140	316545.04	3901235.41	101.24	3.40	0.00690	16.00		7.44	3.16
	L0000141	316560.91	3901237.50	101.25	3.40	0.00690	16.00		7.44	3.16
	L0000142	316576.77	3901239.59	101.26	3.40	0.00690	16.00		7.44	3.16
	L0000143	316592.63	3901241.68	101.26	3.40	0.00690	16.00		7.44	3.16
	L0000144	316608.50	3901243.76	101.27	3.40	0.00690	16.00		7.44	3.16
	L0000145	316624.36	3901245.85	101.27	3.40	0.00690	16.00		7.44	3.16

Source Pathway

Building Downwash Information

Option not in use

Emission Rate Units for Output

For Concentration

Unit Factor:	1E6
Emission Unit Label:	GRAMS/SEC
Concentration Unit Label:	MICROGRAMS/M**3

Source Groups

Source Group ID: SITE	List of Sources in Group (Source Range or Single Sources)
	SITE

Source Group ID: HAULROAD	List of Sources in Group (Source Range or Single Sources)
	HAULROAD

Source Group ID: ALL	List of Sources in Group (Source Range or Single Sources)
	All Sources Included

Variable Emissions

Hour-of-Day / Day-of-Week Emission Rate Variation

Scenario: Scenario 2

Source ID:	**HAULROAD**							
Weekdays								
	Hour of Day	1 - 6	0.00	0.00	0.00	0.00	0.00	0.00
		7 - 12	0.00	2.80	2.80	2.80	2.80	2.80
		13 - 18	2.80	2.80	2.80	2.80	2.80	2.80
		19 - 24	2.80	0.00	0.00	0.00	0.00	0.00
Saturday								
	Hour of Day	1 - 6	0.00	0.00	0.00	0.00	0.00	0.00
		7 - 12	0.00	0.00	0.00	0.00	0.00	0.00
		13 - 18	0.00	0.00	0.00	0.00	0.00	0.00
		19 - 24	0.00	0.00	0.00	0.00	0.00	0.00
Sunday								
	Hour of Day	1 - 6	0.00	0.00	0.00	0.00	0.00	0.00
		7 - 12	0.00	0.00	0.00	0.00	0.00	0.00
		13 - 18	0.00	0.00	0.00	0.00	0.00	0.00
		19 - 24	0.00	0.00	0.00	0.00	0.00	0.00
Source ID:	**SITE**							
Weekdays								
	Hour of Day	1 - 6	0.00	0.00	0.00	0.00	0.00	0.00
		7 - 12	0.00	2.80	2.80	2.80	2.80	2.80
		13 - 18	2.80	2.80	2.80	2.80	2.80	2.80
		19 - 24	2.80	0.00	0.00	0.00	0.00	0.00
Saturday								
	Hour of Day	1 - 6	0.00	0.00	0.00	0.00	0.00	0.00
		7 - 12	0.00	0.00	0.00	0.00	0.00	0.00
		13 - 18	0.00	0.00	0.00	0.00	0.00	0.00
		19 - 24	0.00	0.00	0.00	0.00	0.00	0.00
Sunday								
	Hour of Day	1 - 6	0.00	0.00	0.00	0.00	0.00	0.00
		7 - 12	0.00	0.00	0.00	0.00	0.00	0.00
		13 - 18	0.00	0.00	0.00	0.00	0.00	0.00
		19 - 24	0.00	0.00	0.00	0.00	0.00	0.00

Receptor Pathway

Receptor Networks

Note: Terrain Elavations and Flagpole Heights for Network Grids are in Page RE2 - 1 (If applicable)
Generated Discrete Receptors for Multi-Tier (Risk) Grid and Receptor Locations for Fenceline Grid are in Page RE3 - 1 (If applicable)

Discrete Receptors

Discrete Cartesian Receptors

Record Number	X-Coordinate [m]	Y-Coordinate [m]	Group Name (Optional)	Terrain Elevations	Flagpole Heights [m] (Optional)
1	314994.08	3900662.90	NESTED	101.33	
2	315044.08	3900662.90	NESTED	101.30	
3	315094.08	3900662.90	NESTED	101.28	
4	314994.08	3900712.90	NESTED	101.36	
5	315044.08	3900712.90	NESTED	101.34	
6	315094.08	3900712.90	NESTED	101.32	
7	314994.08	3900762.90	NESTED	101.39	
8	315044.08	3900762.90	NESTED	101.38	
9	315094.08	3900762.90	NESTED	101.35	
10	314994.08	3900812.90	NESTED	101.43	
11	315044.08	3900812.90	NESTED	101.42	
12	315094.08	3900812.90	NESTED	101.40	
13	314994.08	3900862.90	NESTED	101.47	
14	315044.08	3900862.90	NESTED	101.45	
15	315094.08	3900862.90	NESTED	101.42	
16	314994.08	3900912.90	NESTED	101.50	
17	315044.08	3900912.90	NESTED	101.47	
18	315094.08	3900912.90	NESTED	101.45	
19	314994.08	3900962.90	NESTED	101.53	
20	315044.08	3900962.90	NESTED	101.51	
21	315094.08	3900962.90	NESTED	101.48	
22	314994.08	3901012.90	NESTED	101.56	
23	315044.08	3901012.90	NESTED	101.54	
24	315094.08	3901012.90	NESTED	101.50	
25	314994.08	3901062.90	NESTED	101.59	
26	315044.08	3901062.90	NESTED	101.57	
27	315094.08	3901062.90	NESTED	101.54	
28	314994.08	3901112.90	NESTED	101.61	
29	315044.08	3901112.90	NESTED	101.59	
30	315094.08	3901112.90	NESTED	101.57	

31	314494.08	3901162.90	NESTED	101.54
32	314544.08	3901162.90	NESTED	101.56
33	314594.08	3901162.90	NESTED	101.58
34	314644.08	3901162.90	NESTED	101.59
35	314994.08	3901162.90	NESTED	101.64
36	315044.08	3901162.90	NESTED	101.61
37	315094.08	3901162.90	NESTED	101.60
38	314494.08	3901212.90	NESTED	101.60
39	314544.08	3901212.90	NESTED	101.60
40	314594.08	3901212.90	NESTED	101.62
41	314644.08	3901212.90	NESTED	101.63
42	314994.08	3901212.90	NESTED	101.66
43	315044.08	3901212.90	NESTED	101.65
44	315094.08	3901212.90	NESTED	101.63
45	314494.08	3901262.90	NESTED	101.65
46	314544.08	3901262.90	NESTED	101.66
47	314594.08	3901262.90	NESTED	101.66
48	314644.08	3901262.90	NESTED	101.67
49	314994.08	3901262.90	NESTED	101.68
50	315044.08	3901262.90	NESTED	101.67
51	315094.08	3901262.90	NESTED	101.65
52	314194.08	3900362.90	NESTED	100.41
53	314244.08	3900362.90	NESTED	100.45
54	314294.08	3900362.90	NESTED	100.50
55	314344.08	3900362.90	NESTED	100.55
56	314394.08	3900362.90	NESTED	100.59
57	314444.08	3900362.90	NESTED	100.64
58	314494.08	3900362.90	NESTED	100.68
59	314544.08	3900362.90	NESTED	100.74
60	314594.08	3900362.90	NESTED	100.78
61	314644.08	3900362.90	NESTED	100.83
62	314694.08	3900362.90	NESTED	100.85
63	314744.08	3900362.90	NESTED	100.87
64	314794.08	3900362.90	NESTED	100.87
65	314844.08	3900362.90	NESTED	100.87
66	314894.08	3900362.90	NESTED	100.87
67	314944.08	3900362.90	NESTED	100.85
68	314994.08	3900362.90	NESTED	100.82

69	315044.08	3900362.90	NESTED	100.78
70	315094.08	3900362.90	NESTED	100.74
71	315144.08	3900362.90	NESTED	100.69
72	315194.08	3900362.90	NESTED	100.63
73	315244.08	3900362.90	NESTED	100.57
74	315294.08	3900362.90	NESTED	100.51
75	315344.08	3900362.90	NESTED	100.44
76	315394.08	3900362.90	NESTED	100.38
77	314194.08	3900412.90	NESTED	100.47
78	314244.08	3900412.90	NESTED	100.51
79	314294.08	3900412.90	NESTED	100.56
80	314344.08	3900412.90	NESTED	100.62
81	314394.08	3900412.90	NESTED	100.67
82	314444.08	3900412.90	NESTED	100.71
83	314494.08	3900412.90	NESTED	100.76
84	314544.08	3900412.90	NESTED	100.81
85	314594.08	3900412.90	NESTED	100.86
86	314644.08	3900412.90	NESTED	100.91
87	314694.08	3900412.90	NESTED	100.95
88	314744.08	3900412.90	NESTED	100.99
89	314794.08	3900412.90	NESTED	101.00
90	314844.08	3900412.90	NESTED	101.01
91	314894.08	3900412.90	NESTED	101.01
92	314944.08	3900412.90	NESTED	100.99
93	314994.08	3900412.90	NESTED	100.96
94	315044.08	3900412.90	NESTED	100.92
95	315094.08	3900412.90	NESTED	100.86
96	315144.08	3900412.90	NESTED	100.81
97	315194.08	3900412.90	NESTED	100.76
98	315244.08	3900412.90	NESTED	100.70
99	315294.08	3900412.90	NESTED	100.64
100	315344.08	3900412.90	NESTED	100.57
101	315394.08	3900412.90	NESTED	100.51
102	314194.08	3900462.90	NESTED	100.54
103	314244.08	3900462.90	NESTED	100.58
104	314294.08	3900462.90	NESTED	100.63
105	314394.08	3900462.90	NESTED	100.73
106	314444.08	3900462.90	NESTED	100.78

107	314494.08	3900462.90	NESTED	100.83
108	314544.08	3900462.90	NESTED	100.88
109	314594.08	3900462.90	NESTED	100.94
110	314644.08	3900462.90	NESTED	101.00
111	314694.08	3900462.90	NESTED	101.05
112	314744.08	3900462.90	NESTED	101.08
113	314794.08	3900462.90	NESTED	101.12
114	314844.08	3900462.90	NESTED	101.14
115	314894.08	3900462.90	NESTED	101.13
116	314944.08	3900462.90	NESTED	101.11
117	314994.08	3900462.90	NESTED	101.07
118	315044.08	3900462.90	NESTED	101.03
119	315094.08	3900462.90	NESTED	100.97
120	315144.08	3900462.90	NESTED	100.93
121	315194.08	3900462.90	NESTED	100.88
122	315244.08	3900462.90	NESTED	100.82
123	315294.08	3900462.90	NESTED	100.76
124	315344.08	3900462.90	NESTED	100.69
125	315394.08	3900462.90	NESTED	100.62
126	314194.08	3900512.90	NESTED	100.60
127	314244.08	3900512.90	NESTED	100.65
128	314294.08	3900512.90	NESTED	100.70
129	314344.08	3900512.90	NESTED	100.75
130	314394.08	3900512.90	NESTED	100.80
131	314444.08	3900512.90	NESTED	100.84
132	314994.08	3900512.90	NESTED	101.17
133	315044.08	3900512.90	NESTED	101.11
134	315094.08	3900512.90	NESTED	101.06
135	315144.08	3900512.90	NESTED	101.02
136	315194.08	3900512.90	NESTED	100.97
137	315244.08	3900512.90	NESTED	100.92
138	315294.08	3900512.90	NESTED	100.86
139	315344.08	3900512.90	NESTED	100.79
140	315394.08	3900512.90	NESTED	100.72
141	314194.08	3900562.90	NESTED	100.69
142	314244.08	3900562.90	NESTED	100.73
143	314294.08	3900562.90	NESTED	100.77
144	314344.08	3900562.90	NESTED	100.82

145	314394.08	3900562.90	NESTED	100.87
146	314444.08	3900562.90	NESTED	100.91
147	314994.08	3900562.90	NESTED	101.25
148	315044.08	3900562.90	NESTED	101.20
149	315094.08	3900562.90	NESTED	101.15
150	315144.08	3900562.90	NESTED	101.10
151	315194.08	3900562.90	NESTED	101.06
152	315244.08	3900562.90	NESTED	101.01
153	315294.08	3900562.90	NESTED	100.94
154	315344.08	3900562.90	NESTED	100.88
155	315394.08	3900562.90	NESTED	100.80
156	314194.08	3900612.90	NESTED	100.75
157	314244.08	3900612.90	NESTED	100.79
158	314294.08	3900612.90	NESTED	100.84
159	314344.08	3900612.90	NESTED	100.88
160	314394.08	3900612.90	NESTED	100.93
161	314444.08	3900612.90	NESTED	100.97
162	314994.08	3900612.90	NESTED	101.29
163	315044.08	3900612.90	NESTED	101.27
164	315094.08	3900612.90	NESTED	101.23
165	315144.08	3900612.90	NESTED	101.18
166	315194.08	3900612.90	NESTED	101.14
167	315244.08	3900612.90	NESTED	101.09
168	315294.08	3900612.90	NESTED	101.03
169	315344.08	3900612.90	NESTED	100.94
170	315394.08	3900612.90	NESTED	100.88
171	314194.08	3900662.90	NESTED	100.81
172	314244.08	3900662.90	NESTED	100.85
173	314294.08	3900662.90	NESTED	100.90
174	314344.08	3900662.90	NESTED	100.94
175	314394.08	3900662.90	NESTED	100.99
176	314444.08	3900662.90	NESTED	101.03
177	315144.08	3900662.90	NESTED	101.25
178	315194.08	3900662.90	NESTED	101.21
179	315244.08	3900662.90	NESTED	101.17
180	315294.08	3900662.90	NESTED	101.07
181	315344.08	3900662.90	NESTED	101.00
182	315394.08	3900662.90	NESTED	100.95

183	314194.08	3900712.90	NESTED	100.87
184	314244.08	3900712.90	NESTED	100.91
185	314294.08	3900712.90	NESTED	100.95
186	314344.08	3900712.90	NESTED	100.99
187	314394.08	3900712.90	NESTED	101.04
188	314444.08	3900712.90	NESTED	101.09
189	315144.08	3900712.90	NESTED	101.29
190	315194.08	3900712.90	NESTED	101.27
191	315244.08	3900712.90	NESTED	101.17
192	315294.08	3900712.90	NESTED	101.11
193	315344.08	3900712.90	NESTED	101.08
194	315394.08	3900712.90	NESTED	101.04
195	314194.08	3900762.90	NESTED	100.93
196	314244.08	3900762.90	NESTED	100.97
197	314294.08	3900762.90	NESTED	101.01
198	314344.08	3900762.90	NESTED	101.05
199	314394.08	3900762.90	NESTED	101.09
200	314444.08	3900762.90	NESTED	101.14
201	315144.08	3900762.90	NESTED	101.34
202	315194.08	3900762.90	NESTED	101.31
203	315244.08	3900762.90	NESTED	101.24
204	315294.08	3900762.90	NESTED	101.20
205	315344.08	3900762.90	NESTED	101.15
206	315394.08	3900762.90	NESTED	101.10
207	314194.08	3900812.90	NESTED	100.99
208	314244.08	3900812.90	NESTED	101.03
209	314294.08	3900812.90	NESTED	101.07
210	314344.08	3900812.90	NESTED	101.11
211	314394.08	3900812.90	NESTED	101.14
212	314444.08	3900812.90	NESTED	101.18
213	315144.08	3900812.90	NESTED	101.37
214	315194.08	3900812.90	NESTED	101.33
215	315244.08	3900812.90	NESTED	101.29
216	315294.08	3900812.90	NESTED	101.26
217	315344.08	3900812.90	NESTED	101.21
218	315394.08	3900812.90	NESTED	101.16
219	314194.08	3900862.90	NESTED	101.06
220	314244.08	3900862.90	NESTED	101.09

221	314294.08	3900862.90	NESTED	101.13
222	314344.08	3900862.90	NESTED	101.16
223	314394.08	3900862.90	NESTED	101.20
224	314444.08	3900862.90	NESTED	101.23
225	315144.08	3900862.90	NESTED	101.39
226	315194.08	3900862.90	NESTED	101.35
227	315244.08	3900862.90	NESTED	101.32
228	315294.08	3900862.90	NESTED	101.30
229	315344.08	3900862.90	NESTED	101.27
230	315394.08	3900862.90	NESTED	101.22
231	314194.08	3900912.90	NESTED	101.13
232	314244.08	3900912.90	NESTED	101.16
233	314294.08	3900912.90	NESTED	101.19
234	314344.08	3900912.90	NESTED	101.23
235	314394.08	3900912.90	NESTED	101.26
236	314444.08	3900912.90	NESTED	101.29
237	315144.08	3900912.90	NESTED	101.41
238	315194.08	3900912.90	NESTED	101.39
239	315244.08	3900912.90	NESTED	101.35
240	315294.08	3900912.90	NESTED	101.34
241	315344.08	3900912.90	NESTED	101.30
242	315394.08	3900912.90	NESTED	101.26
243	314194.08	3900962.90	NESTED	101.19
244	314244.08	3900962.90	NESTED	101.22
245	314294.08	3900962.90	NESTED	101.26
246	314344.08	3900962.90	NESTED	101.29
247	314394.08	3900962.90	NESTED	101.31
248	314444.08	3900962.90	NESTED	101.33
249	315144.08	3900962.90	NESTED	101.45
250	315194.08	3900962.90	NESTED	101.43
251	315244.08	3900962.90	NESTED	101.38
252	315294.08	3900962.90	NESTED	101.37
253	315344.08	3900962.90	NESTED	101.33
254	315394.08	3900962.90	NESTED	101.28
255	314194.08	3901012.90	NESTED	101.25
256	314244.08	3901012.90	NESTED	101.28
257	314294.08	3901012.90	NESTED	101.31
258	314344.08	3901012.90	NESTED	101.33

259	314394.08	3901012.90	NESTED	101.36
260	314444.08	3901012.90	NESTED	101.38
261	315144.08	3901012.90	NESTED	101.48
262	315194.08	3901012.90	NESTED	101.46
263	315244.08	3901012.90	NESTED	101.42
264	315294.08	3901012.90	NESTED	101.39
265	315344.08	3901012.90	NESTED	101.36
266	315394.08	3901012.90	NESTED	101.30
267	314194.08	3901062.90	NESTED	101.31
268	314244.08	3901062.90	NESTED	101.33
269	314294.08	3901062.90	NESTED	101.36
270	314344.08	3901062.90	NESTED	101.39
271	314394.08	3901062.90	NESTED	101.41
272	314444.08	3901062.90	NESTED	101.43
273	315144.08	3901062.90	NESTED	101.51
274	315194.08	3901062.90	NESTED	101.49
275	315244.08	3901062.90	NESTED	101.45
276	315294.08	3901062.90	NESTED	101.42
277	315344.08	3901062.90	NESTED	101.38
278	315394.08	3901062.90	NESTED	101.33
279	314194.08	3901112.90	NESTED	101.36
280	314244.08	3901112.90	NESTED	101.38
281	314294.08	3901112.90	NESTED	101.41
282	314344.08	3901112.90	NESTED	101.44
283	314394.08	3901112.90	NESTED	101.46
284	314444.08	3901112.90	NESTED	101.47
285	315144.08	3901112.90	NESTED	101.55
286	315194.08	3901112.90	NESTED	101.52
287	315244.08	3901112.90	NESTED	101.48
288	315294.08	3901112.90	NESTED	101.44
289	315344.08	3901112.90	NESTED	101.41
290	315394.08	3901112.90	NESTED	101.36
291	314194.08	3901162.90	NESTED	101.41
292	314244.08	3901162.90	NESTED	101.44
293	314294.08	3901162.90	NESTED	101.46
294	314344.08	3901162.90	NESTED	101.48
295	314394.08	3901162.90	NESTED	101.51
296	314444.08	3901162.90	NESTED	101.52

297	315144.08	3901162.90	NESTED	101.58
298	315194.08	3901162.90	NESTED	101.55
299	315244.08	3901162.90	NESTED	101.50
300	315294.08	3901162.90	NESTED	101.48
301	315344.08	3901162.90	NESTED	101.43
302	315394.08	3901162.90	NESTED	101.39
303	314194.08	3901212.90	NESTED	101.46
304	314244.08	3901212.90	NESTED	101.48
305	314294.08	3901212.90	NESTED	101.51
306	314344.08	3901212.90	NESTED	101.53
307	314394.08	3901212.90	NESTED	101.56
308	314444.08	3901212.90	NESTED	101.58
309	315144.08	3901212.90	NESTED	101.60
310	315194.08	3901212.90	NESTED	101.58
311	315244.08	3901212.90	NESTED	101.53
312	315294.08	3901212.90	NESTED	101.50
313	315344.08	3901212.90	NESTED	101.46
314	315394.08	3901212.90	NESTED	101.41
315	314194.08	3901262.90	NESTED	101.51
316	314244.08	3901262.90	NESTED	101.54
317	314294.08	3901262.90	NESTED	101.56
318	314344.08	3901262.90	NESTED	101.59
319	314394.08	3901262.90	NESTED	101.61
320	314444.08	3901262.90	NESTED	101.63
321	315144.08	3901262.90	NESTED	101.62
322	315194.08	3901262.90	NESTED	101.59
323	315244.08	3901262.90	NESTED	101.56
324	315294.08	3901262.90	NESTED	101.52
325	315344.08	3901262.90	NESTED	101.48
326	315394.08	3901262.90	NESTED	101.44
327	314194.08	3901312.90	NESTED	101.58
328	314244.08	3901312.90	NESTED	101.59
329	314294.08	3901312.90	NESTED	101.61
330	314344.08	3901312.90	NESTED	101.63
331	314394.08	3901312.90	NESTED	101.66
332	314444.08	3901312.90	NESTED	101.67
333	314494.08	3901312.90	NESTED	101.68
334	314544.08	3901312.90	NESTED	101.69

335	314594.08	3901312.90	NESTED	101.70
336	314644.08	3901312.90	NESTED	101.71
337	314694.08	3901312.90	NESTED	101.72
338	314744.08	3901312.90	NESTED	101.72
339	314794.08	3901312.90	NESTED	101.73
340	314844.08	3901312.90	NESTED	101.73
341	314894.08	3901312.90	NESTED	101.73
342	314944.08	3901312.90	NESTED	101.71
343	314994.08	3901312.90	NESTED	101.70
344	315044.08	3901312.90	NESTED	101.69
345	315094.08	3901312.90	NESTED	101.67
346	315144.08	3901312.90	NESTED	101.64
347	315194.08	3901312.90	NESTED	101.61
348	315244.08	3901312.90	NESTED	101.58
349	315294.08	3901312.90	NESTED	101.54
350	315344.08	3901312.90	NESTED	101.49
351	315394.08	3901312.90	NESTED	101.44
352	314194.08	3901362.90	NESTED	101.63
353	314244.08	3901362.90	NESTED	101.65
354	314294.08	3901362.90	NESTED	101.66
355	314344.08	3901362.90	NESTED	101.68
356	314394.08	3901362.90	NESTED	101.70
357	314444.08	3901362.90	NESTED	101.71
358	314494.08	3901362.90	NESTED	101.72
359	314544.08	3901362.90	NESTED	101.73
360	314594.08	3901362.90	NESTED	101.74
361	314644.08	3901362.90	NESTED	101.75
362	314694.08	3901362.90	NESTED	101.75
363	314744.08	3901362.90	NESTED	101.76
364	314794.08	3901362.90	NESTED	101.75
365	314844.08	3901362.90	NESTED	101.75
366	314894.08	3901362.90	NESTED	101.74
367	314944.08	3901362.90	NESTED	101.73
368	314994.08	3901362.90	NESTED	101.71
369	315044.08	3901362.90	NESTED	101.70
370	315094.08	3901362.90	NESTED	101.68
371	315144.08	3901362.90	NESTED	101.65
372	315194.08	3901362.90	NESTED	101.62

373	315244.08	3901362.90	NESTED	101.58
374	315294.08	3901362.90	NESTED	101.54
375	315344.08	3901362.90	NESTED	101.49
376	315394.08	3901362.90	NESTED	101.44
377	314194.08	3901412.90	NESTED	101.69
378	314244.08	3901412.90	NESTED	101.71
379	314294.08	3901412.90	NESTED	101.72
380	314344.08	3901412.90	NESTED	101.75
381	314394.08	3901412.90	NESTED	101.75
382	314444.08	3901412.90	NESTED	101.76
383	314494.08	3901412.90	NESTED	101.78
384	314544.08	3901412.90	NESTED	101.78
385	314594.08	3901412.90	NESTED	101.79
386	314644.08	3901412.90	NESTED	101.80
387	314694.08	3901412.90	NESTED	101.81
388	314744.08	3901412.90	NESTED	101.80
389	314794.08	3901412.90	NESTED	101.80
390	314844.08	3901412.90	NESTED	101.79
391	314894.08	3901412.90	NESTED	101.77
392	314944.08	3901412.90	NESTED	101.77
393	314994.08	3901412.90	NESTED	101.75
394	315044.08	3901412.90	NESTED	101.73
395	315094.08	3901412.90	NESTED	101.71
396	315144.08	3901412.90	NESTED	101.68
397	315194.08	3901412.90	NESTED	101.64
398	315244.08	3901412.90	NESTED	101.60
399	315294.08	3901412.90	NESTED	101.56
400	315344.08	3901412.90	NESTED	101.51
401	315394.08	3901412.90	NESTED	101.46
402	314194.08	3901462.90	NESTED	101.76
403	314244.08	3901462.90	NESTED	101.77
404	314294.08	3901462.90	NESTED	101.78
405	314344.08	3901462.90	NESTED	101.79
406	314394.08	3901462.90	NESTED	101.81
407	314444.08	3901462.90	NESTED	101.83
408	314494.08	3901462.90	NESTED	101.83
409	314544.08	3901462.90	NESTED	101.84
410	314594.08	3901462.90	NESTED	101.86

411	314644.08	3901462.90	NESTED	101.86
412	314694.08	3901462.90	NESTED	101.87
413	314744.08	3901462.90	NESTED	101.87
414	314794.08	3901462.90	NESTED	101.85
415	314844.08	3901462.90	NESTED	101.84
416	314894.08	3901462.90	NESTED	101.82
417	314944.08	3901462.90	NESTED	101.81
418	314994.08	3901462.90	NESTED	101.80
419	315044.08	3901462.90	NESTED	101.77
420	315094.08	3901462.90	NESTED	101.75
421	315144.08	3901462.90	NESTED	101.72
422	315194.08	3901462.90	NESTED	101.68
423	315244.08	3901462.90	NESTED	101.64
424	315294.08	3901462.90	NESTED	101.60
425	315344.08	3901462.90	NESTED	101.55
426	315394.08	3901462.90	NESTED	101.49
427	314194.08	3901512.90	NESTED	101.82
428	314244.08	3901512.90	NESTED	101.84
429	314294.08	3901512.90	NESTED	101.85
430	314344.08	3901512.90	NESTED	101.86
431	314394.08	3901512.90	NESTED	101.87
432	314444.08	3901512.90	NESTED	101.88
433	314494.08	3901512.90	NESTED	101.89
434	314544.08	3901512.90	NESTED	101.92
435	314594.08	3901512.90	NESTED	101.93
436	314644.08	3901512.90	NESTED	101.93
437	314694.08	3901512.90	NESTED	101.93
438	314744.08	3901512.90	NESTED	101.93
439	314794.08	3901512.90	NESTED	101.91
440	314844.08	3901512.90	NESTED	101.91
441	314894.08	3901512.90	NESTED	101.89
442	314944.08	3901512.90	NESTED	101.88
443	314994.08	3901512.90	NESTED	101.86
444	315044.08	3901512.90	NESTED	101.84
445	315094.08	3901512.90	NESTED	101.80
446	315144.08	3901512.90	NESTED	101.77
447	315194.08	3901512.90	NESTED	101.73
448	315244.08	3901512.90	NESTED	101.69

449	315294.08	3901512.90	NESTED	101.64
450	315344.08	3901512.90	NESTED	101.60
451	315394.08	3901512.90	NESTED	101.54
452	314194.08	3901562.90	NESTED	101.89
453	314244.08	3901562.90	NESTED	101.91
454	314294.08	3901562.90	NESTED	101.92
455	314344.08	3901562.90	NESTED	101.93
456	314394.08	3901562.90	NESTED	101.93
457	314444.08	3901562.90	NESTED	101.94
458	314494.08	3901562.90	NESTED	101.96
459	314544.08	3901562.90	NESTED	101.98
460	314594.08	3901562.90	NESTED	102.00
461	314644.08	3901562.90	NESTED	102.01
462	314694.08	3901562.90	NESTED	102.01
463	314744.08	3901562.90	NESTED	102.01
464	314794.08	3901562.90	NESTED	101.99
465	314844.08	3901562.90	NESTED	101.98
466	314894.08	3901562.90	NESTED	101.97
467	314944.08	3901562.90	NESTED	101.96
468	314994.08	3901562.90	NESTED	101.94
469	315044.08	3901562.90	NESTED	101.91
470	315094.08	3901562.90	NESTED	101.88
471	315144.08	3901562.90	NESTED	101.84
472	315194.08	3901562.90	NESTED	101.80
473	315244.08	3901562.90	NESTED	101.75
474	315294.08	3901562.90	NESTED	101.71
475	315344.08	3901562.90	NESTED	101.66
476	315394.08	3901562.90	NESTED	101.62
477	313194.08	3899362.90	NESTED	98.65
478	313294.08	3899362.90	NESTED	98.62
479	313394.08	3899362.90	NESTED	98.61
480	313494.08	3899362.90	NESTED	98.54
481	313594.08	3899362.90	NESTED	98.37
482	313694.08	3899362.90	NESTED	98.33
483	313794.08	3899362.90	NESTED	98.34
484	313894.08	3899362.90	NESTED	98.34
485	313994.08	3899362.90	NESTED	98.36
486	314094.08	3899362.90	NESTED	98.37

487	314194.08	3899362.90	NESTED	98.37
488	314294.08	3899362.90	NESTED	98.37
489	314394.08	3899362.90	NESTED	98.39
490	314494.08	3899362.90	NESTED	98.36
491	314594.08	3899362.90	NESTED	98.39
492	314694.08	3899362.90	NESTED	98.35
493	314794.08	3899362.90	NESTED	98.37
494	314894.08	3899362.90	NESTED	98.36
495	314994.08	3899362.90	NESTED	98.38
496	315094.08	3899362.90	NESTED	98.42
497	315194.08	3899362.90	NESTED	98.48
498	315294.08	3899362.90	NESTED	98.42
499	315394.08	3899362.90	NESTED	98.32
500	315494.08	3899362.90	NESTED	98.20
501	315594.08	3899362.90	NESTED	98.15
502	315694.08	3899362.90	NESTED	98.09
503	315794.08	3899362.90	NESTED	98.12
504	315894.08	3899362.90	NESTED	98.13
505	315994.08	3899362.90	NESTED	98.16
506	316094.08	3899362.90	NESTED	98.53
507	316194.08	3899362.90	NESTED	98.96
508	316294.08	3899362.90	NESTED	99.74
509	316394.08	3899362.90	NESTED	99.09
510	313194.08	3899462.90	NESTED	98.85
511	313294.08	3899462.90	NESTED	98.81
512	313394.08	3899462.90	NESTED	98.78
513	313494.08	3899462.90	NESTED	98.69
514	313594.08	3899462.90	NESTED	98.61
515	313694.08	3899462.90	NESTED	98.59
516	313794.08	3899462.90	NESTED	98.56
517	313894.08	3899462.90	NESTED	98.59
518	313994.08	3899462.90	NESTED	98.60
519	314094.08	3899462.90	NESTED	98.63
520	314194.08	3899462.90	NESTED	98.67
521	314294.08	3899462.90	NESTED	98.69
522	314394.08	3899462.90	NESTED	98.69
523	314494.08	3899462.90	NESTED	98.64
524	314594.08	3899462.90	NESTED	98.61

525	314694.08	3899462.90	NESTED	98.58
526	314794.08	3899462.90	NESTED	98.56
527	314894.08	3899462.90	NESTED	98.58
528	314994.08	3899462.90	NESTED	98.61
529	315094.08	3899462.90	NESTED	98.62
530	315194.08	3899462.90	NESTED	98.61
531	315294.08	3899462.90	NESTED	98.58
532	315394.08	3899462.90	NESTED	98.49
533	315494.08	3899462.90	NESTED	98.38
534	315594.08	3899462.90	NESTED	98.27
535	315694.08	3899462.90	NESTED	98.26
536	315794.08	3899462.90	NESTED	98.28
537	315894.08	3899462.90	NESTED	98.32
538	315994.08	3899462.90	NESTED	98.36
539	316094.08	3899462.90	NESTED	98.64
540	316194.08	3899462.90	NESTED	99.39
541	316294.08	3899462.90	NESTED	99.73
542	316394.08	3899462.90	NESTED	99.41
543	313194.08	3899562.90	NESTED	99.07
544	313294.08	3899562.90	NESTED	99.04
545	313394.08	3899562.90	NESTED	98.98
546	313494.08	3899562.90	NESTED	98.90
547	313594.08	3899562.90	NESTED	98.84
548	313694.08	3899562.90	NESTED	98.81
549	313794.08	3899562.90	NESTED	98.80
550	313894.08	3899562.90	NESTED	98.82
551	313994.08	3899562.90	NESTED	98.85
552	314094.08	3899562.90	NESTED	98.93
553	314194.08	3899562.90	NESTED	99.00
554	314294.08	3899562.90	NESTED	99.09
555	314394.08	3899562.90	NESTED	99.11
556	314494.08	3899562.90	NESTED	99.06
557	314594.08	3899562.90	NESTED	98.92
558	314694.08	3899562.90	NESTED	98.82
559	314794.08	3899562.90	NESTED	98.79
560	314894.08	3899562.90	NESTED	98.79
561	314994.08	3899562.90	NESTED	98.80
562	315094.08	3899562.90	NESTED	98.79

563	315194.08	3899562.90	NESTED	98.78
564	315294.08	3899562.90	NESTED	98.75
565	315394.08	3899562.90	NESTED	98.68
566	315494.08	3899562.90	NESTED	98.59
567	315594.08	3899562.90	NESTED	98.52
568	315694.08	3899562.90	NESTED	98.52
569	315794.08	3899562.90	NESTED	98.53
570	315894.08	3899562.90	SCHOOL	98.56
571	315994.08	3899562.90	NESTED	98.66
572	316094.08	3899562.90	NESTED	98.86
573	316194.08	3899562.90	NESTED	99.35
574	316294.08	3899562.90	NESTED	99.73
575	316394.08	3899562.90	NESTED	99.55
576	313194.08	3899662.90	NESTED	99.33
577	313294.08	3899662.90	NESTED	99.27
578	313394.08	3899662.90	NESTED	99.20
579	313494.08	3899662.90	NESTED	99.13
580	313594.08	3899662.90	NESTED	99.07
581	313694.08	3899662.90	NESTED	99.05
582	313794.08	3899662.90	NESTED	99.04
583	313894.08	3899662.90	NESTED	99.06
584	313994.08	3899662.90	NESTED	99.12
585	314094.08	3899662.90	NESTED	99.21
586	314194.08	3899662.90	NESTED	99.33
587	314294.08	3899662.90	NESTED	99.45
588	314394.08	3899662.90	NESTED	99.60
589	314494.08	3899662.90	NESTED	99.51
590	314594.08	3899662.90	NESTED	99.16
591	314694.08	3899662.90	NESTED	99.02
592	314794.08	3899662.90	NESTED	98.98
593	314894.08	3899662.90	NESTED	98.99
594	314994.08	3899662.90	NESTED	98.98
595	315094.08	3899662.90	NESTED	98.97
596	315194.08	3899662.90	NESTED	98.95
597	315294.08	3899662.90	NESTED	98.94
598	315394.08	3899662.90	NESTED	98.89
599	315494.08	3899662.90	NESTED	98.83
600	315594.08	3899662.90	NESTED	98.79

601	315694.08	3899662.90	NESTED	98.80
602	315794.08	3899662.90	NESTED	98.82
603	315894.08	3899662.90	NESTED	98.83
604	315994.08	3899662.90	NESTED	98.89
605	316094.08	3899662.90	NESTED	98.93
606	316194.08	3899662.90	NESTED	99.05
607	316294.08	3899662.90	NESTED	99.15
608	316394.08	3899662.90	NESTED	99.07
609	313194.08	3899762.90	NESTED	99.56
610	313294.08	3899762.90	NESTED	99.48
611	313394.08	3899762.90	NESTED	99.40
612	313494.08	3899762.90	NESTED	99.34
613	313594.08	3899762.90	NESTED	99.29
614	313694.08	3899762.90	NESTED	99.23
615	313794.08	3899762.90	NESTED	99.24
616	313894.08	3899762.90	NESTED	99.28
617	313994.08	3899762.90	NESTED	99.35
618	314094.08	3899762.90	NESTED	99.43
619	314194.08	3899762.90	NESTED	99.53
620	314294.08	3899762.90	NESTED	99.65
621	314394.08	3899762.90	NESTED	99.76
622	314494.08	3899762.90	NESTED	99.60
623	314594.08	3899762.90	NESTED	99.36
624	314694.08	3899762.90	NESTED	99.23
625	314794.08	3899762.90	NESTED	99.20
626	314894.08	3899762.90	NESTED	99.18
627	314994.08	3899762.90	NESTED	99.17
628	315094.08	3899762.90	NESTED	99.18
629	315194.08	3899762.90	NESTED	99.16
630	315294.08	3899762.90	NESTED	99.14
631	315394.08	3899762.90	NESTED	99.11
632	315494.08	3899762.90	NESTED	99.08
633	315594.08	3899762.90	NESTED	99.07
634	315694.08	3899762.90	NESTED	99.07
635	315794.08	3899762.90	NESTED	99.07
636	315894.08	3899762.90	NESTED	99.06
637	315994.08	3899762.90	NESTED	99.06
638	316094.08	3899762.90	NESTED	99.05

639	316194.08	3899762.90	NESTED	99.04
640	316294.08	3899762.90	NESTED	99.04
641	316394.08	3899762.90	NESTED	99.05
642	313194.08	3899862.90	NESTED	99.73
643	313294.08	3899862.90	NESTED	99.57
644	313394.08	3899862.90	NESTED	99.63
645	313494.08	3899862.90	NESTED	99.60
646	313594.08	3899862.90	NESTED	99.47
647	313694.08	3899862.90	NESTED	99.36
648	313794.08	3899862.90	NESTED	99.36
649	313894.08	3899862.90	NESTED	99.43
650	313994.08	3899862.90	NESTED	99.50
651	314094.08	3899862.90	NESTED	99.60
652	314194.08	3899862.90	NESTED	99.71
653	314294.08	3899862.90	NESTED	99.80
654	314394.08	3899862.90	NESTED	99.85
655	314494.08	3899862.90	NESTED	99.83
656	314594.08	3899862.90	NESTED	99.65
657	314694.08	3899862.90	NESTED	99.52
658	314794.08	3899862.90	NESTED	99.46
659	314894.08	3899862.90	NESTED	99.40
660	314994.08	3899862.90	NESTED	99.36
661	315094.08	3899862.90	NESTED	99.37
662	315194.08	3899862.90	NESTED	99.37
663	315294.08	3899862.90	NESTED	99.34
664	315394.08	3899862.90	NESTED	99.29
665	315494.08	3899862.90	NESTED	99.28
666	315594.08	3899862.90	NESTED	99.29
667	315694.08	3899862.90	NESTED	99.30
668	315794.08	3899862.90	NESTED	99.28
669	315894.08	3899862.90	NESTED	99.27
670	315994.08	3899862.90	NESTED	99.27
671	316094.08	3899862.90	NESTED	99.27
672	316194.08	3899862.90	NESTED	99.29
673	316294.08	3899862.90	NESTED	99.27
674	316394.08	3899862.90	NESTED	99.27
675	313194.08	3899962.90	NESTED	99.73
676	313294.08	3899962.90	NESTED	99.58

677	313394.08	3899962.90	NESTED	99.74
678	313494.08	3899962.90	NESTED	99.72
679	313594.08	3899962.90	NESTED	99.54
680	313694.08	3899962.90	NESTED	99.45
681	313794.08	3899962.90	NESTED	99.49
682	313894.08	3899962.90	NESTED	99.57
683	313994.08	3899962.90	NESTED	99.65
684	314094.08	3899962.90	NESTED	99.75
685	314194.08	3899962.90	NESTED	99.85
686	314294.08	3899962.90	NESTED	99.95
687	314394.08	3899962.90	NESTED	100.01
688	314494.08	3899962.90	NESTED	100.00
689	314594.08	3899962.90	NESTED	99.92
690	314694.08	3899962.90	NESTED	99.83
691	314794.08	3899962.90	NESTED	99.78
692	314894.08	3899962.90	NESTED	99.70
693	314994.08	3899962.90	NESTED	99.64
694	315094.08	3899962.90	NESTED	99.60
695	315194.08	3899962.90	NESTED	99.55
696	315294.08	3899962.90	NESTED	99.52
697	315394.08	3899962.90	NESTED	99.46
698	315494.08	3899962.90	NESTED	99.48
699	315594.08	3899962.90	NESTED	99.49
700	315694.08	3899962.90	NESTED	99.49
701	315794.08	3899962.90	NESTED	99.49
702	315894.08	3899962.90	NESTED	99.49
703	315994.08	3899962.90	NESTED	99.46
704	316094.08	3899962.90	NESTED	99.45
705	316194.08	3899962.90	NESTED	99.57
706	316294.08	3899962.90	NESTED	99.62
707	316394.08	3899962.90	NESTED	99.53
708	313194.08	3900062.90	NESTED	99.72
709	313294.08	3900062.90	NESTED	99.68
710	313394.08	3900062.90	NESTED	99.81
711	313494.08	3900062.90	NESTED	99.81
712	313594.08	3900062.90	NESTED	99.61
713	313694.08	3900062.90	NESTED	99.54
714	313794.08	3900062.90	NESTED	99.62

715	313894.08	3900062.90	NESTED	99.71
716	313994.08	3900062.90	NESTED	99.80
717	314094.08	3900062.90	NESTED	99.88
718	314194.08	3900062.90	NESTED	99.99
719	314294.08	3900062.90	NESTED	100.09
720	314394.08	3900062.90	NESTED	100.16
721	314494.08	3900062.90	NESTED	100.18
722	314594.08	3900062.90	NESTED	100.13
723	314694.08	3900062.90	NESTED	100.08
724	314794.08	3900062.90	NESTED	100.06
725	314894.08	3900062.90	NESTED	100.03
726	314994.08	3900062.90	NESTED	99.98
727	315094.08	3900062.90	NESTED	99.92
728	315194.08	3900062.90	NESTED	99.80
729	315294.08	3900062.90	NESTED	99.67
730	315394.08	3900062.90	NESTED	99.67
731	315494.08	3900062.90	NESTED	99.67
732	315594.08	3900062.90	NESTED	99.68
733	315694.08	3900062.90	NESTED	99.68
734	315794.08	3900062.90	NESTED	99.68
735	315894.08	3900062.90	NESTED	99.68
736	315994.08	3900062.90	NESTED	99.68
737	316094.08	3900062.90	NESTED	99.58
738	316194.08	3900062.90	NESTED	99.67
739	316294.08	3900062.90	NESTED	99.76
740	316394.08	3900062.90	NESTED	99.62
741	313194.08	3900162.90	NESTED	99.72
742	313294.08	3900162.90	NESTED	99.86
743	313394.08	3900162.90	NESTED	99.96
744	313494.08	3900162.90	NESTED	99.85
745	313594.08	3900162.90	NESTED	99.66
746	313694.08	3900162.90	NESTED	99.65
747	313794.08	3900162.90	NESTED	99.75
748	313894.08	3900162.90	NESTED	99.85
749	313994.08	3900162.90	NESTED	99.95
750	314094.08	3900162.90	NESTED	100.04
751	314194.08	3900162.90	NESTED	100.13
752	314294.08	3900162.90	NESTED	100.21

753	314394.08	3900162.90	NESTED	100.30
754	314494.08	3900162.90	NESTED	100.35
755	314594.08	3900162.90	NESTED	100.37
756	314694.08	3900162.90	NESTED	100.35
757	314794.08	3900162.90	NESTED	100.33
758	314894.08	3900162.90	NESTED	100.32
759	314994.08	3900162.90	NESTED	100.29
760	315094.08	3900162.90	NESTED	100.19
761	315194.08	3900162.90	NESTED	100.02
762	315294.08	3900162.90	NESTED	99.91
763	315394.08	3900162.90	NESTED	99.89
764	315494.08	3900162.90	NESTED	99.88
765	315594.08	3900162.90	NESTED	99.87
766	315694.08	3900162.90	NESTED	99.87
767	315794.08	3900162.90	NESTED	99.84
768	315894.08	3900162.90	NESTED	99.86
769	315994.08	3900162.90	NESTED	99.79
770	316094.08	3900162.90	NESTED	99.73
771	316194.08	3900162.90	NESTED	99.73
772	316294.08	3900162.90	NESTED	99.83
773	316394.08	3900162.90	NESTED	99.69
774	313194.08	3900262.90	NESTED	99.75
775	313294.08	3900262.90	NESTED	100.22
776	313394.08	3900262.90	NESTED	100.10
777	313494.08	3900262.90	NESTED	99.93
778	313594.08	3900262.90	NESTED	99.78
779	313694.08	3900262.90	NESTED	99.80
780	313794.08	3900262.90	NESTED	99.89
781	313894.08	3900262.90	NESTED	99.99
782	313994.08	3900262.90	NESTED	100.09
783	314094.08	3900262.90	NESTED	100.19
784	314194.08	3900262.90	NESTED	100.28
785	314294.08	3900262.90	NESTED	100.37
786	314394.08	3900262.90	NESTED	100.44
787	314494.08	3900262.90	NESTED	100.51
788	314594.08	3900262.90	NESTED	100.59
789	314694.08	3900262.90	NESTED	100.63
790	314794.08	3900262.90	NESTED	100.61

791	314894.08	3900262.90	NESTED	100.59
792	314994.08	3900262.90	NESTED	100.53
793	315094.08	3900262.90	NESTED	100.44
794	315194.08	3900262.90	NESTED	100.33
795	315294.08	3900262.90	NESTED	100.21
796	315394.08	3900262.90	NESTED	100.13
797	315494.08	3900262.90	NESTED	100.07
798	315594.08	3900262.90	NESTED	100.06
799	315694.08	3900262.90	NESTED	100.02
800	315794.08	3900262.90	NESTED	100.02
801	315894.08	3900262.90	NESTED	100.00
802	315994.08	3900262.90	NESTED	99.93
803	316094.08	3900262.90	NESTED	99.86
804	316194.08	3900262.90	NESTED	99.73
805	316294.08	3900262.90	NESTED	100.16
806	316394.08	3900262.90	NESTED	99.64
807	313194.08	3900362.90	NESTED	101.27
808	313294.08	3900362.90	NESTED	100.46
809	313394.08	3900362.90	NESTED	100.16
810	313494.08	3900362.90	NESTED	100.07
811	313594.08	3900362.90	NESTED	100.01
812	313694.08	3900362.90	NESTED	100.00
813	313794.08	3900362.90	NESTED	100.07
814	313894.08	3900362.90	NESTED	100.15
815	313994.08	3900362.90	NESTED	100.24
816	314094.08	3900362.90	NESTED	100.33
817	315494.08	3900362.90	NESTED	100.28
818	315594.08	3900362.90	NESTED	100.23
819	315694.08	3900362.90	NESTED	100.20
820	315794.08	3900362.90	NESTED	100.16
821	315894.08	3900362.90	NESTED	100.12
822	315994.08	3900362.90	NESTED	100.03
823	316094.08	3900362.90	NESTED	99.88
824	316194.08	3900362.90	NESTED	100.17
825	316294.08	3900362.90	NESTED	100.58
826	316394.08	3900362.90	NESTED	99.68
827	313194.08	3900462.90	NESTED	100.45
828	313294.08	3900462.90	NESTED	100.33

829	313394.08	3900462.90	NESTED	100.22
830	313494.08	3900462.90	NESTED	100.20
831	313594.08	3900462.90	NESTED	100.18
832	313694.08	3900462.90	NESTED	100.18
833	313794.08	3900462.90	NESTED	100.22
834	313894.08	3900462.90	NESTED	100.29
835	313994.08	3900462.90	NESTED	100.38
836	314094.08	3900462.90	NESTED	100.46
837	315494.08	3900462.90	NESTED	100.49
838	315594.08	3900462.90	NESTED	100.40
839	315694.08	3900462.90	NESTED	100.35
840	315794.08	3900462.90	NESTED	100.29
841	315894.08	3900462.90	NESTED	100.24
842	315994.08	3900462.90	NESTED	100.13
843	316094.08	3900462.90	NESTED	99.90
844	316194.08	3900462.90	NESTED	100.44
845	316294.08	3900462.90	NESTED	100.78
846	316394.08	3900462.90	NESTED	99.72
847	313194.08	3900562.90	NESTED	100.25
848	313294.08	3900562.90	NESTED	100.32
849	313394.08	3900562.90	NESTED	100.36
850	313494.08	3900562.90	NESTED	100.37
851	313594.08	3900562.90	NESTED	100.35
852	313694.08	3900562.90	NESTED	100.36
853	313794.08	3900562.90	NESTED	100.41
854	313894.08	3900562.90	NESTED	100.48
855	313994.08	3900562.90	NESTED	100.55
856	314094.08	3900562.90	NESTED	100.61
857	315494.08	3900562.90	NESTED	100.67
858	315594.08	3900562.90	NESTED	100.56
859	315694.08	3900562.90	NESTED	100.47
860	315794.08	3900562.90	NESTED	100.42
861	315894.08	3900562.90	NESTED	100.34
862	315994.08	3900562.90	NESTED	100.24
863	316094.08	3900562.90	RESIDENT	99.97
864	316194.08	3900562.90	NESTED	99.81
865	316294.08	3900562.90	NESTED	100.96
866	316394.08	3900562.90	NESTED	99.75

867	313194.08	3900662.90	NESTED	100.39
868	313294.08	3900662.90	NESTED	100.48
869	313394.08	3900662.90	NESTED	100.52
870	313494.08	3900662.90	NESTED	100.53
871	313594.08	3900662.90	NESTED	100.51
872	313694.08	3900662.90	NESTED	100.55
873	313794.08	3900662.90	NESTED	100.59
874	313894.08	3900662.90	NESTED	100.64
875	313994.08	3900662.90	NESTED	100.68
876	314094.08	3900662.90	NESTED	100.73
877	315494.08	3900662.90	NESTED	100.84
878	315594.08	3900662.90	NESTED	100.73
879	315694.08	3900662.90	NESTED	100.61
880	315794.08	3900662.90	NESTED	100.50
881	315894.08	3900662.90	NESTED	100.41
882	315994.08	3900662.90	NESTED	100.30
883	316094.08	3900662.90	NESTED	100.13
884	316194.08	3900662.90	NESTED	100.85
885	316294.08	3900662.90	NESTED	100.97
886	316394.08	3900662.90	NESTED	99.77
887	313194.08	3900762.90	NESTED	100.65
888	313294.08	3900762.90	NESTED	100.67
889	313394.08	3900762.90	NESTED	100.68
890	313494.08	3900762.90	NESTED	100.67
891	313594.08	3900762.90	NESTED	100.67
892	313694.08	3900762.90	NESTED	100.69
893	313794.08	3900762.90	NESTED	100.73
894	313894.08	3900762.90	NESTED	100.77
895	313994.08	3900762.90	NESTED	100.80
896	314094.08	3900762.90	NESTED	100.87
897	315494.08	3900762.90	NESTED	100.99
898	315594.08	3900762.90	NESTED	100.86
899	315694.08	3900762.90	NESTED	100.71
900	315794.08	3900762.90	NESTED	100.58
901	315894.08	3900762.90	NESTED	100.46
902	315994.08	3900762.90	NESTED	100.37
903	316094.08	3900762.90	NESTED	100.50
904	316194.08	3900762.90	NESTED	101.20

905	316294.08	3900762.90	NESTED	100.73
906	316394.08	3900762.90	NESTED	99.77
907	313194.08	3900862.90	NESTED	100.87
908	313294.08	3900862.90	NESTED	100.85
909	313394.08	3900862.90	NESTED	100.84
910	313494.08	3900862.90	NESTED	100.81
911	313594.08	3900862.90	NESTED	100.79
912	313694.08	3900862.90	NESTED	100.80
913	313794.08	3900862.90	NESTED	100.82
914	313894.08	3900862.90	NESTED	100.87
915	313994.08	3900862.90	NESTED	100.92
916	314094.08	3900862.90	NESTED	101.00
917	315494.08	3900862.90	NESTED	101.08
918	315594.08	3900862.90	NESTED	100.92
919	315694.08	3900862.90	NESTED	100.76
920	315794.08	3900862.90	NESTED	100.64
921	315894.08	3900862.90	NESTED	100.55
922	315994.08	3900862.90	NESTED	100.45
923	316094.08	3900862.90	NESTED	100.42
924	316194.08	3900862.90	NESTED	100.53
925	316294.08	3900862.90	NESTED	100.22
926	316394.08	3900862.90	NESTED	99.81
927	313194.08	3900962.90	NESTED	101.03
928	313294.08	3900962.90	NESTED	101.01
929	313394.08	3900962.90	NESTED	100.97
930	313494.08	3900962.90	NESTED	100.93
931	313594.08	3900962.90	NESTED	100.90
932	313694.08	3900962.90	NESTED	100.91
933	313794.08	3900962.90	NESTED	100.94
934	313894.08	3900962.90	NESTED	100.98
935	313994.08	3900962.90	NESTED	101.05
936	314094.08	3900962.90	NESTED	101.12
937	315494.08	3900962.90	NESTED	101.14
938	315594.08	3900962.90	NESTED	100.96
939	315694.08	3900962.90	NESTED	100.81
940	315794.08	3900962.90	NESTED	100.71
941	315894.08	3900962.90	NESTED	100.66
942	315994.08	3900962.90	NESTED	100.57

943	316094.08	3900962.90	NESTED	100.37
944	316194.08	3900962.90	RESIDENT	100.05
945	316294.08	3900962.90	RESIDENT	99.77
946	316394.08	3900962.90	NESTED	99.98
947	313194.08	3901062.90	NESTED	101.21
948	313294.08	3901062.90	NESTED	101.15
949	313394.08	3901062.90	NESTED	101.10
950	313494.08	3901062.90	NESTED	101.04
951	313594.08	3901062.90	NESTED	101.00
952	313694.08	3901062.90	NESTED	101.00
953	313794.08	3901062.90	NESTED	101.05
954	313894.08	3901062.90	NESTED	101.11
955	313994.08	3901062.90	NESTED	101.18
956	314094.08	3901062.90	NESTED	101.25
957	315494.08	3901062.90	NESTED	101.21
958	315594.08	3901062.90	NESTED	101.03
959	315694.08	3901062.90	NESTED	100.88
960	315794.08	3901062.90	NESTED	100.81
961	315894.08	3901062.90	NESTED	100.80
962	315994.08	3901062.90	NESTED	100.78
963	316094.08	3901062.90	NESTED	100.59
964	316194.08	3901062.90	RESIDENT	100.27
965	316294.08	3901062.90	NESTED	99.78
966	316394.08	3901062.90	NESTED	100.14
967	313194.08	3901162.90	NESTED	101.35
968	313294.08	3901162.90	NESTED	101.29
969	313394.08	3901162.90	NESTED	101.22
970	313494.08	3901162.90	NESTED	101.17
971	313594.08	3901162.90	NESTED	101.11
972	313694.08	3901162.90	NESTED	101.11
973	313794.08	3901162.90	NESTED	101.17
974	313894.08	3901162.90	NESTED	101.23
975	313994.08	3901162.90	NESTED	101.30
976	314094.08	3901162.90	NESTED	101.36
977	315494.08	3901162.90	NESTED	101.27
978	315594.08	3901162.90	NESTED	101.11
979	315694.08	3901162.90	NESTED	100.97
980	315794.08	3901162.90	NESTED	100.92

981	315894.08	3901162.90	NESTED	100.95
982	315994.08	3901162.90	NESTED	101.08
983	316094.08	3901162.90	NESTED	101.10
984	316194.08	3901162.90	NESTED	100.86
985	316294.08	3901162.90	RESIDENT	100.61
986	316394.08	3901162.90	NESTED	100.80
987	313194.08	3901262.90	NESTED	101.50
988	313294.08	3901262.90	NESTED	101.47
989	313394.08	3901262.90	NESTED	101.40
990	313494.08	3901262.90	NESTED	101.32
991	313594.08	3901262.90	NESTED	101.24
992	313694.08	3901262.90	NESTED	101.24
993	313794.08	3901262.90	NESTED	101.29
994	313894.08	3901262.90	NESTED	101.36
995	313994.08	3901262.90	NESTED	101.43
996	314094.08	3901262.90	RESIDENT	101.48
997	315494.08	3901262.90	NESTED	101.32
998	315594.08	3901262.90	NESTED	101.15
999	315694.08	3901262.90	NESTED	101.02
1,000	315794.08	3901262.90	NESTED	101.00
1,001	315894.08	3901262.90	NESTED	101.12
1,002	315994.08	3901262.90	NESTED	101.23
1,003	316094.08	3901262.90	NESTED	101.28
1,004	316194.08	3901262.90	NESTED	101.27
1,005	316294.08	3901262.90	NESTED	101.28
1,006	316394.08	3901262.90	NESTED	101.28
1,007	313194.08	3901362.90	NESTED	101.67
1,008	313294.08	3901362.90	NESTED	101.72
1,009	313394.08	3901362.90	NESTED	101.69
1,010	313494.08	3901362.90	NESTED	101.56
1,011	313594.08	3901362.90	NESTED	101.42
1,012	313694.08	3901362.90	NESTED	101.35
1,013	313794.08	3901362.90	NESTED	101.42
1,014	313894.08	3901362.90	NESTED	101.48
1,015	313994.08	3901362.90	NESTED	101.53
1,016	314094.08	3901362.90	NESTED	101.58
1,017	315494.08	3901362.90	NESTED	101.32
1,018	315594.08	3901362.90	NESTED	101.21

1,019	315694.08	3901362.90	NESTED	101.09
1,020	315794.08	3901362.90	NESTED	101.11
1,021	315894.08	3901362.90	NESTED	101.22
1,022	315994.08	3901362.90	NESTED	101.33
1,023	316094.08	3901362.90	NESTED	101.39
1,024	316194.08	3901362.90	NESTED	101.42
1,025	316294.08	3901362.90	NESTED	101.42
1,026	316394.08	3901362.90	NESTED	101.43
1,027	313194.08	3901462.90	NESTED	101.85
1,028	313294.08	3901462.90	NESTED	101.89
1,029	313394.08	3901462.90	NESTED	101.88
1,030	313494.08	3901462.90	NESTED	101.76
1,031	313594.08	3901462.90	NESTED	101.63
1,032	313694.08	3901462.90	NESTED	101.58
1,033	313794.08	3901462.90	NESTED	101.59
1,034	313894.08	3901462.90	NESTED	101.63
1,035	313994.08	3901462.90	NESTED	101.67
1,036	314094.08	3901462.90	NESTED	101.72
1,037	315494.08	3901462.90	NESTED	101.39
1,038	315594.08	3901462.90	NESTED	101.28
1,039	315694.08	3901462.90	NESTED	101.17
1,040	315794.08	3901462.90	NESTED	101.28
1,041	315894.08	3901462.90	NESTED	101.33
1,042	315994.08	3901462.90	NESTED	101.44
1,043	316094.08	3901462.90	NESTED	101.53
1,044	316194.08	3901462.90	NESTED	101.56
1,045	316294.08	3901462.90	NESTED	101.56
1,046	316394.08	3901462.90	NESTED	101.57
1,047	313194.08	3901562.90	NESTED	102.02
1,048	313294.08	3901562.90	NESTED	102.04
1,049	313394.08	3901562.90	NESTED	102.04
1,050	313494.08	3901562.90	NESTED	101.98
1,051	313594.08	3901562.90	NESTED	101.89
1,052	313694.08	3901562.90	NESTED	101.82
1,053	313794.08	3901562.90	NESTED	101.80
1,054	313894.08	3901562.90	NESTED	101.80
1,055	313994.08	3901562.90	NESTED	101.82
1,056	314094.08	3901562.90	NESTED	101.85

1,057	315494.08	3901562.90	NESTED	101.51
1,058	315594.08	3901562.90	NESTED	101.39
1,059	315694.08	3901562.90	NESTED	101.31
1,060	315794.08	3901562.90	NESTED	101.40
1,061	315894.08	3901562.90	NESTED	101.49
1,062	315994.08	3901562.90	NESTED	101.57
1,063	316094.08	3901562.90	NESTED	101.63
1,064	316194.08	3901562.90	NESTED	101.68
1,065	316294.08	3901562.90	NESTED	101.70
1,066	316394.08	3901562.90	NESTED	101.71
1,067	313194.08	3901662.90	NESTED	102.18
1,068	313294.08	3901662.90	NESTED	102.19
1,069	313394.08	3901662.90	NESTED	102.19
1,070	313494.08	3901662.90	NESTED	102.15
1,071	313594.08	3901662.90	NESTED	102.10
1,072	313694.08	3901662.90	NESTED	102.04
1,073	313794.08	3901662.90	NESTED	101.99
1,074	313894.08	3901662.90	NESTED	101.99
1,075	313994.08	3901662.90	NESTED	101.99
1,076	314094.08	3901662.90	NESTED	102.01
1,077	314194.08	3901662.90	NESTED	102.04
1,078	314294.08	3901662.90	NESTED	102.05
1,079	314394.08	3901662.90	NESTED	102.09
1,080	314494.08	3901662.90	NESTED	102.11
1,081	314594.08	3901662.90	NESTED	102.14
1,082	314694.08	3901662.90	NESTED	102.15
1,083	314794.08	3901662.90	NESTED	102.13
1,084	314894.08	3901662.90	NESTED	102.11
1,085	314994.08	3901662.90	NESTED	102.06
1,086	315094.08	3901662.90	NESTED	102.01
1,087	315194.08	3901662.90	NESTED	101.93
1,088	315294.08	3901662.90	NESTED	101.86
1,089	315394.08	3901662.90	NESTED	101.77
1,090	315494.08	3901662.90	NESTED	101.68
1,091	315594.08	3901662.90	NESTED	101.59
1,092	315694.08	3901662.90	NESTED	101.56
1,093	315794.08	3901662.90	NESTED	101.59
1,094	315894.08	3901662.90	NESTED	101.65

1,095	315994.08	3901662.90	NESTED	101.70
1,096	316094.08	3901662.90	NESTED	101.75
1,097	316194.08	3901662.90	NESTED	101.80
1,098	316294.08	3901662.90	NESTED	101.84
1,099	316394.08	3901662.90	NESTED	101.85
1,100	313194.08	3901762.90	NESTED	102.36
1,101	313294.08	3901762.90	NESTED	102.34
1,102	313394.08	3901762.90	NESTED	102.34
1,103	313494.08	3901762.90	NESTED	102.30
1,104	313594.08	3901762.90	NESTED	102.27
1,105	313694.08	3901762.90	NESTED	102.22
1,106	313794.08	3901762.90	NESTED	102.18
1,107	313894.08	3901762.90	NESTED	102.16
1,108	313994.08	3901762.90	NESTED	102.15
1,109	314094.08	3901762.90	NESTED	102.17
1,110	314194.08	3901762.90	NESTED	102.18
1,111	314294.08	3901762.90	NESTED	102.21
1,112	314394.08	3901762.90	NESTED	102.23
1,113	314494.08	3901762.90	NESTED	102.26
1,114	314594.08	3901762.90	NESTED	102.27
1,115	314694.08	3901762.90	NESTED	102.28
1,116	314794.08	3901762.90	NESTED	102.27
1,117	314894.08	3901762.90	NESTED	102.25
1,118	314994.08	3901762.90	NESTED	102.20
1,119	315094.08	3901762.90	NESTED	102.16
1,120	315194.08	3901762.90	NESTED	102.08
1,121	315294.08	3901762.90	NESTED	102.03
1,122	315394.08	3901762.90	NESTED	101.96
1,123	315494.08	3901762.90	NESTED	101.89
1,124	315594.08	3901762.90	NESTED	101.82
1,125	315694.08	3901762.90	NESTED	101.81
1,126	315794.08	3901762.90	NESTED	101.81
1,127	315894.08	3901762.90	NESTED	101.84
1,128	315994.08	3901762.90	NESTED	101.88
1,129	316094.08	3901762.90	NESTED	101.90
1,130	316194.08	3901762.90	NESTED	101.93
1,131	316294.08	3901762.90	NESTED	101.96
1,132	316394.08	3901762.90	NESTED	101.99

1,133	313194.08	3901862.90	NESTED	102.57
1,134	313294.08	3901862.90	NESTED	102.57
1,135	313394.08	3901862.90	NESTED	102.48
1,136	313494.08	3901862.90	NESTED	102.44
1,137	313594.08	3901862.90	NESTED	102.39
1,138	313694.08	3901862.90	NESTED	102.36
1,139	313794.08	3901862.90	NESTED	102.33
1,140	313894.08	3901862.90	NESTED	102.30
1,141	313994.08	3901862.90	NESTED	102.29
1,142	314094.08	3901862.90	NESTED	102.29
1,143	314194.08	3901862.90	NESTED	102.32
1,144	314294.08	3901862.90	NESTED	102.36
1,145	314394.08	3901862.90	NESTED	102.38
1,146	314494.08	3901862.90	NESTED	102.41
1,147	314594.08	3901862.90	NESTED	102.42
1,148	314694.08	3901862.90	NESTED	102.40
1,149	314794.08	3901862.90	NESTED	102.41
1,150	314894.08	3901862.90	NESTED	102.39
1,151	314994.08	3901862.90	NESTED	102.34
1,152	315094.08	3901862.90	NESTED	102.30
1,153	315194.08	3901862.90	NESTED	102.24
1,154	315294.08	3901862.90	NESTED	102.18
1,155	315394.08	3901862.90	NESTED	102.14
1,156	315494.08	3901862.90	NESTED	102.08
1,157	315594.08	3901862.90	NESTED	102.06
1,158	315694.08	3901862.90	NESTED	102.04
1,159	315794.08	3901862.90	NESTED	102.04
1,160	315894.08	3901862.90	NESTED	102.04
1,161	315994.08	3901862.90	NESTED	102.07
1,162	316094.08	3901862.90	NESTED	102.08
1,163	316194.08	3901862.90	NESTED	102.10
1,164	316294.08	3901862.90	NESTED	102.12
1,165	316394.08	3901862.90	NESTED	102.15
1,166	313194.08	3901962.90	NESTED	102.74
1,167	313294.08	3901962.90	NESTED	102.80
1,168	313394.08	3901962.90	NESTED	102.56
1,169	313494.08	3901962.90	NESTED	102.54
1,170	313594.08	3901962.90	NESTED	102.52

1,171	313694.08	3901962.90	NESTED	102.49
1,172	313794.08	3901962.90	NESTED	102.45
1,173	313894.08	3901962.90	NESTED	102.40
1,174	313994.08	3901962.90	NESTED	102.39
1,175	314094.08	3901962.90	NESTED	102.42
1,176	314194.08	3901962.90	NESTED	102.47
1,177	314294.08	3901962.90	NESTED	102.51
1,178	314394.08	3901962.90	NESTED	102.55
1,179	314494.08	3901962.90	NESTED	102.56
1,180	314594.08	3901962.90	NESTED	102.55
1,181	314694.08	3901962.90	NESTED	102.55
1,182	314794.08	3901962.90	NESTED	102.54
1,183	314894.08	3901962.90	NESTED	102.53
1,184	314994.08	3901962.90	NESTED	102.49
1,185	315094.08	3901962.90	NESTED	102.43
1,186	315194.08	3901962.90	NESTED	102.36
1,187	315294.08	3901962.90	NESTED	102.31
1,188	315394.08	3901962.90	NESTED	102.27
1,189	315494.08	3901962.90	NESTED	102.26
1,190	315594.08	3901962.90	NESTED	102.24
1,191	315694.08	3901962.90	NESTED	102.23
1,192	315794.08	3901962.90	NESTED	102.22
1,193	315894.08	3901962.90	NESTED	102.23
1,194	315994.08	3901962.90	NESTED	102.25
1,195	316094.08	3901962.90	NESTED	102.25
1,196	316194.08	3901962.90	NESTED	102.26
1,197	316294.08	3901962.90	NESTED	102.27
1,198	316394.08	3901962.90	NESTED	102.30
1,199	313194.08	3902062.90	NESTED	102.87
1,200	313294.08	3902062.90	NESTED	102.87
1,201	313394.08	3902062.90	NESTED	102.75
1,202	313494.08	3902062.90	NESTED	102.70
1,203	313594.08	3902062.90	NESTED	102.67
1,204	313694.08	3902062.90	NESTED	102.62
1,205	313794.08	3902062.90	NESTED	102.54
1,206	313894.08	3902062.90	NESTED	102.48
1,207	313994.08	3902062.90	NESTED	102.48
1,208	314094.08	3902062.90	NESTED	102.54

1,209	314194.08	3902062.90	NESTED	102.60
1,210	314294.08	3902062.90	NESTED	102.67
1,211	314394.08	3902062.90	NESTED	102.71
1,212	314494.08	3902062.90	NESTED	102.72
1,213	314594.08	3902062.90	NESTED	102.68
1,214	314694.08	3902062.90	NESTED	102.69
1,215	314794.08	3902062.90	NESTED	102.70
1,216	314894.08	3902062.90	NESTED	102.68
1,217	314994.08	3902062.90	NESTED	102.62
1,218	315094.08	3902062.90	NESTED	102.55
1,219	315194.08	3902062.90	NESTED	102.49
1,220	315294.08	3902062.90	NESTED	102.42
1,221	315394.08	3902062.90	NESTED	102.41
1,222	315494.08	3902062.90	NESTED	102.40
1,223	315594.08	3902062.90	NESTED	102.38
1,224	315694.08	3902062.90	NESTED	102.38
1,225	315794.08	3902062.90	NESTED	102.39
1,226	315894.08	3902062.90	NESTED	102.39
1,227	315994.08	3902062.90	NESTED	102.41
1,228	316094.08	3902062.90	NESTED	102.41
1,229	316194.08	3902062.90	NESTED	102.42
1,230	316294.08	3902062.90	NESTED	102.44
1,231	316394.08	3902062.90	NESTED	102.46
1,232	313194.08	3902162.90	NESTED	103.00
1,233	313294.08	3902162.90	NESTED	102.95
1,234	313394.08	3902162.90	NESTED	102.88
1,235	313494.08	3902162.90	NESTED	102.86
1,236	313594.08	3902162.90	NESTED	102.82
1,237	313694.08	3902162.90	NESTED	102.72
1,238	313794.08	3902162.90	NESTED	102.61
1,239	313894.08	3902162.90	NESTED	102.57
1,240	313994.08	3902162.90	NESTED	102.57
1,241	314094.08	3902162.90	NESTED	102.63
1,242	314194.08	3902162.90	NESTED	102.72
1,243	314294.08	3902162.90	NESTED	102.80
1,244	314394.08	3902162.90	NESTED	102.87
1,245	314494.08	3902162.90	NESTED	102.86
1,246	314594.08	3902162.90	NESTED	102.85

1,247	314694.08	3902162.90	NESTED	102.85
1,248	314794.08	3902162.90	NESTED	102.85
1,249	314894.08	3902162.90	NESTED	102.84
1,250	314994.08	3902162.90	NESTED	102.75
1,251	315094.08	3902162.90	NESTED	102.68
1,252	315194.08	3902162.90	NESTED	102.60
1,253	315294.08	3902162.90	NESTED	102.56
1,254	315394.08	3902162.90	NESTED	102.54
1,255	315494.08	3902162.90	NESTED	102.53
1,256	315594.08	3902162.90	NESTED	102.53
1,257	315694.08	3902162.90	NESTED	102.52
1,258	315794.08	3902162.90	NESTED	102.54
1,259	315894.08	3902162.90	NESTED	102.55
1,260	315994.08	3902162.90	NESTED	102.54
1,261	316094.08	3902162.90	NESTED	102.57
1,262	316194.08	3902162.90	NESTED	102.58
1,263	316294.08	3902162.90	NESTED	102.60
1,264	316394.08	3902162.90	NESTED	102.61
1,265	313194.08	3902262.90	NESTED	103.12
1,266	313294.08	3902262.90	NESTED	103.08
1,267	313394.08	3902262.90	NESTED	103.06
1,268	313494.08	3902262.90	NESTED	103.02
1,269	313594.08	3902262.90	NESTED	102.94
1,270	313694.08	3902262.90	NESTED	102.81
1,271	313794.08	3902262.90	NESTED	102.72
1,272	313894.08	3902262.90	NESTED	102.64
1,273	313994.08	3902262.90	NESTED	102.64
1,274	314094.08	3902262.90	NESTED	102.71
1,275	314194.08	3902262.90	NESTED	102.84
1,276	314294.08	3902262.90	NESTED	102.95
1,277	314394.08	3902262.90	NESTED	103.02
1,278	314494.08	3902262.90	NESTED	103.04
1,279	314594.08	3902262.90	NESTED	103.03
1,280	314694.08	3902262.90	NESTED	103.03
1,281	314794.08	3902262.90	NESTED	103.02
1,282	314894.08	3902262.90	NESTED	102.99
1,283	314994.08	3902262.90	NESTED	102.91
1,284	315094.08	3902262.90	NESTED	102.82

1,285	315194.08	3902262.90	NESTED	102.73
1,286	315294.08	3902262.90	NESTED	102.67
1,287	315394.08	3902262.90	NESTED	102.67
1,288	315494.08	3902262.90	NESTED	102.67
1,289	315594.08	3902262.90	NESTED	102.66
1,290	315694.08	3902262.90	NESTED	102.67
1,291	315794.08	3902262.90	NESTED	102.69
1,292	315894.08	3902262.90	NESTED	102.70
1,293	315994.08	3902262.90	NESTED	102.71
1,294	316094.08	3902262.90	NESTED	102.70
1,295	316194.08	3902262.90	NESTED	102.75
1,296	316294.08	3902262.90	NESTED	102.76
1,297	316394.08	3902262.90	NESTED	102.77
1,298	313194.08	3902362.90	NESTED	103.25
1,299	313294.08	3902362.90	NESTED	103.22
1,300	313394.08	3902362.90	NESTED	103.21
1,301	313494.08	3902362.90	NESTED	103.16
1,302	313594.08	3902362.90	NESTED	103.07
1,303	313694.08	3902362.90	NESTED	102.98
1,304	313794.08	3902362.90	NESTED	102.84
1,305	313894.08	3902362.90	NESTED	102.72
1,306	313994.08	3902362.90	NESTED	102.71
1,307	314094.08	3902362.90	NESTED	102.80
1,308	314194.08	3902362.90	NESTED	102.97
1,309	314294.08	3902362.90	NESTED	103.10
1,310	314394.08	3902362.90	NESTED	103.17
1,311	314494.08	3902362.90	NESTED	103.21
1,312	314594.08	3902362.90	NESTED	103.22
1,313	314694.08	3902362.90	NESTED	103.20
1,314	314794.08	3902362.90	NESTED	103.18
1,315	314894.08	3902362.90	NESTED	103.14
1,316	314994.08	3902362.90	NESTED	103.07
1,317	315094.08	3902362.90	NESTED	102.99
1,318	315194.08	3902362.90	NESTED	102.90
1,319	315294.08	3902362.90	NESTED	102.82
1,320	315394.08	3902362.90	NESTED	102.82
1,321	315494.08	3902362.90	NESTED	102.83
1,322	315594.08	3902362.90	NESTED	102.84

1,323	315694.08	3902362.90	NESTED	102.86
1,324	315794.08	3902362.90	NESTED	102.86
1,325	315894.08	3902362.90	NESTED	102.87
1,326	315994.08	3902362.90	NESTED	102.90
1,327	316094.08	3902362.90	NESTED	102.78
1,328	316194.08	3902362.90	NESTED	102.95
1,329	316294.08	3902362.90	NESTED	102.94
1,330	316394.08	3902362.90	NESTED	102.93
1,331	313194.08	3902462.90	NESTED	103.39
1,332	313294.08	3902462.90	NESTED	103.37
1,333	313394.08	3902462.90	NESTED	103.35
1,334	313494.08	3902462.90	NESTED	103.30
1,335	313594.08	3902462.90	NESTED	103.24
1,336	313694.08	3902462.90	NESTED	103.13
1,337	313794.08	3902462.90	NESTED	103.01
1,338	313894.08	3902462.90	NESTED	102.88
1,339	313994.08	3902462.90	NESTED	102.88
1,340	314094.08	3902462.90	NESTED	103.01
1,341	314194.08	3902462.90	NESTED	103.15
1,342	314294.08	3902462.90	NESTED	103.26
1,343	314394.08	3902462.90	NESTED	103.34
1,344	314494.08	3902462.90	NESTED	103.38
1,345	314594.08	3902462.90	NESTED	103.39
1,346	314694.08	3902462.90	NESTED	103.37
1,347	314794.08	3902462.90	NESTED	103.34
1,348	314894.08	3902462.90	NESTED	103.30
1,349	314994.08	3902462.90	NESTED	103.23
1,350	315094.08	3902462.90	NESTED	103.16
1,351	315194.08	3902462.90	NESTED	103.10
1,352	315294.08	3902462.90	NESTED	103.06
1,353	315394.08	3902462.90	NESTED	103.06
1,354	315494.08	3902462.90	NESTED	103.08
1,355	315594.08	3902462.90	NESTED	103.08
1,356	315694.08	3902462.90	NESTED	103.11
1,357	315794.08	3902462.90	NESTED	103.10
1,358	315894.08	3902462.90	NESTED	103.09
1,359	315994.08	3902462.90	NESTED	103.01
1,360	316094.08	3902462.90	NESTED	102.80

1,361	316194.08	3902462.90	NESTED	103.05
1,362	316294.08	3902462.90	NESTED	103.14
1,363	316394.08	3902462.90	NESTED	103.15
1,364	313194.08	3902562.90	NESTED	103.57
1,365	313294.08	3902562.90	NESTED	103.59
1,366	313394.08	3902562.90	NESTED	103.58
1,367	313494.08	3902562.90	NESTED	103.53
1,368	313594.08	3902562.90	NESTED	103.46
1,369	313694.08	3902562.90	NESTED	103.39
1,370	313794.08	3902562.90	NESTED	103.33
1,371	313894.08	3902562.90	NESTED	103.25
1,372	313994.08	3902562.90	NESTED	103.26
1,373	314094.08	3902562.90	NESTED	103.34
1,374	314194.08	3902562.90	NESTED	103.45
1,375	314294.08	3902562.90	NESTED	103.54
1,376	314394.08	3902562.90	NESTED	103.61
1,377	314494.08	3902562.90	NESTED	103.63
1,378	314594.08	3902562.90	NESTED	103.62
1,379	314694.08	3902562.90	NESTED	103.60
1,380	314794.08	3902562.90	NESTED	103.54
1,381	314894.08	3902562.90	NESTED	103.48
1,382	314994.08	3902562.90	NESTED	103.43
1,383	315094.08	3902562.90	NESTED	103.38
1,384	315194.08	3902562.90	NESTED	103.34
1,385	315294.08	3902562.90	NESTED	103.33
1,386	315394.08	3902562.90	NESTED	103.33
1,387	315494.08	3902562.90	NESTED	103.34
1,388	315594.08	3902562.90	NESTED	103.35
1,389	315694.08	3902562.90	NESTED	103.37
1,390	315794.08	3902562.90	NESTED	103.35
1,391	315894.08	3902562.90	NESTED	103.30
1,392	315994.08	3902562.90	NESTED	103.19
1,393	316094.08	3902562.90	NESTED	103.11
1,394	316194.08	3902562.90	NESTED	103.23
1,395	316294.08	3902562.90	NESTED	103.35
1,396	316394.08	3902562.90	NESTED	103.38
1,397	314352.32	3900458.29	RESIDENT	100.68
1,398	316092.68	3901224.19	RESIDENT	101.24

1,399	316171.84	3901213.25	RESIDENT	101.14
1,400	316370.70	3901114.78	RESIDENT	100.23
1,401	316081.52	3901009.48	RESIDENT	100.47
1,402	316271.39	3901006.26	RESIDENT	99.89
1,403	316340.90	3900952.20	RESIDENT	99.77
1,404	316177.57	3900898.85	RESIDENT	100.26
1,405	316274.40	3900910.34	RESIDENT	99.99
1,406	316338.96	3900898.30	RESIDENT	99.77
1,407	316161.70	3900838.12	RESIDENT	100.64
1,408	316230.74	3900843.20	RESIDENT	101.25
1,409	316278.64	3900839.48	RESIDENT	100.70
1,410	316325.15	3900833.90	RESIDENT	99.99
1,411	316376.30	3900832.04	RESIDENT	99.77
1,412	316420.48	3900831.57	RESIDENT	99.77
1,413	316477.68	3900825.99	RESIDENT	99.78
1,414	316157.73	3900744.61	RESIDENT	100.95
1,415	316255.39	3900600.45	RESIDENT	101.50
1,416	316442.80	3900599.98	RESIDENT	99.85
1,417	316170.29	3900529.76	RESIDENT	99.79
1,418	316261.90	3900530.22	RESIDENT	101.41
1,419	316348.86	3900532.08	RESIDENT	99.81
1,420	316457.69	3900524.18	RESIDENT	99.85
1,421	314597.47	3902835.47	SCHOOL	104.31
1,422	314564.56	3901239.64	WORKER	101.63

Plant Boundary Receptors

Receptor Groups

Record Number	Group ID	Group Description
1	ARCREC	Discrete Cartesian Receptors for EVALFILE Output
2	NESTED	
3	RESIDENT	
4	SCHOOL	
5	WORKER	Off-Site Worker

Meteorology Pathway

AERMOD

Met Input Data

Surface Met Data

Filename: ..\..\41150044\Bakersfield_18-22.SFC
Format Type: Default AERMET format

Profile Met Data

Filename: ..\..\41150044\Bakersfield_18-22.PFL
Format Type: Default AERMET format

Wind Speed

☐ Wind Speeds are Vector Mean (Not Scalar Means)

Wind Direction

Rotation Adjustment [deg]:

Potential Temperature Profile

Base Elevation above MSL (for Primary Met Tower): 150.00 [m]

Meteorological Station Data

Stations	Station No.	Year	X Coordinate [m]	Y Coordinate [m]	Station Name
Surface		2018			KBFL
Upper Air		2018			OAKLAND/WSO AP

Data Period

Data Period to Process

Start Date: 1/1/2018 Start Hour: 1 End Date: 12/31/2022 End Hour: 24

Wind Speed Categories

Stability Category	Wind Speed [m/s]	Stability Category	Wind Speed [m/s]
A	1.54	D	8.23
B	3.09	E	10.8
C	5.14	F	No Upper Bound

Output Pathway

AERMOD

Tabular Printed Outputs

Short Term Averaging Period	RECTABLE Highest Values Table										MAXTABLE Maximum Values Table	DAYTABLE Daily Values Table
	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th		
1	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		No

Contour Plot Files (PLOTFILE)

Path for PLOTFILES: CONHRA.AD

Averaging Period	Source Group ID	High Value	File Name
Period	HAULROAD		HAUL_PE.PLT
Period	SITE		SITE_PE.PLT
1	HAULROAD	1st	HAUL_01.PLT
1	SITE	1st	SITE_01.PLT

Output File of US NAAQS

Path for US NAAQS: CONHRA.AD

NAAQS Auto-Generated Maximum Daily Files (MAXDAILY)

Active	Source Group ID	File Name
Yes	ALL	MAXDAILY_ALL_SO2.DAT
Yes	HAULROAD	MAXDAILY_HAULROAD_SO2.DAT
Yes	SITE	MAXDAILY_SITE_SO2.DAT

NAAQS Auto-Generated Maximum Daily By Year Files (MXDYBYYR)

Active	Source Group ID	File Name
Yes	ALL	MXDYBYYR_ALL_SO2.DAT
Yes	HAULROAD	MXDYBYYR_HAULROAD_SO2.DAT
Yes	SITE	MXDYBYYR_SITE_SO2.DAT

Project Construction Emissions for HRA Without Mitigation Measures

Annual Construction Emissions (pounds)

On-Site Emissions	PM_{10} (Exhaust)
3.1 Site Preparation (2024) - Unmitigated	**88.0**
3.3 Grading (2024) - Unmitigated	229.6
3.5 Building Construction (2024) - Unmitigated	55.3
3.7 Building Construction (2025) - Unmitigated	95.6
3.9 Paving On-Site (2025) - Unmitigated	19.6
3.11 Architectural Coating (2025) - Unmitigated	0.8
3.13 Off-Site Prep (2024) - Unmitigated	11.0
3.15 Paving Off-Site (2024) - Unmitigated	3.9
Total Onsite	**504**

Off-Site	PM_{10} (Exhaust)
Haul Trucks	14.3
Vendor Trucks	13.5
Total Offsite	**27.8**

Exhaust PM_{10}

Constuction Months	**16**	**months**
Construction Year	**1.33**	**year**
Variable Factor	**2.80**	**12 hour days**
On-Site Emissions	**504.00**	**lbs**
	378.0	**lbs/year**
Off-Site Emissions Near Project Site	**2.14**	**lbs/year**

CalEEMOD Modeling	Project Trips	One-Way Travel miles	Project VMT	PM_{10} (Exhaust) lb per VMT
Haul Trucks	11352	20.00	227,040	6.30E-05
Vendor Trucks	76828	10.60	814,377	1.66E-05

Off-Site AERMOD Input Adjustments

Applied in HARP2

Roadway Segment	Length (Miles)	Haul VMT w/in modeing impact area	Vendor VMT w/impact area	PM10 (Exhaust) Emission Rate (lbs)
Haul - Onsite to Houghton Road to SR-99	1.44	16323.2	110471.9	**2.86**
			PM10 Rate (lb/yr)	**2.14**

HARP Project Summary Report 11/8/2023 5:20:20 AM

PROJECT INFORMATION
HARP Version: 22118
Project Name: CONSTHRA
Project Output Directory: F:\Jobs\41150044HZ\HARP\CONSTHRA
HARP Database: NA

FACILITY INFORMATION
Origin
X (m):0
Y (m):0
Zone:1
No. of Sources:0
No. of Buildings:0

EMISSION INVENTORY
No. of Pollutants:2
No. of Background Pollutants:0

Emissions

ScrID	StkID	ProID	PolID	PolAbbrev	Multi	Annual Ems (lbs/yr)	MaxHr Ems (lbs/hr)	MWAF
SITE	0	0	9901	DieselExhPM	1	378	0	1
HAUL	0	0	9901	DieselExhPM	1	2.14	0	1

Background

PolID	PolAbbrev	Conc (ug/m^3)	MWAF

Ground level concentration files (\glc\)

9901MAXHR.txt
9901PER.txt

POLLUTANT HEALTH INFORMATION
Health Database: C:\HARP2\Tables\HEALTH17320.mdb
Health Table Version: HEALTH22013
Official: True

PolID	PolAbbrev	InhCancer	OralCancer	AcuteREL	InhChronicREL	OralChronicREL	InhChronic8HRREL
9901	DieselExhPM	1.1			5		

HARP2 - HRACalc (dated 22118) 11/8/2023 9:22:53 AM - Output Log

GLCs loaded successfully
Pollutants loaded successfully
Pathway receptors loaded successfully
****
RISK SCENARIO SETTINGS

Receptor Type: Resident
Scenario: Cancer
Calculation Method: HighEnd

****
EXPOSURE DURATION PARAMETERS FOR CANCER

Start Age: -0.25
Total Exposure Duration: 1.33

Exposure Duration Bin Distribution
3rd Trimester Bin: 0.25
0<2 Years Bin: 1.33
2<9 Years Bin: 0
2<16 Years Bin: 0
16<30 Years Bin: 0
16 to 70 Years Bin: 0

****
PATHWAYS ENABLED

NOTE: Inhalation is always enabled and used for all assessments. The remaining pathways are only used for cancer and noncancer chronic assessments.

Inhalation: True
Soil: False
Dermal: False
Mother's milk: False
Water: False
Fish: False
Homegrown crops: False
Beef: False
Dairy: False
Pig: False
Chicken: False
Egg: False

****
INHALATION

Daily breathing rate: RMP

Worker Adjustment Factors
Worker adjustment factors enabled: NO

Fraction at time at home
3rd Trimester to 16 years: OFF
16 years to 70 years: ON

****
TIER 2 SETTINGS

Tier2 adjustments were used in this assessment. Please see the input file for details.
Tier2 - What was changed: ED or start age changed|
Calculating cancer risk
Cancer risk breakdown by pollutant and receptor saved to: F:\Jobs\41150044HZ\HARP\CONSTHRA\hra\WestsideConHRACancerRisk.csv
Cancer risk total by receptor saved to: F:\Jobs\41150044HZ\HARP\CONSTHRA\hra\WestsideConHRACancerRiskSumByRec.csv
HRA ran successfully

*HARP - HRACalc v22118 11/8/2023 9:23:42 AM - Cancer Risk - Input File: F:\Jobs\41150044HZ\HARP\CONSTHRA\hra\WestsideConHRAHRAInput.hra

REC	GRP	NETID	X	Y	CONC	POLID	POLABBREV	RISK_SUM	SCENARIO	INH_RISK
1397	ALL	RESIDENT	314352.3	3900458	0.009029	9901	DieselExhPM	2.10E-06	1.33YrCancerRMP_Inh_FAH16to70	2.10E-06
996	ALL	RESIDENT	314094.1	3901263	0.006029	9901	DieselExhPM	1.40E-06	1.33YrCancerRMP_Inh_FAH16to70	1.40E-06
863	ALL	RESIDENT	316094.1	3900563	0.002648	9901	DieselExhPM	6.15E-07	1.33YrCancerRMP_Inh_FAH16to70	6.15E-07
1417	ALL	RESIDENT	316170.3	3900530	0.002407	9901	DieselExhPM	5.59E-07	1.33YrCancerRMP_Inh_FAH16to70	5.59E-07
1414	ALL	RESIDENT	316157.7	3900745	0.002253	9901	DieselExhPM	5.23E-07	1.33YrCancerRMP_Inh_FAH16to70	5.23E-07
1418	ALL	RESIDENT	316261.9	3900530	0.00214	9901	DieselExhPM	4.97E-07	1.33YrCancerRMP_Inh_FAH16to70	4.97E-07
1407	ALL	RESIDENT	316161.7	3900838	0.002128	9901	DieselExhPM	4.94E-07	1.33YrCancerRMP_Inh_FAH16to70	4.94E-07
1415	ALL	RESIDENT	316255.4	3900600	0.002105	9901	DieselExhPM	4.89E-07	1.33YrCancerRMP_Inh_FAH16to70	4.89E-07
1401	ALL	RESIDENT	316081.5	3901009	0.002053	9901	DieselExhPM	4.76E-07	1.33YrCancerRMP_Inh_FAH16to70	4.76E-07
1404	ALL	RESIDENT	316177.6	3900899	0.002002	9901	DieselExhPM	4.65E-07	1.33YrCancerRMP_Inh_FAH16to70	4.65E-07
1398	ALL	RESIDENT	316092.7	3901224	0.001988	9901	DieselExhPM	4.61E-07	1.33YrCancerRMP_Inh_FAH16to70	4.61E-07
1408	ALL	RESIDENT	316230.7	3900843	0.001961	9901	DieselExhPM	4.55E-07	1.33YrCancerRMP_Inh_FAH16to70	4.55E-07
1419	ALL	RESIDENT	316348.9	3900532	0.001918	9901	DieselExhPM	4.45E-07	1.33YrCancerRMP_Inh_FAH16to70	4.45E-07
944	ALL	RESIDENT	316194.1	3900963	0.001879	9901	DieselExhPM	4.36E-07	1.33YrCancerRMP_Inh_FAH16to70	4.36E-07
1399	ALL	RESIDENT	316171.8	3901213	0.001863	9901	DieselExhPM	4.32E-07	1.33YrCancerRMP_Inh_FAH16to70	4.32E-07
1409	ALL	RESIDENT	316278.6	3900839	0.001862	9901	DieselExhPM	4.32E-07	1.33YrCancerRMP_Inh_FAH16to70	4.32E-07
1405	ALL	RESIDENT	316274.4	3900910	0.001791	9901	DieselExhPM	4.16E-07	1.33YrCancerRMP_Inh_FAH16to70	4.16E-07
1410	ALL	RESIDENT	316325.2	3900834	0.001773	9901	DieselExhPM	4.12E-07	1.33YrCancerRMP_Inh_FAH16to70	4.12E-07
964	ALL	RESIDENT	316194.1	3901063	0.001773	9901	DieselExhPM	4.11E-07	1.33YrCancerRMP_Inh_FAH16to70	4.11E-07
1420	ALL	RESIDENT	316457.7	3900524	0.001703	9901	DieselExhPM	3.95E-07	1.33YrCancerRMP_Inh_FAH16to70	3.95E-07
945	ALL	RESIDENT	316294.1	3900963	0.001702	9901	DieselExhPM	3.95E-07	1.33YrCancerRMP_Inh_FAH16to70	3.95E-07
1402	ALL	RESIDENT	316271.4	3901006	0.001698	9901	DieselExhPM	3.94E-07	1.33YrCancerRMP_Inh_FAH16to70	3.94E-07
1416	ALL	RESIDENT	316442.8	3900600	0.001692	9901	DieselExhPM	3.93E-07	1.33YrCancerRMP_Inh_FAH16to70	3.93E-07
1406	ALL	RESIDENT	316339	3900898	0.001691	9901	DieselExhPM	3.92E-07	1.33YrCancerRMP_Inh_FAH16to70	3.92E-07
1411	ALL	RESIDENT	316376.3	3900832	0.001683	9901	DieselExhPM	3.90E-07	1.33YrCancerRMP_Inh_FAH16to70	3.90E-07
985	ALL	RESIDENT	316294.1	3901163	0.00166	9901	DieselExhPM	3.85E-07	1.33YrCancerRMP_Inh_FAH16to70	3.85E-07
1403	ALL	RESIDENT	316340.9	3900952	0.00164	9901	DieselExhPM	3.81E-07	1.33YrCancerRMP_Inh_FAH16to70	3.81E-07
1412	ALL	RESIDENT	316420.5	3900832	0.001611	9901	DieselExhPM	3.74E-07	1.33YrCancerRMP_Inh_FAH16to70	3.74E-07
1400	ALL	RESIDENT	316370.7	3901115	0.001545	9901	DieselExhPM	3.59E-07	1.33YrCancerRMP_Inh_FAH16to70	3.59E-07
1413	ALL	RESIDENT	316477.7	3900826	0.001527	9901	DieselExhPM	3.54E-07	1.33YrCancerRMP_Inh_FAH16to70	3.54E-07

HARP Output All Receptors Sorted

*HARP - HRACalc v22118 11/8/2023 9:23:42 AM - Cancer Risk - Input File: F:\Jobs\41150044HZ\HARP\CONSTHRA\hra\WestsideConHRAHRAInput.hra

REC	GRP	NETID	X	Y	CONC	POLID	POLABBREV	RISK_SUM	SCENARIO	INH_RISK
570	ALL	SCHOOL	315894.1	3899563	0.003688	9901	DieselExhPM	8.56E-07	1.33YrCancerRMP_Inh_FAH16to70	8.56E-07
863	ALL	RESIDENT	316094.1	3900563	0.002648	9901	DieselExhPM	6.15E-07	1.33YrCancerRMP_Inh_FAH16to70	6.15E-07
944	ALL	RESIDENT	316194.1	3900963	0.001879	9901	DieselExhPM	4.36E-07	1.33YrCancerRMP_Inh_FAH16to70	4.36E-07
945	ALL	RESIDENT	316294.1	3900963	0.001702	9901	DieselExhPM	3.95E-07	1.33YrCancerRMP_Inh_FAH16to70	3.95E-07
964	ALL	RESIDENT	316194.1	3901063	0.001773	9901	DieselExhPM	4.11E-07	1.33YrCancerRMP_Inh_FAH16to70	4.11E-07
985	ALL	RESIDENT	316294.1	3901163	0.00166	9901	DieselExhPM	3.85E-07	1.33YrCancerRMP_Inh_FAH16to70	3.85E-07
996	ALL	RESIDENT	314094.1	3901263	0.006029	9901	DieselExhPM	1.40E-06	1.33YrCancerRMP_Inh_FAH16to70	1.40E-06
1397	ALL	RESIDENT	314352.3	3900458	0.009029	9901	DieselExhPM	2.10E-06	1.33YrCancerRMP_Inh_FAH16to70	2.10E-06
1398	ALL	RESIDENT	316092.7	3901224	0.001988	9901	DieselExhPM	4.61E-07	1.33YrCancerRMP_Inh_FAH16to70	4.61E-07
1399	ALL	RESIDENT	316171.8	3901213	0.001863	9901	DieselExhPM	4.32E-07	1.33YrCancerRMP_Inh_FAH16to70	4.32E-07
1400	ALL	RESIDENT	316370.7	3901115	0.001545	9901	DieselExhPM	3.59E-07	1.33YrCancerRMP_Inh_FAH16to70	3.59E-07
1401	ALL	RESIDENT	316081.5	3901009	0.002053	9901	DieselExhPM	4.76E-07	1.33YrCancerRMP_Inh_FAH16to70	4.76E-07
1402	ALL	RESIDENT	316271.4	3901006	0.001698	9901	DieselExhPM	3.94E-07	1.33YrCancerRMP_Inh_FAH16to70	3.94E-07
1403	ALL	RESIDENT	316340.9	3900952	0.00164	9901	DieselExhPM	3.81E-07	1.33YrCancerRMP_Inh_FAH16to70	3.81E-07
1404	ALL	RESIDENT	316177.6	3900899	0.002002	9901	DieselExhPM	4.65E-07	1.33YrCancerRMP_Inh_FAH16to70	4.65E-07
1405	ALL	RESIDENT	316274.4	3900910	0.001791	9901	DieselExhPM	4.16E-07	1.33YrCancerRMP_Inh_FAH16to70	4.16E-07
1406	ALL	RESIDENT	316339	3900898	0.001691	9901	DieselExhPM	3.92E-07	1.33YrCancerRMP_Inh_FAH16to70	3.92E-07
1407	ALL	RESIDENT	316161.7	3900838	0.002128	9901	DieselExhPM	4.94E-07	1.33YrCancerRMP_Inh_FAH16to70	4.94E-07
1408	ALL	RESIDENT	316230.7	3900843	0.001961	9901	DieselExhPM	4.55E-07	1.33YrCancerRMP_Inh_FAH16to70	4.55E-07
1409	ALL	RESIDENT	316278.6	3900839	0.001862	9901	DieselExhPM	4.32E-07	1.33YrCancerRMP_Inh_FAH16to70	4.32E-07
1410	ALL	RESIDENT	316325.2	3900834	0.001773	9901	DieselExhPM	4.12E-07	1.33YrCancerRMP_Inh_FAH16to70	4.12E-07
1411	ALL	RESIDENT	316376.3	3900832	0.001683	9901	DieselExhPM	3.90E-07	1.33YrCancerRMP_Inh_FAH16to70	3.90E-07
1412	ALL	RESIDENT	316420.5	3900832	0.001611	9901	DieselExhPM	3.74E-07	1.33YrCancerRMP_Inh_FAH16to70	3.74E-07
1413	ALL	RESIDENT	316477.7	3900826	0.001527	9901	DieselExhPM	3.54E-07	1.33YrCancerRMP_Inh_FAH16to70	3.54E-07
1414	ALL	RESIDENT	316157.7	3900745	0.002253	9901	DieselExhPM	5.23E-07	1.33YrCancerRMP_Inh_FAH16to70	5.23E-07
1415	ALL	RESIDENT	316255.4	3900600	0.002105	9901	DieselExhPM	4.89E-07	1.33YrCancerRMP_Inh_FAH16to70	4.89E-07
1416	ALL	RESIDENT	316442.8	3900600	0.001692	9901	DieselExhPM	3.93E-07	1.33YrCancerRMP_Inh_FAH16to70	3.93E-07
1417	ALL	RESIDENT	316170.3	3900530	0.002407	9901	DieselExhPM	5.59E-07	1.33YrCancerRMP_Inh_FAH16to70	5.59E-07
1418	ALL	RESIDENT	316261.9	3900530	0.00214	9901	DieselExhPM	4.97E-07	1.33YrCancerRMP_Inh_FAH16to70	4.97E-07
1419	ALL	RESIDENT	316348.9	3900532	0.001918	9901	DieselExhPM	4.45E-07	1.33YrCancerRMP_Inh_FAH16to70	4.45E-07
1420	ALL	RESIDENT	316457.7	3900524	0.001703	9901	DieselExhPM	3.95E-07	1.33YrCancerRMP_Inh_FAH16to70	3.95E-07
1421	ALL	SCHOOL	314597.5	3902835	0.000807	9901	DieselExhPM	1.87E-07	1.33YrCancerRMP_Inh_FAH16to70	1.87E-07
1422	ALL	WORKER	314564.6	3901240	0.020414	9901	DieselExhPM	4.74E-06	1.33YrCancerRMP_Inh_FAH16to70	4.74E-06

```
HARP2 - HRACalc (dated 22118) 11/8/2023 9:24:21 AM - Output Log

GLCs loaded successfully
Pollutants loaded successfully
Pathway receptors loaded successfully
**********
RISK SCENARIO SETTINGS

Receptor Type: Resident
Scenario: NCChronic
Calculation Method: Derived

**********
EXPOSURE DURATION PARAMETERS FOR CANCER
**Exposure duration are only adjusted for cancer assessments**

**********
PATHWAYS ENABLED

NOTE: Inhalation is always enabled and used for all assessments.  The remaining pathways are only used for cancer and noncancer chronic
assessments.

Inhalation: True
Soil: False
Dermal: False
Mother's milk: False
Water: False
Fish: False
Homegrown crops: False
Beef: False
Dairy: False
Pig: False
Chicken: False
Egg: False

**********
INHALATION

Daily breathing rate: LongTerm24HR

**Worker Adjustment Factors**
Worker adjustment factors enabled: NO

**Fraction at time at home**
NOTE: Exposure duration (i.e., start age, end age, ED, & FAH) are only adjusted for cancer assessments.

**********
TIER 2 SETTINGS

Tier2 adjustments were used in this assessment.  Please see the input file for details.
Tier2 - What was changed: ED or start age changed
Calculating chronic risk
Chronic risk breakdown by pollutant and receptor saved to: F:\Jobs\41150044HZ\HARP\CONSTHRA\hra\WestsideChronHRANCChronicRisk.csv
Chronic risk total by receptor saved to: F:\Jobs\41150044HZ\HARP\CONSTHRA\hra\WestsideChronHRANCChronicRiskSumByRec.csv
HRA ran successfully
```

Chronic Risk Output

*HARP - HRACalc v22118 11/8/2023 9:24:53 AM - Chronic Risk - Input File: F:\Jobs\41150044HZ\HARP\CONSTHRA\hra\WestsideChronHRAHRAInput.hra

REC	GRP	NETID	X	Y	CONC	POLID	POLABBREV	SCENARIO	CV	CNS	IMMUN	KIDNEY	GILV	REPRO/ DEVEL	RESP	SKIN	EYE	BONE/ TEETH	ENDO	BLOOD	ODOR	GENERAL	INH_CONC
570	ALL	SCHOOL	315894.1	3899563	0.003688	9901	DieselExhPM	NonCancerChronicDerived_Inh	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.38E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.69E-03
863	ALL	RESIDENT	316094.1	3900563	0.002648	9901	DieselExhPM	NonCancerChronicDerived_Inh	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.30E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.65E-03
944	ALL	RESIDENT	316194.1	3900963	0.001879	9901	DieselExhPM	NonCancerChronicDerived_Inh	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.76E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.88E-03
945	ALL	RESIDENT	316294.1	3900963	0.001702	9901	DieselExhPM	NonCancerChronicDerived_Inh	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.40E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.70E-03
964	ALL	RESIDENT	316194.1	3901063	0.001773	9901	DieselExhPM	NonCancerChronicDerived_Inh	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.55E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.77E-03
985	ALL	RESIDENT	316294.1	3901163	0.00166	9901	DieselExhPM	NonCancerChronicDerived_Inh	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.32E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.66E-03
996	ALL	RESIDENT	314094.1	3901263	0.006029	9901	DieselExhPM	NonCancerChronicDerived_Inh	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.21E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.03E-03
1397	ALL	RESIDENT	314352.3	3900458	0.009029	9901	DieselExhPM	NonCancerChronicDerived_Inh	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.81E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.03E-03
1398	ALL	RESIDENT	316092.7	3901224	0.001988	9901	DieselExhPM	NonCancerChronicDerived_Inh	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.98E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.99E-03
1399	ALL	RESIDENT	316171.8	3901213	0.001863	9901	DieselExhPM	NonCancerChronicDerived_Inh	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.73E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.86E-03
1400	ALL	RESIDENT	316370.7	3901115	0.001545	9901	DieselExhPM	NonCancerChronicDerived_Inh	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.09E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.55E-03
1401	ALL	RESIDENT	316081.5	3901009	0.002053	9901	DieselExhPM	NonCancerChronicDerived_Inh	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.11E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.05E-03
1402	ALL	RESIDENT	316271.4	3901006	0.001698	9901	DieselExhPM	NonCancerChronicDerived_Inh	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.40E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.70E-03
1403	ALL	RESIDENT	316340.9	3900952	0.00164	9901	DieselExhPM	NonCancerChronicDerived_Inh	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.28E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.64E-03
1404	ALL	RESIDENT	316177.6	3900899	0.002002	9901	DieselExhPM	NonCancerChronicDerived_Inh	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.00E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.00E-03
1405	ALL	RESIDENT	316274.4	3900910	0.001791	9901	DieselExhPM	NonCancerChronicDerived_Inh	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.58E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.79E-03
1406	ALL	RESIDENT	316339	3900898	0.001691	9901	DieselExhPM	NonCancerChronicDerived_Inh	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.38E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.69E-03
1407	ALL	RESIDENT	316161.7	3900838	0.002128	9901	DieselExhPM	NonCancerChronicDerived_Inh	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.26E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.13E-03
1408	ALL	RESIDENT	316230.7	3900843	0.001961	9901	DieselExhPM	NonCancerChronicDerived_Inh	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.92E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.96E-03
1409	ALL	RESIDENT	316278.6	3900839	0.001862	9901	DieselExhPM	NonCancerChronicDerived_Inh	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.72E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.86E-03
1410	ALL	RESIDENT	316325.2	3900834	0.001773	9901	DieselExhPM	NonCancerChronicDerived_Inh	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.55E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.77E-03
1411	ALL	RESIDENT	316376.3	3900832	0.001683	9901	DieselExhPM	NonCancerChronicDerived_Inh	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.37E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.68E-03
1412	ALL	RESIDENT	316420.5	3900832	0.001611	9901	DieselExhPM	NonCancerChronicDerived_Inh	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.22E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.61E-03
1413	ALL	RESIDENT	316477.7	3900826	0.001527	9901	DieselExhPM	NonCancerChronicDerived_Inh	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.05E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.53E-03
1414	ALL	RESIDENT	316157.7	3900745	0.002253	9901	DieselExhPM	NonCancerChronicDerived_Inh	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.51E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.25E-03
1415	ALL	RESIDENT	316255.4	3900600	0.002105	9901	DieselExhPM	NonCancerChronicDerived_Inh	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.21E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.11E-03
1416	ALL	RESIDENT	316442.8	3900600	0.001692	9901	DieselExhPM	NonCancerChronicDerived_Inh	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.38E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.69E-03
1417	ALL	RESIDENT	316170.3	3900530	0.002407	9901	DieselExhPM	NonCancerChronicDerived_Inh	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.81E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.41E-03
1418	ALL	RESIDENT	316261.9	3900530	0.00214	9901	DieselExhPM	NonCancerChronicDerived_Inh	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.28E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.14E-03
1419	ALL	RESIDENT	316348.9	3900532	0.001918	9901	DieselExhPM	NonCancerChronicDerived_Inh	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.84E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.92E-03
1420	ALL	RESIDENT	316457.7	3900524	0.001703	9901	DieselExhPM	NonCancerChronicDerived_Inh	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.41E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.70E-03
1421	ALL	SCHOOL	314597.5	3902835	0.000807	9901	DieselExhPM	NonCancerChronicDerived_Inh	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.61E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.07E-04
1422	ALL	WORKER	314564.6	3901240	0.020414	9901	DieselExhPM	NonCancerChronicDerived_Inh	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.08E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.04E-02

Worker Cancer HRA

HARP2 - HRACalc (dated 22118) 11/8/2023 9:39:30 AM - Output Log

GLCs loaded successfully
Pollutants loaded successfully
****
RISK SCENARIO SETTINGS

Receptor Type: Worker
Scenario: Cancer
Calculation Method: Derived

****
EXPOSURE DURATION PARAMETERS FOR CANCER

Start Age: 16
Total Exposure Duration: 25

Exposure Duration Bin Distribution
3rd Trimester Bin: 0
0<2 Years Bin: 0
2<9 Years Bin: 0
2<16 Years Bin: 0
16<30 Years Bin: 0
16 to 70 Years Bin: 25

****
PATHWAYS ENABLED

NOTE: Inhalation is always enabled and used for all assessments. The remaining pathways are only used for cancer and noncancer chronic assessments.

Inhalation: True
Soil: False
Dermal: False
Mother's milk: False
Water: False
Fish: False
Homegrown crops: False
Beef: False
Dairy: False
Pig: False
Chicken: False
Egg: False

****
INHALATION

Daily breathing rate: Moderate8HR

Worker Adjustment Factors
NOTE: The worker adjustment factors below are only used for cancer assessments. However, the GLC adjustment factor is also applied to 8-hr noncancer chronic assessments.
Worker adjustments factors enabled: YES
GLC adjustment factor: 2.8
Exposure frequency: 250

Fraction at time at home
3rd Trimester to 16 years: OFF
16 years to 70 years: OFF

****
TIER 2 SETTINGS
Tier2 not used.

****

Calculating cancer risk
Cancer risk saved to: F:\Jobs\41150044HZ\ConHRA Worker\ConWorker25CancerRisk.csv
HRA ran successfully

Worker Cancer Risk Output

*HARP - HRACalc v22118 11/8/2023 9:39:30 AM - Cancer Risk - Input File: F:\Jobs\41150044HZ\ConHRA Worker\ConWorker25HRAInput.hra

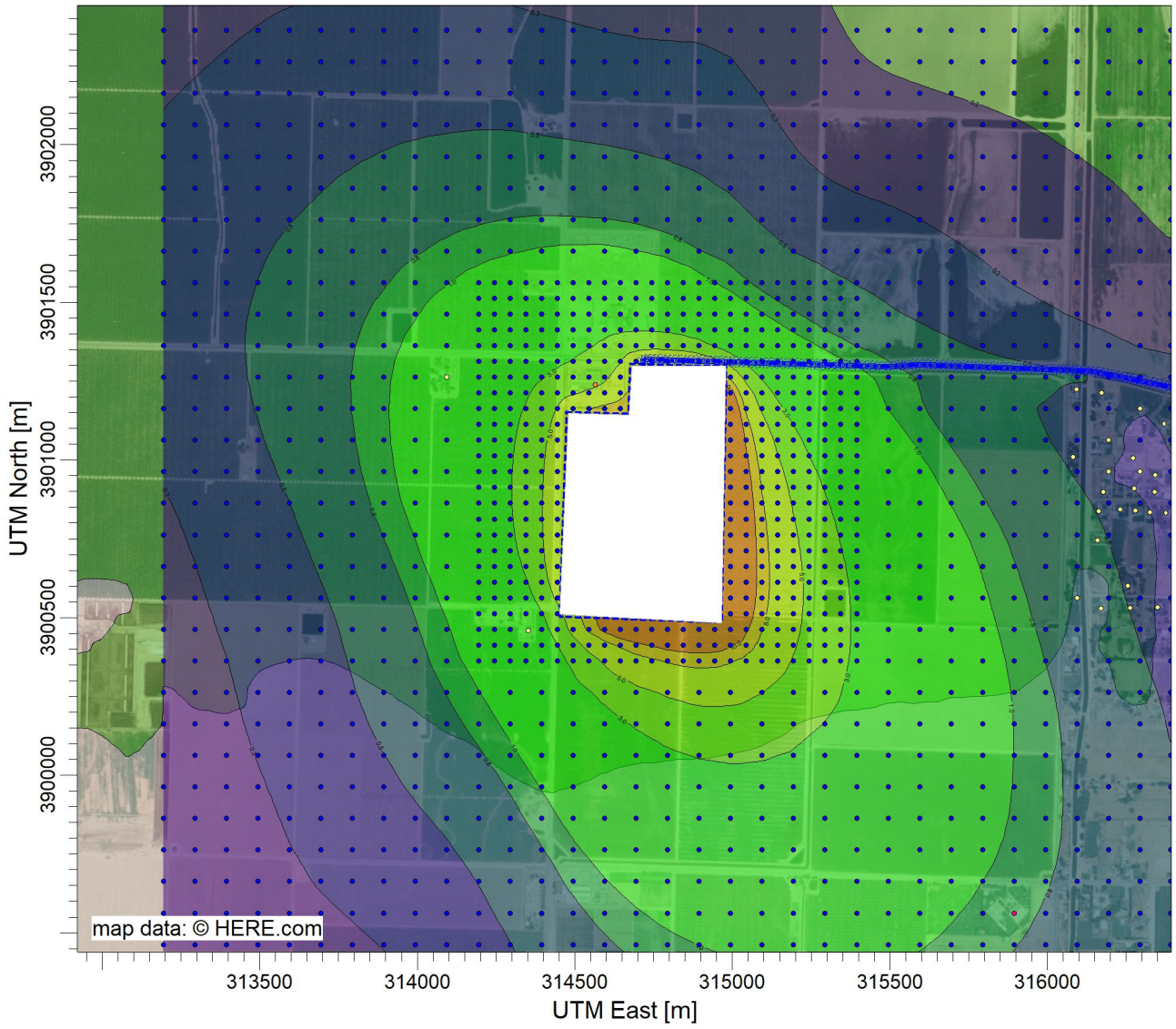
INDEX	GRP1	GRP2	POLID	POLABBRE\	CONC	RISK_SUM	SCENARIO	DETAILS	INH_RISK
1	OFFSITE	WORKER	9901	DPM	0.020414	3.54E-06	25YrCancerDerived_Inh	*	3.54E-06
	OFFSITE	WORKER	9901	DPM	0.020414		1.33Yr Adjusted Duration		1.88E-07

*HARP - HRACalc v22118 11/8/2023 9:23:42 AM - Cancer Risk - Input File: F:\Jobs\41150044HZ\HARP\CONSTHRA\hra\WestsideConHRAHRAInput.hra

REC	GRP	NETID	X	Y	CONC	POLID	POLABBREV	RISK_SUM	SCENARIO	DETAILS	INH_RISK	SOIL_RISK	DERMAL_RISK	MMILK_RISK	WATER_RISK	FISH_RISK	CROP_RISK	BEEF_RISK	DAIRY_RISK	PIG_RISK	CHICKEN_RISK	EGG_RISK	1ST_DRIVER	2ND_DRIVER	CHI
1422	ALL	WORKER	314564.6	3901240	0.020414	0.004083	DieselExhPM	4.74E-06	1.33YrCancerR	*	4.74E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	NA	NA	0.004
570	ALL	SCHOOL	315894.1	3899563	0.003688	9901	DieselExhPM	8.56E-07	1.33YrCancerR	*	8.56E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	NA	NA	0.001
1421	ALL	SCHOOL	314597.5	3902835	0.000807	9901	DieselExhPM	1.87E-07	1.33YrCancerR	*	1.87E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	NA	NA	0.000

PROJECT TITLE:

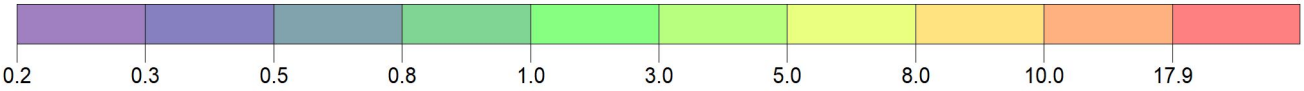
Westside Industrial
Construction HRA - Residential Cancer Risk



PLOT FILE OF PERIOD VALUES FOR SOURCE GROUP: ALL

Risk/Million

Max: 17.9 [Risk/Million] at (314994.08, 3900712.90)



COMMENTS:	SOURCES: **2**	COMPANY NAME:	
	RECEPTORS: **1422**	MODELER:	
	OUTPUT TYPE: **Concentration**	SCALE: 1:21,839 0 0.5 km	
	MAX: **17.9 Risk/Million**	DATE: **11/8/2023**	PROJECT NO.:

Westside Industrial Project
Modeled Source Parameters - Point Sources

Source Type	Source Group ID	Source Group ID	Stack Ht (m)	Stack Diameter (m)	Exit Temperature (K)	Exit Velocity (m/s)	Source Emission Rate (g/s)	Source Group Emission Rate (g/s)	HARP Group ID	HARP Group Emission Rate (g/s)
Truck Idling - West Docks	IDLE_W	IDLE_W1 to IDLE_W9	3.84	0.10	366	51.71	0.11	0.4	DOCKS	1
Truck Idling - North Docks	IDLE_N, DOCKS	IDLE_N1 to IDLE_N6	3.84	0.10	366	51.71	0.17	0.2		
Truck Idling - East Docks	IDLE_E, DOCKS	IDLE_E1 to IDLE_E9	3.84	0.10	366	51.71	0.11	0.4		
Truck Idling - Warehouse Exit	IDLE_EX	IDLE_EX	3.84	0.10	366	51.71	1.00	1	EXIT	1
Truck Idling - Warehouse Entry	IDLE_EN	IDLE_EN	3.84	0.10	366	51.71	1.00	1	ENTER	1

AERMOD Variable Source Multipliers used to apply multiplier of 0.4 to West and 0.4 to East Docks and 0.2 to North Docks. Source Group DOCKS includes idling at East, North and West Docks

Westside Industrial Project
Modeled Source Parameters - Area Sources

Description	Location	Source ID	Source Group ID	Area (m2)	Release Height (m)	Initial Vertical Dimensions (Sigma Z)	Emission Rate (g/s)	AERMOD Area Source Emissions g/m2-s	HARP Group ID	HARP Group Emission Rate (g/s)
Truck Parking - East	Truck Parking East (69%)	TRU_PARKE	TRU_PARK	59,906	3.26	3.04	0.69	1.15E-05	PARK	1
Truck Parking - West	Truck Parking West (31%)	TRU_PARKW		26,816	3.26	3.04	0.31	1.16E-05		

On-site roadway travel treated with same release height and intitial vertical dimensions as line-volume sources

Westside Industrial Project
Modeled Source Parameters - Volume Sources

Source Type	Location	Source ID	Source Group ID	Truck Exhaust Height (m)	Plume Height (m)	Release Height (m)	Source Width (m)	Initial Lateral Dimensions (Sigma Y)	Initial Vertical Dimensions (Sigma Z)	Emission Rate (g/s)	HARP Group ID	HARP Group Emission Rate (g/s)
Off-Site Truck Travel - Houghton East to SR-99	Off-Site Roadways	OFF_RNEX	OFF_RNEX	3.84	6.53	3.26	16.00	7.44	**3.04**	**1**	OFFSITE	**1**
On-Site Truck Travel (2-Lane Road)	On-Site Private Road	ON_RUNEX1	ON_RUNEX	3.84	6.53	3.26	15.00	6.98	**3.04**	**1**	PRIVATE	**1**
On-Site Truck Travel/Warehouse Circulation	On-Site Roadways	ON_RUNEX2	ON_RUNEX	3.84	6.53	3.26	8.60	4.00	**3.04**	**1**	ONSITE	**1**

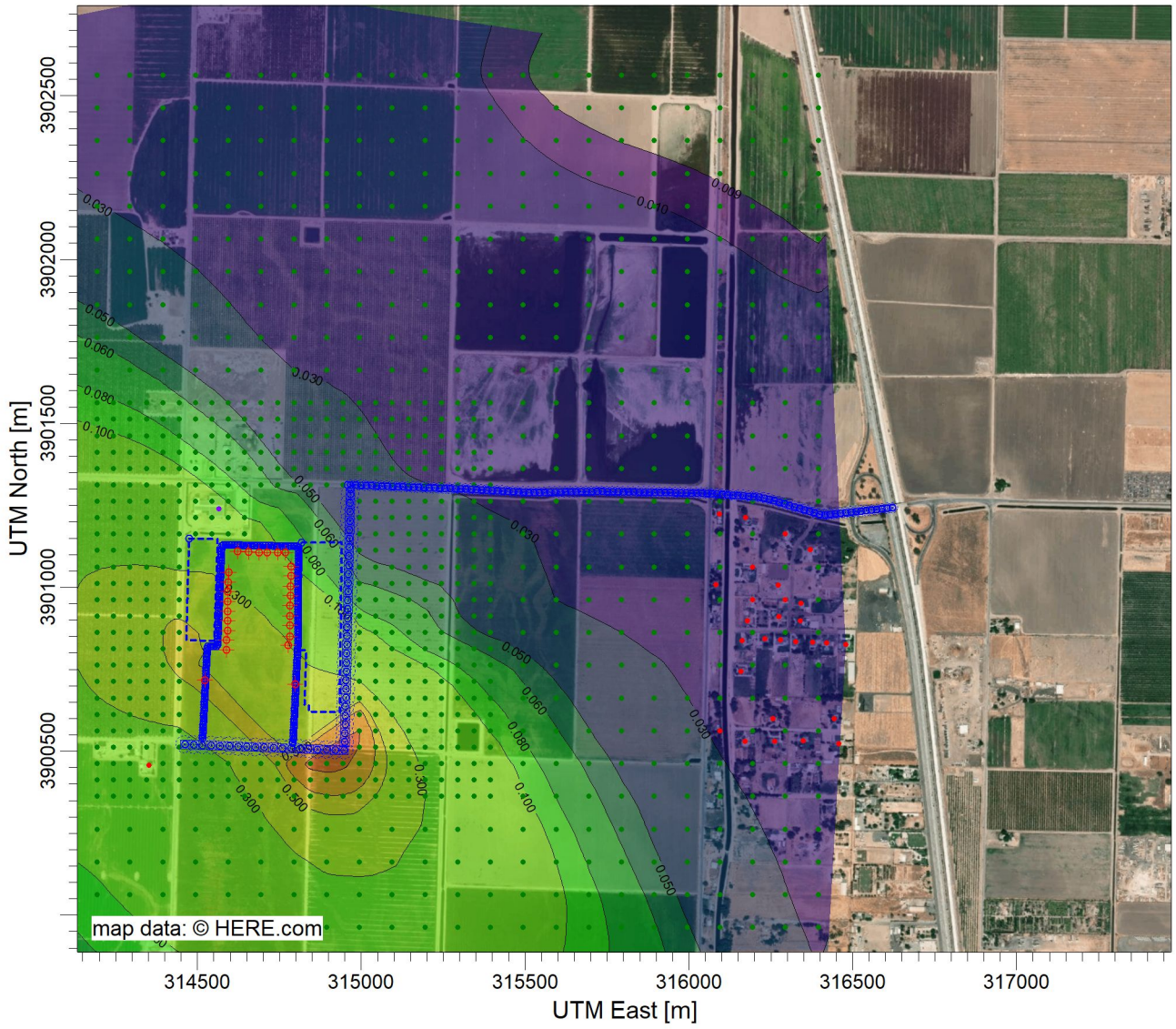
Notes:
Truck Plume Height = 1.7 x Exhaust Release Height
Truck Width is set at 8.5 feet (2.6m) based on CalTrans legal limits. -->
Release Height for Truck Exhaust = Plume Height/2

Initial Lateral Dimension Sigma Y = Length (m)/4.3
Initial Vertical Dimension SigmaZ = Height (m)/2.15

	Vehicle Width (m)	Plume/Source Width (m)
On-Site Truck Travel	2.6	8.6

PROJECT TITLE:

Westside Industrial Project
Operational Sources Modeling Configuration



PLOT FILE OF PERIOD VALUES AVERAGED ACROSS 0 YEARS FOR SOURCE GROUP: IDLE_EN ug/m^3

Max: 0.898 [ug/m^3] at (314894.08, 3900462.90)

0.009 0.010 0.030 0.050 0.060 0.080 0.100 0.300 0.500 0.600 0.800 0.898

COMMENTS:	SOURCES: **31**	COMPANY NAME:	
	RECEPTORS: **1422**	MODELER:	
	OUTPUT TYPE: **Concentration**	SCALE: 1:21,000 0 0.5 km	
	MAX: **0.898 ug/m^3**	DATE: **11/9/2023**	PROJECT NO.:

Control Pathway

AERMOD

Dispersion Options

Titles

Westside Industrial - Operational HRA

Dispersion Options

☑ Regulatory Default ☐ Non-Default Options

Dispersion Coefficient

Rural

Output Type

☑ Concentration
☐ Total Deposition (Dry & Wet)
☐ Dry Deposition
☐ Wet Deposition

Plume Depletion

☐ Dry Removal
☐ Wet Removal

Output Warnings

☐ No Output Warnings
☐ Non-fatal Warnings for Non-sequential Met Data

Pollutant / Averaging Time / Terrain Options

Pollutant Type

PM10

Averaging Time Options

Hours ☑ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 6 ☐ 8 ☐ 12 ☐ 24

☐ Month ☑ Period ☐ Annual

Exponential Decay

Option not available

Terrain Height Options

☐ Flat ☑ Elevated

SO: Meters
RE: Meters
TG: Meters

Flagpole Receptors

☐ Yes ☑ No

Default Height = 0.00 m

Control Pathway

Optional Files

Re-Start File	Init File	Multi-Year Analyses	Event Input File	Error Listing File
☐	☐	☐	☐	■

Detailed Error Listing File

Filename: OpsHRA.err

Source Pathway - Source Inputs

AERMOD

Point Sources

Source Type	Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation (Optional)	Release Height [m]	Emission Rate [g/s]	Gas Exit Temp. [K]	Gas Exit Velocity [m/s]	Stack Inside Diameter [m]
POINT	IDLE_W1	314595.11	3901046.99	101.48	3.84	0.11111	366.00	51.71	0.10
		Warehouse west-side dock idling.							
POINT	IDLE_N1	314622.81	3901109.96	101.54	3.84	0.16700	366.00	51.71	0.10
		Warehouse north-side dock idling.							
POINT	IDLE_E1	314786.00	3901063.76	101.59	3.84	0.11100	366.00	51.71	0.10
		Warehouse east-side dock idling.							
POINT	IDLE_EX	314523.30	3900716.55	101.16	3.84	0.05263	366.00	51.71	0.10
		Truck warehouse exit point idling.							
POINT	IDLE_EN	314799.00	3900705.00	101.37	3.84	0.05263	366.00	51.71	0.10
		Warehouse entry point idling.							
POINT	IDLE_W3	314592.78	3900986.99	101.44	3.84	0.11100	366.00	51.71	0.10
		Warehouse west-side dock idling #3							
POINT	IDLE_W2	314594.00	3901015.88	101.45	3.84	0.11100	366.00	51.71	0.10
		Warehouse west-side dock idling.							
POINT	IDLE_W4	314591.67	3900956.44	101.42	3.84	0.11100	366.00	51.71	0.10
		Warehouse west-side dock idling #4							
POINT	IDLE_W5	314591.67	3900927.00	101.40	3.84	0.11100	366.00	51.71	0.10
		Warehouse west-side dock idling #5							
POINT	IDLE_W6	314591.11	3900898.11	101.37	3.84	0.11100	366.00	51.71	0.10
		Warehouse west-side dock idling #6							
POINT	IDLE_W7	314591.11	3900868.11	101.35	3.84	0.11100	366.00	51.71	0.10
		Warehouse west-side dock idling #7							
POINT	IDLE_W8	314588.33	3900839.22	101.33	3.84	0.11100	366.00	51.71	0.10
		Warehouse west-side dock idling #8							

Source Pathway - Source Inputs

AERMOD

Source Type	Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation (Optional)	Release Height [m]	Emission Rate [g/s]	Gas Exit Temp. [K]	Gas Exit Velocity [m/s]	Stack Inside Diameter [m]
POINT	IDLE_W9	314587.78	3900809.77	101.31	3.84	0.11100	366.00	51.71	0.10
		Warehouse west-side dock idling #9							
POINT	IDLE_E2	314785.44	3901034.87	101.57	3.84	0.11100	366.00	51.71	0.10
		Warehouse east-side dock idling #2.							
POINT	IDLE_E3	314783.78	3901004.32	101.55	3.84	0.11100	366.00	51.71	0.10
		Warehouse east-side dock idling #3.							
POINT	IDLE_E4	314783.78	3900975.43	101.54	3.84	0.11100	366.00	51.71	0.10
		Warehouse east-side dock idling #4.							
POINT	IDLE_E5	314782.11	3900944.87	101.52	3.84	0.11100	366.00	51.71	0.10
		Warehouse east-side dock idling #5.							
POINT	IDLE_E6	314782.11	3900913.21	101.50	3.84	0.11100	366.00	51.71	0.10
		Warehouse east-side dock idling #6.							
POINT	IDLE_E7	314782.11	3900884.87	101.47	3.84	0.11100	366.00	51.71	0.10
		Warehouse east-side dock idling #7.							
POINT	IDLE_E8	314781.56	3900849.87	101.45	3.84	0.11100	366.00	51.71	0.10
		Warehouse east-side dock idling #8.							
POINT	IDLE_E9	314777.73	3900823.66	101.43	3.84	0.11100	366.00	51.71	0.10
		Warehouse east-side dock idling #9.							
POINT	IDLE_N2	314656.08	3901108.65	101.55	3.84	0.16700	366.00	51.71	0.10
		Warehouse north-side dock idling #2.							
POINT	IDLE_N3	314688.04	3901107.35	101.56	3.84	0.16700	366.00	51.71	0.10
		Warehouse north-side dock idling #3.							
POINT	IDLE_N4	314712.16	3901106.69	101.57	3.84	0.16700	366.00	51.71	0.10
		Warehouse north-side dock idling #4.							
POINT	IDLE_N5	314744.12	3901107.35	101.58	3.84	0.16700	366.00	51.71	0.10
		Warehouse north-side dock idling #5.							

Source Pathway - Source Inputs

AERMOD

Source Type	Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation (Optional)	Release Height [m]	Emission Rate [g/s]	Gas Exit Temp. [K]	Gas Exit Velocity [m/s]	Stack Inside Diameter [m]
POINT	IDLE_N6	314767.58	3901107.35	101.59	3.84	0.16700	366.00	51.71	0.10
		Warehouse north-side dock idling #6.							

Polygon Area Sources

Source Type: AREA POLY

Source: TRU_PARKE (East-side truck parking area. (69% Parking Area))

Base Elevation (Optional)	Release Height [m]	Emission Rate [g/ (s-m^2)]	Initial Vertical Dim. [m]	Number of Vertices (or sides)	X Coordinate for Vertices [m]	Y Coordinate for Vertices [m]
101.63	3.26	0.00001	3.04	8	314818.00	3901136.00
		0.00001			314940.79	3901136.22
		0.00001			314932.49	3900619.52
		0.00001			314839.30	3900621.37
		0.00001			314840.22	3900639.82
		0.00001			314826.38	3900640.74
		0.00001			314831.92	3900808.67
		0.00001			314811.62	3900810.51

Source Type: AREA POLY

Source: TRU_PARKW (West Truck Parking Area (31% parking area))

Base Elevation (Optional)	Release Height [m]	Emission Rate [g/ (s-m^2)]	Initial Vertical Dim. [m]	Number of Vertices (or sides)	X Coordinate for Vertices [m]	Y Coordinate for Vertices [m]
101.52	3.26	0.00001	3.04	4	314473.92	3901150.06
		0.00001			314561.58	3901147.29
		0.00001			314550.51	3900836.35
		0.00001			314465.62	3900840.04

Source Pathway - Source Inputs

Line Volume Sources

Source Type: LINE VOLUME

Source: OFF_RNEX (Houghton Road to SR-99)

Length of Side [m]	Emission Rate [g/ s]	Building Height [m]	X Coordinate for Points [m]	Y Coordinate for points [m]	Base Elevation [m]	Release Height [m]
16.00	1.00000		314959.04	3901312.91	101.71	3.26
			315306.11	3901300.25	101.52	3.26
			315526.25	3901288.86	101.30	3.26
			315719.82	3901292.66	101.03	3.26
			316053.82	3901286.97	101.28	3.26
			316217.02	3901275.58	101.29	3.26
			316246.59	3901268.47	101.28	3.26
			316407.72	3901220.27	101.16	3.26
			316418.30	3901221.39	101.16	3.26
			316604.59	3901241.15	101.26	3.26
			316625.04	3901243.32	101.27	3.26

Source Type: LINE VOLUME

Source: ON_RUNEX1 (Private road truck route.)

Length of Side [m]	Emission Rate [g/ s]	Building Height [m]	X Coordinate for Points [m]	Y Coordinate for points [m]	Base Elevation [m]	Release Height [m]
27.00	1.00000		314966.60	3901297.72	101.69	3.26
			314948.90	3900502.91	101.19	3.26
			314457.74	3900521.03	100.86	3.26

Source Pathway - Source Inputs

AERMOD

Source Type: LINE VOLUME

Source: ON_RUNEX2 (One-way truck route by warehouse.)

Length of Side [m]	Emission Rate [g/ s]	Building Height [m]	X Coordinate for Points [m]	Y Coordinate for points [m]	Base Elevation [m]	Release Height [m]
8.60	1.00000		314791.41	3900525.16	101.22	0.00
			314806.33	3900815.99	101.44	0.00
			314808.49	3901125.56	101.61	0.00
			314574.11	3901129.89	101.54	0.00
			314561.34	3900820.80	101.30	0.00
			314530.38	3900821.01	101.28	0.00
			314515.20	3900531.69	100.93	0.00

Source Pathway - Source Inputs

AERMOD

Volume Sources Generated from Line Sources

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
ON_RUNEX2	L0008935	314791.63	3900529.45	101.23	0.00	0.00588	8.60		4.00	3.04
	L0008936	314792.07	3900538.04	101.25	0.00	0.00588	8.60		4.00	3.04
	L0008937	314792.52	3900546.63	101.25	0.00	0.00588	8.60		4.00	3.04
	L0008938	314792.96	3900555.22	101.26	0.00	0.00588	8.60		4.00	3.04
	L0008939	314793.40	3900563.80	101.27	0.00	0.00588	8.60		4.00	3.04
	L0008940	314793.84	3900572.39	101.28	0.00	0.00588	8.60		4.00	3.04
	L0008941	314794.28	3900580.98	101.28	0.00	0.00588	8.60		4.00	3.04
	L0008942	314794.72	3900589.57	101.29	0.00	0.00588	8.60		4.00	3.04
	L0008943	314795.16	3900598.16	101.30	0.00	0.00588	8.60		4.00	3.04
	L0008944	314795.60	3900606.75	101.31	0.00	0.00588	8.60		4.00	3.04
	L0008945	314796.04	3900615.34	101.31	0.00	0.00588	8.60		4.00	3.04
	L0008946	314796.48	3900623.93	101.32	0.00	0.00588	8.60		4.00	3.04
	L0008947	314796.92	3900632.51	101.33	0.00	0.00588	8.60		4.00	3.04
	L0008948	314797.36	3900641.10	101.33	0.00	0.00588	8.60		4.00	3.04
	L0008949	314797.80	3900649.69	101.34	0.00	0.00588	8.60		4.00	3.04
	L0008950	314798.24	3900658.28	101.35	0.00	0.00588	8.60		4.00	3.04
	L0008951	314798.68	3900666.87	101.36	0.00	0.00588	8.60		4.00	3.04
	L0008952	314799.12	3900675.46	101.35	0.00	0.00588	8.60		4.00	3.04
	L0008953	314799.56	3900684.05	101.36	0.00	0.00588	8.60		4.00	3.04
	L0008954	314800.00	3900692.64	101.36	0.00	0.00588	8.60		4.00	3.04
	L0008955	314800.44	3900701.22	101.37	0.00	0.00588	8.60		4.00	3.04
	L0008956	314800.88	3900709.81	101.37	0.00	0.00588	8.60		4.00	3.04
	L0008957	314801.32	3900718.40	101.38	0.00	0.00588	8.60		4.00	3.04
	L0008958	314801.76	3900726.99	101.38	0.00	0.00588	8.60		4.00	3.04

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
ON_RUNEX2	L0008959	314802.20	3900735.58	101.39	0.00	0.00588	8.60		4.00	3.04
	L0008960	314802.64	3900744.17	101.40	0.00	0.00588	8.60		4.00	3.04
	L0008961	314803.08	3900752.76	101.40	0.00	0.00588	8.60		4.00	3.04
	L0008962	314803.53	3900761.35	101.40	0.00	0.00588	8.60		4.00	3.04
	L0008963	314803.97	3900769.93	101.40	0.00	0.00588	8.60		4.00	3.04
	L0008964	314804.41	3900778.52	101.40	0.00	0.00588	8.60		4.00	3.04
	L0008965	314804.85	3900787.11	101.41	0.00	0.00588	8.60		4.00	3.04
	L0008966	314805.29	3900795.70	101.42	0.00	0.00588	8.60		4.00	3.04
	L0008967	314805.73	3900804.29	101.43	0.00	0.00588	8.60		4.00	3.04
	L0008968	314806.17	3900812.88	101.44	0.00	0.00588	8.60		4.00	3.04
	L0008969	314806.37	3900821.47	101.44	0.00	0.00588	8.60		4.00	3.04
	L0008970	314806.43	3900830.07	101.44	0.00	0.00588	8.60		4.00	3.04
	L0008971	314806.49	3900838.67	101.45	0.00	0.00588	8.60		4.00	3.04
	L0008972	314806.55	3900847.27	101.46	0.00	0.00588	8.60		4.00	3.04
	L0008973	314806.61	3900855.87	101.46	0.00	0.00588	8.60		4.00	3.04
	L0008974	314806.67	3900864.47	101.47	0.00	0.00588	8.60		4.00	3.04
	L0008975	314806.73	3900873.07	101.47	0.00	0.00588	8.60		4.00	3.04
	L0008976	314806.79	3900881.67	101.48	0.00	0.00588	8.60		4.00	3.04
	L0008977	314806.85	3900890.27	101.48	0.00	0.00588	8.60		4.00	3.04
	L0008978	314806.91	3900898.87	101.49	0.00	0.00588	8.60		4.00	3.04
	L0008979	314806.97	3900907.47	101.49	0.00	0.00588	8.60		4.00	3.04
	L0008980	314807.03	3900916.07	101.50	0.00	0.00588	8.60		4.00	3.04
	L0008981	314807.09	3900924.67	101.51	0.00	0.00588	8.60		4.00	3.04
	L0008982	314807.15	3900933.27	101.52	0.00	0.00588	8.60		4.00	3.04
	L0008983	314807.21	3900941.87	101.53	0.00	0.00588	8.60		4.00	3.04

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
ON_RUNEX2	L0008984	314807.27	3900950.47	101.53	0.00	0.00588	8.60		4.00	3.04
	L0008985	314807.33	3900959.07	101.53	0.00	0.00588	8.60		4.00	3.04
	L0008986	314807.39	3900967.67	101.53	0.00	0.00588	8.60		4.00	3.04
	L0008987	314807.45	3900976.27	101.54	0.00	0.00588	8.60		4.00	3.04
	L0008988	314807.51	3900984.87	101.55	0.00	0.00588	8.60		4.00	3.04
	L0008989	314807.57	3900993.47	101.56	0.00	0.00588	8.60		4.00	3.04
	L0008990	314807.63	3901002.07	101.56	0.00	0.00588	8.60		4.00	3.04
	L0008991	314807.69	3901010.67	101.56	0.00	0.00588	8.60		4.00	3.04
	L0008992	314807.75	3901019.27	101.57	0.00	0.00588	8.60		4.00	3.04
	L0008993	314807.81	3901027.87	101.57	0.00	0.00588	8.60		4.00	3.04
	L0008994	314807.87	3901036.47	101.58	0.00	0.00588	8.60		4.00	3.04
	L0008995	314807.93	3901045.07	101.59	0.00	0.00588	8.60		4.00	3.04
	L0008996	314807.99	3901053.67	101.59	0.00	0.00588	8.60		4.00	3.04
	L0008997	314808.05	3901062.27	101.59	0.00	0.00588	8.60		4.00	3.04
	L0008998	314808.11	3901070.87	101.59	0.00	0.00588	8.60		4.00	3.04
	L0008999	314808.17	3901079.47	101.60	0.00	0.00588	8.60		4.00	3.04
	L0009000	314808.23	3901088.07	101.60	0.00	0.00588	8.60		4.00	3.04
	L0009001	314808.29	3901096.67	101.61	0.00	0.00588	8.60		4.00	3.04
	L0009002	314808.35	3901105.27	101.61	0.00	0.00588	8.60		4.00	3.04
	L0009003	314808.41	3901113.87	101.61	0.00	0.00588	8.60		4.00	3.04
	L0009004	314808.47	3901122.47	101.62	0.00	0.00588	8.60		4.00	3.04
	L0009005	314802.99	3901125.66	101.62	0.00	0.00588	8.60		4.00	3.04
	L0009006	314794.39	3901125.82	101.62	0.00	0.00588	8.60		4.00	3.04
	L0009007	314785.79	3901125.98	101.61	0.00	0.00588	8.60		4.00	3.04
	L0009008	314777.19	3901126.14	101.61	0.00	0.00588	8.60		4.00	3.04

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
ON_RUNEX2	L0009009	314768.60	3901126.30	101.61	0.00	0.00588	8.60		4.00	3.04
	L0009010	314760.00	3901126.46	101.60	0.00	0.00588	8.60		4.00	3.04
	L0009011	314751.40	3901126.62	101.60	0.00	0.00588	8.60		4.00	3.04
	L0009012	314742.80	3901126.77	101.60	0.00	0.00588	8.60		4.00	3.04
	L0009013	314734.20	3901126.93	101.60	0.00	0.00588	8.60		4.00	3.04
	L0009014	314725.60	3901127.09	101.59	0.00	0.00588	8.60		4.00	3.04
	L0009015	314717.00	3901127.25	101.59	0.00	0.00588	8.60		4.00	3.04
	L0009016	314708.41	3901127.41	101.58	0.00	0.00588	8.60		4.00	3.04
	L0009017	314699.81	3901127.57	101.58	0.00	0.00588	8.60		4.00	3.04
	L0009018	314691.21	3901127.73	101.58	0.00	0.00588	8.60		4.00	3.04
	L0009019	314682.61	3901127.89	101.58	0.00	0.00588	8.60		4.00	3.04
	L0009020	314674.01	3901128.04	101.57	0.00	0.00588	8.60		4.00	3.04
	L0009021	314665.41	3901128.20	101.57	0.00	0.00588	8.60		4.00	3.04
	L0009022	314656.81	3901128.36	101.57	0.00	0.00588	8.60		4.00	3.04
	L0009023	314648.22	3901128.52	101.56	0.00	0.00588	8.60		4.00	3.04
	L0009024	314639.62	3901128.68	101.56	0.00	0.00588	8.60		4.00	3.04
	L0009025	314631.02	3901128.84	101.56	0.00	0.00588	8.60		4.00	3.04
	L0009026	314622.42	3901129.00	101.56	0.00	0.00588	8.60		4.00	3.04
	L0009027	314613.82	3901129.15	101.55	0.00	0.00588	8.60		4.00	3.04
	L0009028	314605.22	3901129.31	101.55	0.00	0.00588	8.60		4.00	3.04
	L0009029	314596.63	3901129.47	101.55	0.00	0.00588	8.60		4.00	3.04
	L0009030	314588.03	3901129.63	101.54	0.00	0.00588	8.60		4.00	3.04
	L0009031	314579.43	3901129.79	101.54	0.00	0.00588	8.60		4.00	3.04
	L0009032	314573.97	3901126.61	101.54	0.00	0.00588	8.60		4.00	3.04
	L0009033	314573.62	3901118.02	101.52	0.00	0.00588	8.60		4.00	3.04

Source Pathway - Source Inputs

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Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
ON_RUNEX2	L0009034	314573.26	3901109.42	101.52	0.00	0.00588	8.60		4.00	3.04
	L0009035	314572.91	3901100.83	101.51	0.00	0.00588	8.60		4.00	3.04
	L0009036	314572.55	3901092.24	101.50	0.00	0.00588	8.60		4.00	3.04
	L0009037	314572.20	3901083.65	101.49	0.00	0.00588	8.60		4.00	3.04
	L0009038	314571.84	3901075.05	101.49	0.00	0.00588	8.60		4.00	3.04
	L0009039	314571.49	3901066.46	101.48	0.00	0.00588	8.60		4.00	3.04
	L0009040	314571.14	3901057.87	101.47	0.00	0.00588	8.60		4.00	3.04
	L0009041	314570.78	3901049.27	101.46	0.00	0.00588	8.60		4.00	3.04
	L0009042	314570.43	3901040.68	101.46	0.00	0.00588	8.60		4.00	3.04
	L0009043	314570.07	3901032.09	101.45	0.00	0.00588	8.60		4.00	3.04
	L0009044	314569.72	3901023.50	101.45	0.00	0.00588	8.60		4.00	3.04
	L0009045	314569.36	3901014.90	101.44	0.00	0.00588	8.60		4.00	3.04
	L0009046	314569.01	3901006.31	101.43	0.00	0.00588	8.60		4.00	3.04
	L0009047	314568.65	3900997.72	101.42	0.00	0.00588	8.60		4.00	3.04
	L0009048	314568.30	3900989.13	101.42	0.00	0.00588	8.60		4.00	3.04
	L0009049	314567.94	3900980.53	101.42	0.00	0.00588	8.60		4.00	3.04
	L0009050	314567.59	3900971.94	101.42	0.00	0.00588	8.60		4.00	3.04
	L0009051	314567.23	3900963.35	101.41	0.00	0.00588	8.60		4.00	3.04
	L0009052	314566.88	3900954.76	101.40	0.00	0.00588	8.60		4.00	3.04
	L0009053	314566.52	3900946.16	101.40	0.00	0.00588	8.60		4.00	3.04
	L0009054	314566.17	3900937.57	101.39	0.00	0.00588	8.60		4.00	3.04
	L0009055	314565.81	3900928.98	101.38	0.00	0.00588	8.60		4.00	3.04
	L0009056	314565.46	3900920.38	101.37	0.00	0.00588	8.60		4.00	3.04
	L0009057	314565.10	3900911.79	101.36	0.00	0.00588	8.60		4.00	3.04
	L0009058	314564.75	3900903.20	101.36	0.00	0.00588	8.60		4.00	3.04

Source Pathway - Source Inputs

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Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
ON_RUNEX2	L0009059	314564.39	3900894.61	101.35	0.00	0.00588	8.60		4.00	3.04
	L0009060	314564.04	3900886.01	101.35	0.00	0.00588	8.60		4.00	3.04
	L0009061	314563.68	3900877.42	101.34	0.00	0.00588	8.60		4.00	3.04
	L0009062	314563.33	3900868.83	101.33	0.00	0.00588	8.60		4.00	3.04
	L0009063	314562.97	3900860.24	101.33	0.00	0.00588	8.60		4.00	3.04
	L0009064	314562.62	3900851.64	101.32	0.00	0.00588	8.60		4.00	3.04
	L0009065	314562.26	3900843.05	101.31	0.00	0.00588	8.60		4.00	3.04
	L0009066	314561.91	3900834.46	101.31	0.00	0.00588	8.60		4.00	3.04
	L0009067	314561.55	3900825.87	101.30	0.00	0.00588	8.60		4.00	3.04
	L0009068	314557.81	3900820.82	101.29	0.00	0.00588	8.60		4.00	3.04
	L0009069	314549.21	3900820.88	101.29	0.00	0.00588	8.60		4.00	3.04
	L0009070	314540.61	3900820.94	101.28	0.00	0.00588	8.60		4.00	3.04
	L0009071	314532.01	3900821.00	101.28	0.00	0.00588	8.60		4.00	3.04
	L0009072	314530.02	3900814.05	101.27	0.00	0.00588	8.60		4.00	3.04
	L0009073	314529.57	3900805.47	101.26	0.00	0.00588	8.60		4.00	3.04
	L0009074	314529.12	3900796.88	101.25	0.00	0.00588	8.60		4.00	3.04
	L0009075	314528.66	3900788.29	101.24	0.00	0.00588	8.60		4.00	3.04
	L0009076	314528.21	3900779.70	101.23	0.00	0.00588	8.60		4.00	3.04
	L0009077	314527.76	3900771.11	101.22	0.00	0.00588	8.60		4.00	3.04
	L0009078	314527.31	3900762.52	101.22	0.00	0.00588	8.60		4.00	3.04
	L0009079	314526.86	3900753.94	101.21	0.00	0.00588	8.60		4.00	3.04
	L0009080	314526.41	3900745.35	101.20	0.00	0.00588	8.60		4.00	3.04
	L0009081	314525.96	3900736.76	101.19	0.00	0.00588	8.60		4.00	3.04
	L0009082	314525.51	3900728.17	101.18	0.00	0.00588	8.60		4.00	3.04
	L0009083	314525.06	3900719.58	101.17	0.00	0.00588	8.60		4.00	3.04

Source Pathway - Source Inputs

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Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
ON_RUNEX2	L0009084	314524.61	3900711.00	101.16	0.00	0.00588	8.60		4.00	3.04
	L0009085	314524.16	3900702.41	101.15	0.00	0.00588	8.60		4.00	3.04
	L0009086	314523.71	3900693.82	101.14	0.00	0.00588	8.60		4.00	3.04
	L0009087	314523.26	3900685.23	101.13	0.00	0.00588	8.60		4.00	3.04
	L0009088	314522.81	3900676.64	101.12	0.00	0.00588	8.60		4.00	3.04
	L0009089	314522.36	3900668.05	101.11	0.00	0.00588	8.60		4.00	3.04
	L0009090	314521.90	3900659.47	101.10	0.00	0.00588	8.60		4.00	3.04
	L0009091	314521.45	3900650.88	101.09	0.00	0.00588	8.60		4.00	3.04
	L0009092	314521.00	3900642.29	101.08	0.00	0.00588	8.60		4.00	3.04
	L0009093	314520.55	3900633.70	101.07	0.00	0.00588	8.60		4.00	3.04
	L0009094	314520.10	3900625.11	101.06	0.00	0.00588	8.60		4.00	3.04
	L0009095	314519.65	3900616.53	101.05	0.00	0.00588	8.60		4.00	3.04
	L0009096	314519.20	3900607.94	101.04	0.00	0.00588	8.60		4.00	3.04
	L0009097	314518.75	3900599.35	101.03	0.00	0.00588	8.60		4.00	3.04
	L0009098	314518.30	3900590.76	101.02	0.00	0.00588	8.60		4.00	3.04
	L0009099	314517.85	3900582.17	101.00	0.00	0.00588	8.60		4.00	3.04
	L0009100	314517.40	3900573.58	101.00	0.00	0.00588	8.60		4.00	3.04
	L0009101	314516.95	3900565.00	100.99	0.00	0.00588	8.60		4.00	3.04
	L0009102	314516.50	3900556.41	100.98	0.00	0.00588	8.60		4.00	3.04
	L0009103	314516.05	3900547.82	100.96	0.00	0.00588	8.60		4.00	3.04
	L0009104	314515.60	3900539.23	100.95	0.00	0.00588	8.60		4.00	3.04

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
OFF_RNEX	L0009248	314967.03	3901312.61	101.70	3.26	0.00952	16.00		7.44	3.04
	L0009249	314983.02	3901312.03	101.70	3.26	0.00952	16.00		7.44	3.04

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Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
OFF_RNEX	L0009250	314999.01	3901311.45	101.70	3.26	0.00952	16.00		7.44	3.04
	L0009251	315015.00	3901310.87	101.69	3.26	0.00952	16.00		7.44	3.04
	L0009252	315030.99	3901310.28	101.68	3.26	0.00952	16.00		7.44	3.04
	L0009253	315046.98	3901309.70	101.68	3.26	0.00952	16.00		7.44	3.04
	L0009254	315062.97	3901309.12	101.68	3.26	0.00952	16.00		7.44	3.04
	L0009255	315078.96	3901308.53	101.67	3.26	0.00952	16.00		7.44	3.04
	L0009256	315094.95	3901307.95	101.66	3.26	0.00952	16.00		7.44	3.04
	L0009257	315110.94	3901307.37	101.66	3.26	0.00952	16.00		7.44	3.04
	L0009258	315126.93	3901306.78	101.64	3.26	0.00952	16.00		7.44	3.04
	L0009259	315142.91	3901306.20	101.64	3.26	0.00952	16.00		7.44	3.04
	L0009260	315158.90	3901305.62	101.63	3.26	0.00952	16.00		7.44	3.04
	L0009261	315174.89	3901305.04	101.62	3.26	0.00952	16.00		7.44	3.04
	L0009262	315190.88	3901304.45	101.61	3.26	0.00952	16.00		7.44	3.04
	L0009263	315206.87	3901303.87	101.60	3.26	0.00952	16.00		7.44	3.04
	L0009264	315222.86	3901303.29	101.59	3.26	0.00952	16.00		7.44	3.04
	L0009265	315238.85	3901302.70	101.58	3.26	0.00952	16.00		7.44	3.04
	L0009266	315254.84	3901302.12	101.57	3.26	0.00952	16.00		7.44	3.04
	L0009267	315270.83	3901301.54	101.55	3.26	0.00952	16.00		7.44	3.04
	L0009268	315286.82	3901300.95	101.54	3.26	0.00952	16.00		7.44	3.04
	L0009269	315302.81	3901300.37	101.52	3.26	0.00952	16.00		7.44	3.04
	L0009270	315318.79	3901299.60	101.51	3.26	0.00952	16.00		7.44	3.04
	L0009271	315334.77	3901298.77	101.50	3.26	0.00952	16.00		7.44	3.04
	L0009272	315350.75	3901297.94	101.48	3.26	0.00952	16.00		7.44	3.04
	L0009273	315366.73	3901297.12	101.47	3.26	0.00952	16.00		7.44	3.04
	L0009274	315382.70	3901296.29	101.45	3.26	0.00952	16.00		7.44	3.04

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OFF_RNEX	L0009275	315398.68	3901295.46	101.44	3.26	0.00952	16.00		7.44	3.04
	L0009276	315414.66	3901294.64	101.42	3.26	0.00952	16.00		7.44	3.04
	L0009277	315430.64	3901293.81	101.41	3.26	0.00952	16.00		7.44	3.04
	L0009278	315446.62	3901292.98	101.39	3.26	0.00952	16.00		7.44	3.04
	L0009279	315462.60	3901292.16	101.38	3.26	0.00952	16.00		7.44	3.04
	L0009280	315478.58	3901291.33	101.36	3.26	0.00952	16.00		7.44	3.04
	L0009281	315494.55	3901290.50	101.34	3.26	0.00952	16.00		7.44	3.04
	L0009282	315510.53	3901289.68	101.32	3.26	0.00952	16.00		7.44	3.04
	L0009283	315526.51	3901288.87	101.30	3.26	0.00952	16.00		7.44	3.04
	L0009284	315542.51	3901289.18	101.27	3.26	0.00952	16.00		7.44	3.04
	L0009285	315558.51	3901289.50	101.22	3.26	0.00952	16.00		7.44	3.04
	L0009286	315574.50	3901289.81	101.18	3.26	0.00952	16.00		7.44	3.04
	L0009287	315590.50	3901290.12	101.17	3.26	0.00952	16.00		7.44	3.04
	L0009288	315606.50	3901290.44	101.14	3.26	0.00952	16.00		7.44	3.04
	L0009289	315622.49	3901290.75	101.12	3.26	0.00952	16.00		7.44	3.04
	L0009290	315638.49	3901291.07	101.09	3.26	0.00952	16.00		7.44	3.04
	L0009291	315654.49	3901291.38	101.07	3.26	0.00952	16.00		7.44	3.04
	L0009292	315670.48	3901291.69	101.05	3.26	0.00952	16.00		7.44	3.04
	L0009293	315686.48	3901292.01	101.04	3.26	0.00952	16.00		7.44	3.04
	L0009294	315702.48	3901292.32	101.03	3.26	0.00952	16.00		7.44	3.04
	L0009295	315718.48	3901292.63	101.03	3.26	0.00952	16.00		7.44	3.04
	L0009296	315734.47	3901292.41	101.02	3.26	0.00952	16.00		7.44	3.04
	L0009297	315750.47	3901292.14	101.02	3.26	0.00952	16.00		7.44	3.04
	L0009298	315766.47	3901291.87	101.02	3.26	0.00952	16.00		7.44	3.04
	L0009299	315782.47	3901291.59	101.02	3.26	0.00952	16.00		7.44	3.04

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
OFF_RNEX	L0009300	315798.46	3901291.32	101.03	3.26	0.00952	16.00		7.44	3.04
	L0009301	315814.46	3901291.05	101.04	3.26	0.00952	16.00		7.44	3.04
	L0009302	315830.46	3901290.77	101.06	3.26	0.00952	16.00		7.44	3.04
	L0009303	315846.46	3901290.50	101.08	3.26	0.00952	16.00		7.44	3.04
	L0009304	315862.45	3901290.23	101.10	3.26	0.00952	16.00		7.44	3.04
	L0009305	315878.45	3901289.96	101.14	3.26	0.00952	16.00		7.44	3.04
	L0009306	315894.45	3901289.68	101.16	3.26	0.00952	16.00		7.44	3.04
	L0009307	315910.45	3901289.41	101.18	3.26	0.00952	16.00		7.44	3.04
	L0009308	315926.44	3901289.14	101.20	3.26	0.00952	16.00		7.44	3.04
	L0009309	315942.44	3901288.87	101.22	3.26	0.00952	16.00		7.44	3.04
	L0009310	315958.44	3901288.59	101.23	3.26	0.00952	16.00		7.44	3.04
	L0009311	315974.44	3901288.32	101.23	3.26	0.00952	16.00		7.44	3.04
	L0009312	315990.44	3901288.05	101.25	3.26	0.00952	16.00		7.44	3.04
	L0009313	316006.43	3901287.77	101.27	3.26	0.00952	16.00		7.44	3.04
	L0009314	316022.43	3901287.50	101.28	3.26	0.00952	16.00		7.44	3.04
	L0009315	316038.43	3901287.23	101.28	3.26	0.00952	16.00		7.44	3.04
	L0009316	316054.42	3901286.92	101.28	3.26	0.00952	16.00		7.44	3.04
	L0009317	316070.39	3901285.81	101.29	3.26	0.00952	16.00		7.44	3.04
	L0009318	316086.35	3901284.70	101.30	3.26	0.00952	16.00		7.44	3.04
	L0009319	316102.31	3901283.58	101.30	3.26	0.00952	16.00		7.44	3.04
	L0009320	316118.27	3901282.47	101.30	3.26	0.00952	16.00		7.44	3.04
	L0009321	316134.23	3901281.36	101.30	3.26	0.00952	16.00		7.44	3.04
	L0009322	316150.19	3901280.24	101.30	3.26	0.00952	16.00		7.44	3.04
	L0009323	316166.15	3901279.13	101.30	3.26	0.00952	16.00		7.44	3.04
	L0009324	316182.11	3901278.02	101.29	3.26	0.00952	16.00		7.44	3.04

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
OFF_RNEX	L0009325	316198.08	3901276.90	101.29	3.26	0.00952	16.00		7.44	3.04
	L0009326	316214.04	3901275.79	101.29	3.26	0.00952	16.00		7.44	3.04
	L0009327	316229.67	3901272.54	101.29	3.26	0.00952	16.00		7.44	3.04
	L0009328	316245.23	3901268.80	101.28	3.26	0.00952	16.00		7.44	3.04
	L0009329	316260.57	3901264.29	101.28	3.26	0.00952	16.00		7.44	3.04
	L0009330	316275.90	3901259.70	101.27	3.26	0.00952	16.00		7.44	3.04
	L0009331	316291.23	3901255.12	101.27	3.26	0.00952	16.00		7.44	3.04
	L0009332	316306.56	3901250.53	101.26	3.26	0.00952	16.00		7.44	3.04
	L0009333	316321.89	3901245.94	101.25	3.26	0.00952	16.00		7.44	3.04
	L0009334	316337.22	3901241.36	101.24	3.26	0.00952	16.00		7.44	3.04
	L0009335	316352.55	3901236.77	101.23	3.26	0.00952	16.00		7.44	3.04
	L0009336	316367.88	3901232.19	101.20	3.26	0.00952	16.00		7.44	3.04
	L0009337	316383.20	3901227.60	101.19	3.26	0.00952	16.00		7.44	3.04
	L0009338	316398.53	3901223.02	101.17	3.26	0.00952	16.00		7.44	3.04
	L0009339	316414.10	3901220.95	101.16	3.26	0.00952	16.00		7.44	3.04
	L0009340	316430.01	3901222.63	101.17	3.26	0.00952	16.00		7.44	3.04
	L0009341	316445.92	3901224.32	101.18	3.26	0.00952	16.00		7.44	3.04
	L0009342	316461.83	3901226.01	101.19	3.26	0.00952	16.00		7.44	3.04
	L0009343	316477.74	3901227.70	101.21	3.26	0.00952	16.00		7.44	3.04
	L0009344	316493.65	3901229.38	101.22	3.26	0.00952	16.00		7.44	3.04
	L0009345	316509.56	3901231.07	101.23	3.26	0.00952	16.00		7.44	3.04
	L0009346	316525.47	3901232.76	101.23	3.26	0.00952	16.00		7.44	3.04
	L0009347	316541.38	3901234.45	101.23	3.26	0.00952	16.00		7.44	3.04
	L0009348	316557.29	3901236.13	101.24	3.26	0.00952	16.00		7.44	3.04
	L0009349	316573.20	3901237.82	101.25	3.26	0.00952	16.00		7.44	3.04

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
OFF_RNEX	L0009350	316589.11	3901239.51	101.26	3.26	0.00952	16.00		7.44	3.04
	L0009351	316605.02	3901241.20	101.26	3.26	0.00952	16.00		7.44	3.04
	L0009352	316620.94	3901242.88	101.26	3.26	0.00952	16.00		7.44	3.04

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
ON_RUNEX1	L0009667	314966.30	3901284.22	101.69	3.26	0.02083	27.00		12.56	3.04
	L0009668	314965.70	3901257.23	101.68	3.26	0.02083	27.00		12.56	3.04
	L0009669	314965.10	3901230.23	101.67	3.26	0.02083	27.00		12.56	3.04
	L0009670	314964.50	3901203.24	101.67	3.26	0.02083	27.00		12.56	3.04
	L0009671	314963.90	3901176.25	101.65	3.26	0.02083	27.00		12.56	3.04
	L0009672	314963.30	3901149.26	101.65	3.26	0.02083	27.00		12.56	3.04
	L0009673	314962.70	3901122.26	101.63	3.26	0.02083	27.00		12.56	3.04
	L0009674	314962.10	3901095.27	101.62	3.26	0.02083	27.00		12.56	3.04
	L0009675	314961.49	3901068.28	101.60	3.26	0.02083	27.00		12.56	3.04
	L0009676	314960.89	3901041.28	101.59	3.26	0.02083	27.00		12.56	3.04
	L0009677	314960.29	3901014.29	101.57	3.26	0.02083	27.00		12.56	3.04
	L0009678	314959.69	3900987.30	101.55	3.26	0.02083	27.00		12.56	3.04
	L0009679	314959.09	3900960.30	101.53	3.26	0.02083	27.00		12.56	3.04
	L0009680	314958.49	3900933.31	101.52	3.26	0.02083	27.00		12.56	3.04
	L0009681	314957.89	3900906.32	101.50	3.26	0.02083	27.00		12.56	3.04
	L0009682	314957.29	3900879.32	101.48	3.26	0.02083	27.00		12.56	3.04
	L0009683	314956.68	3900852.33	101.47	3.26	0.02083	27.00		12.56	3.04
	L0009684	314956.08	3900825.34	101.45	3.26	0.02083	27.00		12.56	3.04
	L0009685	314955.48	3900798.34	101.43	3.26	0.02083	27.00		12.56	3.04
	L0009686	314954.88	3900771.35	101.41	3.26	0.02083	27.00		12.56	3.04

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
ON_RUNEX1	L0009687	314954.28	3900744.36	101.39	3.26	0.02083	27.00		12.56	3.04
	L0009688	314953.68	3900717.36	101.37	3.26	0.02083	27.00		12.56	3.04
	L0009689	314953.08	3900690.37	101.36	3.26	0.02083	27.00		12.56	3.04
	L0009690	314952.48	3900663.38	101.35	3.26	0.02083	27.00		12.56	3.04
	L0009691	314951.88	3900636.38	101.33	3.26	0.02083	27.00		12.56	3.04
	L0009692	314951.27	3900609.39	101.31	3.26	0.02083	27.00		12.56	3.04
	L0009693	314950.67	3900582.40	101.29	3.26	0.02083	27.00		12.56	3.04
	L0009694	314950.07	3900555.40	101.27	3.26	0.02083	27.00		12.56	3.04
	L0009695	314949.47	3900528.41	101.24	3.26	0.02083	27.00		12.56	3.04
	L0009696	314947.41	3900502.96	101.20	3.26	0.02083	27.00		12.56	3.04
	L0009697	314920.43	3900503.96	101.22	3.26	0.02083	27.00		12.56	3.04
	L0009698	314893.45	3900504.96	101.23	3.26	0.02083	27.00		12.56	3.04
	L0009699	314866.46	3900505.95	101.23	3.26	0.02083	27.00		12.56	3.04
	L0009700	314839.48	3900506.95	101.22	3.26	0.02083	27.00		12.56	3.04
	L0009701	314812.50	3900507.94	101.21	3.26	0.02083	27.00		12.56	3.04
	L0009702	314785.52	3900508.94	101.20	3.26	0.02083	27.00		12.56	3.04
	L0009703	314758.54	3900509.93	101.17	3.26	0.02083	27.00		12.56	3.04
	L0009704	314731.56	3900510.93	101.15	3.26	0.02083	27.00		12.56	3.04
	L0009705	314704.57	3900511.92	101.12	3.26	0.02083	27.00		12.56	3.04
	L0009706	314677.59	3900512.92	101.10	3.26	0.02083	27.00		12.56	3.04
	L0009707	314650.61	3900513.92	101.07	3.26	0.02083	27.00		12.56	3.04
	L0009708	314623.63	3900514.91	101.03	3.26	0.02083	27.00		12.56	3.04
	L0009709	314596.65	3900515.91	101.01	3.26	0.02083	27.00		12.56	3.04
	L0009710	314569.67	3900516.90	100.98	3.26	0.02083	27.00		12.56	3.04
	L0009711	314542.68	3900517.90	100.95	3.26	0.02083	27.00		12.56	3.04

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
ON_RUNEX1	L0009712	314515.70	3900518.89	100.92	3.26	0.02083	27.00		12.56	3.04
	L0009713	314488.72	3900519.89	100.89	3.26	0.02083	27.00		12.56	3.04
	L0009714	314461.74	3900520.88	100.86	3.26	0.02083	27.00		12.56	3.04

Source Pathway

Building Downwash Information

Option not in use

Emission Rate Units for Output

For Concentration

Unit Factor:	1E6
Emission Unit Label:	GRAMS/SEC
Concentration Unit Label:	MICROGRAMS/M**3

Source Groups

Source Group ID:	List of Sources in Group (Source Range or Single Sources)
TRU_PARK	TRU_PARKE
	TRU_PARKW
PRIV_RUN	ON_RUNEX1
ON_RUNEX	ON_RUNEX2
OFF_RNEX	OFF_RNEX
IDLE_W	IDLE_W1
	IDLE_W3
	IDLE_W2
	IDLE_W4
	IDLE_W5
	IDLE_W6
	IDLE_W7
	IDLE_W8
	IDLE_W9
IDLE_N	IDLE_N1
	IDLE_N2
	IDLE_N3
	IDLE_N4
	IDLE_N5
	IDLE_N6
IDLE_EX	IDLE_EX
IDLE_EN	IDLE_EN
IDLE_E	IDLE_E1
	IDLE_E2
	IDLE_E3
	IDLE_E4
	IDLE_E5
	IDLE_E6

	IDLE_E7
	IDLE_E8
	IDLE_E9

Source Group ID: **DOCKS**	List of Sources in Group (Source Range or Single Sources)
	IDLE_W1
	IDLE_W3
	IDLE_W2
	IDLE_W4
	IDLE_W5
	IDLE_W6
	IDLE_W7
	IDLE_W8
	IDLE_W9
	IDLE_N1
	IDLE_N2
	IDLE_N3
	IDLE_N4
	IDLE_N5
	IDLE_N6
	IDLE_E1
	IDLE_E2
	IDLE_E3
	IDLE_E4
	IDLE_E5
	IDLE_E6
	IDLE_E7
	IDLE_E8
	IDLE_E9

Source Group ID: **ALL**	List of Sources in Group (Source Range or Single Sources)
	All Sources Included

Variable Emissions

Monthly Emission Rate Variation

Scenario: Scenario 2

Source ID: IDLE_E1						
January - June	0.40	0.40	0.40	0.40	0.40	0.40
July - December	0.40	0.40	0.40	0.40	0.40	0.40
Source ID: IDLE_E2						
January - June	0.40	0.40	0.40	0.40	0.40	0.40
July - December	0.40	0.40	0.40	0.40	0.40	0.40
Source ID: IDLE_E3						
January - June	0.40	0.40	0.40	0.40	0.40	0.40
July - December	0.40	0.40	0.40	0.40	0.40	0.40
Source ID: IDLE_E4						
January - June	0.40	0.40	0.40	0.40	0.40	0.40
July - December	0.40	0.40	0.40	0.40	0.40	0.40
Source ID: IDLE_E5						
January - June	0.40	0.40	0.40	0.40	0.40	0.40
July - December	0.40	0.40	0.40	0.40	0.40	0.40
Source ID: IDLE_E6						
January - June	0.40	0.40	0.40	0.40	0.40	0.40
July - December	0.40	0.40	0.40	0.40	0.40	0.40
Source ID: IDLE_E7						
January - June	0.40	0.40	0.40	0.40	0.40	0.40
July - December	0.40	0.40	0.40	0.40	0.40	0.40
Source ID: IDLE_E8						
January - June	0.40	0.40	0.40	0.40	0.40	0.40
July - December	0.40	0.40	0.40	0.40	0.40	0.40
Source ID: IDLE_E9						
January - June	0.40	0.40	0.40	0.40	0.40	0.40
July - December	0.40	0.40	0.40	0.40	0.40	0.40

Scenario: Scenario 3

Source ID: IDLE_N1						
January - June	0.20	0.20	0.20	0.20	0.20	0.20
July - December	0.20	0.20	0.20	0.20	0.20	0.20
Source ID: IDLE_N2						
January - June	0.20	0.20	0.20	0.20	0.20	0.20
July - December	0.20	0.20	0.20	0.20	0.20	0.20
Source ID: IDLE_N3						
January - June	0.20	0.20	0.20	0.20	0.20	0.20
July - December	0.20	0.20	0.20	0.20	0.20	0.20

Source ID: IDLE_N4						
January - June	0.20	0.20	0.20	0.20	0.20	0.20
July - December	0.20	0.20	0.20	0.20	0.20	0.20
Source ID: IDLE_N5						
January - June	0.20	0.20	0.20	0.20	0.20	0.20
July - December	0.20	0.20	0.20	0.20	0.20	0.20
Source ID: IDLE_N6						
January - June	0.20	0.20	0.20	0.20	0.20	0.20
July - December	0.20	0.20	0.20	0.20	0.20	0.20

Scenario: Scenario 4

Source ID: IDLE_W1						
January - June	0.40	0.40	0.40	0.40	0.40	0.40
July - December	0.40	0.40	0.40	0.40	0.40	0.40
Source ID: IDLE_W3						
January - June	0.40	0.40	0.40	0.40	0.40	0.40
July - December	0.40	0.40	0.40	0.40	0.40	0.40
Source ID: IDLE_W2						
January - June	0.40	0.40	0.40	0.40	0.40	0.40
July - December	0.40	0.40	0.40	0.40	0.40	0.40
Source ID: IDLE_W4						
January - June	0.40	0.40	0.40	0.40	0.40	0.40
July - December	0.40	0.40	0.40	0.40	0.40	0.40
Source ID: IDLE_W5						
January - June	0.40	0.40	0.40	0.40	0.40	0.40
July - December	0.40	0.40	0.40	0.40	0.40	0.40
Source ID: IDLE_W6						
January - June	0.40	0.40	0.40	0.40	0.40	0.40
July - December	0.40	0.40	0.40	0.40	0.40	0.40
Source ID: IDLE_W7						
January - June	0.40	0.40	0.40	0.40	0.40	0.40
July - December	0.40	0.40	0.40	0.40	0.40	0.40
Source ID: IDLE_W8						
January - June	0.40	0.40	0.40	0.40	0.40	0.40
July - December	0.40	0.40	0.40	0.40	0.40	0.40
Source ID: IDLE_W9						
January - June	0.40	0.40	0.40	0.40	0.40	0.40
July - December	0.40	0.40	0.40	0.40	0.40	0.40

Meteorology Pathway

AERMOD

Met Input Data

Surface Met Data

Filename: ..\..\41150044\Bakersfield_18-22.SFC
Format Type: Default AERMET format

Profile Met Data

Filename: ..\..\41150044\Bakersfield_18-22.PFL
Format Type: Default AERMET format

Wind Speed

☐ Wind Speeds are Vector Mean (Not Scalar Means)

Wind Direction

Rotation Adjustment [deg]:

Potential Temperature Profile

Base Elevation above MSL (for Primary Met Tower): 150.00 [m]

Meteorological Station Data

Stations	Station No.	Year	X Coordinate [m]	Y Coordinate [m]	Station Name
Surface		2018			KBFL
Upper Air		2018			OAKLAND/WSO AP

Data Period

Data Period to Process

Start Date: 1/1/2018 Start Hour: 1 End Date: 12/31/2022 End Hour: 24

Wind Speed Categories

Stability Category	Wind Speed [m/s]	Stability Category	Wind Speed [m/s]
A	1.54	D	8.23
B	3.09	E	10.8
C	5.14	F	No Upper Bound

Output Pathway

Tabular Printed Outputs

Short Term Averaging Period	RECTABLE Highest Values Table										MAXTABLE Maximum Values Table	DAYTABLE Daily Values Table
	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th		
1	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		No

Contour Plot Files (PLOTFILE)

Path for PLOTFILES: OPSHRA.AD

Averaging Period	Source Group ID	High Value	File Name
Period	IDLE_EN		IDLE_EN_PE.PLT
Period	DOCKS		IDLE_DOCKS_PE.PLT
1	DOCKS	1st	IDLE_DOCKS_01.PLT
Period	IDLE_EX		IDLE_EX_PE.PLT
1	IDLE_EX	1st	IDLE_EX_01.PLT
1	IDLE_EN	1st	IDLE_EN_01.PLT
1	TRU_PARK	1st	TRU_PARK_01.PLT
Period	TRU_PARK		TRU_PARK_PE.PLT
Period	OFF_RNEX		OFFSITE_PE.PLT
1	OFF_RNEX	1st	OFFSITE_01.PLT
1	PRIV_RUN	1st	PRIVATE_01.PLT
Period	PRIV_RUN		PRIVATE_PE.PLT
Period	ON_RUNEX		ONSITE_RUN_PE.PLT
1	ON_RUNEX	1st	ONSITE_RUN_01.PLT

Westside Industrial Project
Operational Health Risk Assessment -Truck Diesel Particulate Matter Emissions

Source	Daily Round Trips (visits)	Idle Duration per Day (min)	Average Distance per Round Trip (mi)	PM10 Running Exhaust (g/mi)	PM10 Idle Exhaust (g/veh-hr)	DPM Emissions (g/trip)	DPM Emissions (lb/day)	DPM Emissions (lb/year)
On-Site Running Exhaust[1] - Private Road (0-15 mph)	73	0	0.799	0.0094	-	0.008	0.001	0.44
On-Site Running Exhaust[1] - Warehouse Circulation (0-5 mph)	73	0	0.911	0.0114		0.010	0.002	0.61
Off-Site Running Exhaust[2] -Houghton Road East to SR-99 (0-25 mph)	73	0	2.0	0.0081	-	0.016	0.003	0.94
On-Site Idle[3] at Entrance	73	5	-	-	0.01083	0.001	0.0001	0.05
On-Site Idle[3] at Exits	73	5	-	-	0.01083	0.001	0.0001	0.05
On-Site[3] at Truck Parking - East (15 acres), West (6.5 acres) 0-5 mph + Idling	73	5	0.33	0.0114	0.01083	0.005	0.0007	0.27
On-Site Idle at Docks (40% W, 40%E, 20% N)	73	5	0.0	-	0.01083	0.001	0.0001	0.05
								2.41

Notes:
All Truck Emission Factors for Buildout Year 2026 for HHDT Diesel Fueled Trucks for Kern County - SJValley Portion using EMFAC Project Level Emission Factors (see Raw Emission Factors Below)

1 On-Site Running Exhast are for average of speeds <10 mph
2 Off-Site Running Exhaust in Project Area (along Houghton Rd) is based on average of speeds <=25 mph
3 Idling accounts for incidences upon entering, egressing in driveways as well as maneuvering at loading docks and in parking stalls.
Assuming 5 minutes per occurance, idling times are assigned 5 each at minutes for driveway idling points and 10 minutes for dock/parking area sources - for a total of 20 minutes per truck visit.
Truck Yard Traffic apportioned by Area (east 69%, west 31%) assume up to 5 minute idle total
Dock Visits apprortioned to 40% West Docks, 40% East Docks and 20% North Docks

EMFAC2021 - Project Level (PL) Web Tool Results (EMFAC2021 v.1.0.2)

calendar_year	season_month	sub_area	vehicle_class	fuel	temperature	midity	process	speed_time	pollutant	emission_rate
2026	Annual	Kern (SJV)	HHDT	Dsl	77	50	RUNEX	5	PM10	0.01140
2026	Annual	Kern (SJV)	HHDT	Dsl	77	50	RUNEX	10	PM10	0.00949
2026	Annual	Kern (SJV)	HHDT	Dsl	77	50	RUNEX	15	PM10	0.00746
2026	Annual	Kern (SJV)	HHDT	Dsl	77	50	RUNEX	20	PM10	0.00637
2026	Annual	Kern (SJV)	HHDT	Dsl	77	50	RUNEX	25	PM10	0.00569
2026	Annual	Kern (SJV)	HHDT	Dsl			IDLEX		PM10	0.01083

Note: Units from EMFAC2021 PM Emission Factors are g/mi for Running Exhaust (RUNEX) and g/veh-hr for Idling Exhaust (IDLEX)

HARP Project Summary Report 11/8/2023 7:13:33 AM

PROJECT INFORMATION
HARP Version: 22118
Project Name: OPSHRA
Project Output Directory: F:\Jobs\41150044HZ\HARP\OPSHRA
HARP Database: NA

FACILITY INFORMATION
Origin
X (m):0
Y (m):0
Zone:1
No. of Sources:0
No. of Buildings:0

EMISSION INVENTORY
No. of Pollutants:7
No. of Background Pollutants:0

Emissions

ScrID	StkID	ProID	PolID	PolAbbrev	Multi	Annual Ems (lbs/yr)	MaxHr Ems (lbs/hr)	MWAF
DOCKS	0	0	9901	DieselExhPM	1	0.05	0	1
ENTER	0	0	9901	DieselExhPM	1	0.05	0	1
EXIT	0	0	9901	DieselExhPM	1	0.05	0	1
PARKING	0	0	9901	DieselExhPM	1	0.27	0	1
ONSITE	0	0	9901	DieselExhPM	1	0.61	0	1
PRIV_ROAD	0	0	9901	DieselExhPM	1	0.44	0	1
OFFSITE	0	0	9901	DieselExhPM	1	0.94	0	1

Background

PolID	PolAbbrev	Conc (ug/m^3)	MWAF

Ground level concentration files (\glc\)

9901MAXHR.txt
9901PER.txt

POLLUTANT HEALTH INFORMATION
Health Database: C:\HARP2\Tables\HEALTH17320.mdb
Health Table Version: HEALTH22013
Official: True

PolID	PolAbbrev	InhCancer	OralCancer	AcuteREL	InhChronicREL	OralChronicREL	InhChronic8HRREL
9901	DieselExhPM	1.1			5		

HARP2 - HRACalc (dated 22118) 11/8/2023 7:12:19 AM - Output Log

GLCs loaded successfully
Pollutants loaded successfully
Pathway receptors loaded successfully
****
RISK SCENARIO SETTINGS

Receptor Type: Resident
Scenario: Cancer
Calculation Method: HighEnd

****
EXPOSURE DURATION PARAMETERS FOR CANCER

Start Age: -0.25
Total Exposure Duration: 30

Exposure Duration Bin Distribution
3rd Trimester Bin: 0.25
0<2 Years Bin: 2
2<9 Years Bin: 0
2<16 Years Bin: 14
16<30 Years Bin: 14
16 to 70 Years Bin: 0

****
PATHWAYS ENABLED

NOTE: Inhalation is always enabled and used for all assessments. The remaining pathways are only used for cancer and noncancer chronic assessments.

Inhalation: True
Soil: False
Dermal: False
Mother's milk: False
Water: False
Fish: False
Homegrown crops: False
Beef: False
Dairy: False
Pig: False
Chicken: False
Egg: False

****
INHALATION

Daily breathing rate: RMP

Worker Adjustment Factors
Worker adjustment factors enabled: NO

Fraction at time at home
3rd Trimester to 16 years: OFF
16 years to 70 years: ON

****
TIER 2 SETTINGS
Tier2 not used.

****

Calculating cancer risk
Cancer risk breakdown by pollutant and receptor saved to: F:\Jobs\41150044HZ\HARP\OPSHRA\hra\WestsideOpsHRACancerRisk.csv
Cancer risk total by receptor saved to: F:\Jobs\41150044HZ\HARP\OPSHRA\hra\WestsideOpsHRACancerRiskSumByRec.csv
HRA ran successfully

*HARP - HRACalc v22118 11/8/2023 10:39:12 AM - Cancer Risk - Input File: F:\Jobs\41150044HZ\HARP\OPSHRA\hra\WestsideOpsHRAHRAInput.hra

REC	GRP	NETID	X	Y	CONC	POLID	POLABBREV	RISK_SUM	SCENARIO	INH_RISK
1398	ALL	RESIDENT	316092.7	3901224	0.000471	9901	DieselExhPM	3.51E-07	30YrCancerRMP_Inh_FAH16to70	3.51E-07
1399	ALL	RESIDENT	316171.8	3901213	0.000452	9901	DieselExhPM	3.36E-07	30YrCancerRMP_Inh_FAH16to70	3.36E-07
985	ALL	RESIDENT	316294.1	3901163	0.000331	9901	DieselExhPM	2.47E-07	30YrCancerRMP_Inh_FAH16to70	2.47E-07
1422	ALL	WORKER	314564.6	3901240	0.000257	9901	DieselExhPM	1.91E-07	30YrCancerRMP_Inh_FAH16to70	1.91E-07
1400	ALL	RESIDENT	316370.7	3901115	0.000238	9901	DieselExhPM	1.77E-07	30YrCancerRMP_Inh_FAH16to70	1.77E-07
964	ALL	RESIDENT	316194.1	3901063	0.00017	9901	DieselExhPM	1.27E-07	30YrCancerRMP_Inh_FAH16to70	1.27E-07
1401	ALL	RESIDENT	316081.5	3901009	0.000141	9901	DieselExhPM	1.05E-07	30YrCancerRMP_Inh_FAH16to70	1.05E-07
1402	ALL	RESIDENT	316271.4	3901006	0.000134	9901	DieselExhPM	9.99E-08	30YrCancerRMP_Inh_FAH16to70	9.99E-08
996	ALL	RESIDENT	314094.1	3901263	0.000134	9901	DieselExhPM	9.96E-08	30YrCancerRMP_Inh_FAH16to70	9.96E-08
944	ALL	RESIDENT	316194.1	3900963	0.000118	9901	DieselExhPM	8.77E-08	30YrCancerRMP_Inh_FAH16to70	8.77E-08
945	ALL	RESIDENT	316294.1	3900963	0.000116	9901	DieselExhPM	8.64E-08	30YrCancerRMP_Inh_FAH16to70	8.64E-08
1403	ALL	RESIDENT	316340.9	3900952	0.000112	9901	DieselExhPM	8.32E-08	30YrCancerRMP_Inh_FAH16to70	8.32E-08
1397	ALL	RESIDENT	314352.3	3900458	0.00011	9901	DieselExhPM	8.18E-08	30YrCancerRMP_Inh_FAH16to70	8.18E-08
1405	ALL	RESIDENT	316274.4	3900910	0.000101	9901	DieselExhPM	7.50E-08	30YrCancerRMP_Inh_FAH16to70	7.50E-08
1404	ALL	RESIDENT	316177.6	3900899	9.99E-05	9901	DieselExhPM	7.43E-08	30YrCancerRMP_Inh_FAH16to70	7.43E-08
1406	ALL	RESIDENT	316339	3900898	9.61E-05	9901	DieselExhPM	7.15E-08	30YrCancerRMP_Inh_FAH16to70	7.15E-08
1407	ALL	RESIDENT	316161.7	3900838	8.77E-05	9901	DieselExhPM	6.53E-08	30YrCancerRMP_Inh_FAH16to70	6.53E-08
1408	ALL	RESIDENT	316230.7	3900843	8.75E-05	9901	DieselExhPM	6.51E-08	30YrCancerRMP_Inh_FAH16to70	6.51E-08
1409	ALL	RESIDENT	316278.6	3900839	8.55E-05	9901	DieselExhPM	6.36E-08	30YrCancerRMP_Inh_FAH16to70	6.36E-08
1410	ALL	RESIDENT	316325.2	3900834	8.29E-05	9901	DieselExhPM	6.17E-08	30YrCancerRMP_Inh_FAH16to70	6.17E-08
1411	ALL	RESIDENT	316376.3	3900832	8.10E-05	9901	DieselExhPM	6.03E-08	30YrCancerRMP_Inh_FAH16to70	6.03E-08
1412	ALL	RESIDENT	316420.5	3900832	7.95E-05	9901	DieselExhPM	5.91E-08	30YrCancerRMP_Inh_FAH16to70	5.91E-08
1413	ALL	RESIDENT	316477.7	3900826	7.61E-05	9901	DieselExhPM	5.66E-08	30YrCancerRMP_Inh_FAH16to70	5.66E-08
1414	ALL	RESIDENT	316157.7	3900745	7.37E-05	9901	DieselExhPM	5.49E-08	30YrCancerRMP_Inh_FAH16to70	5.49E-08
1415	ALL	RESIDENT	316255.4	3900600	5.73E-05	9901	DieselExhPM	4.26E-08	30YrCancerRMP_Inh_FAH16to70	4.26E-08
863	ALL	RESIDENT	316094.1	3900563	5.73E-05	9901	DieselExhPM	4.26E-08	30YrCancerRMP_Inh_FAH16to70	4.26E-08
1417	ALL	RESIDENT	316170.3	3900530	5.35E-05	9901	DieselExhPM	3.98E-08	30YrCancerRMP_Inh_FAH16to70	3.98E-08
1416	ALL	RESIDENT	316442.8	3900600	5.27E-05	9901	DieselExhPM	3.92E-08	30YrCancerRMP_Inh_FAH16to70	3.92E-08
1418	ALL	RESIDENT	316261.9	3900530	5.22E-05	9901	DieselExhPM	3.88E-08	30YrCancerRMP_Inh_FAH16to70	3.88E-08
1419	ALL	RESIDENT	316348.9	3900532	5.03E-05	9901	DieselExhPM	3.75E-08	30YrCancerRMP_Inh_FAH16to70	3.75E-08
1420	ALL	RESIDENT	316457.7	3900524	4.75E-05	9901	DieselExhPM	3.53E-08	30YrCancerRMP_Inh_FAH16to70	3.53E-08
570	ALL	SCHOOL	315894.1	3899563	2.96E-05	9901	DieselExhPM	2.21E-08	30YrCancerRMP_Inh_FAH16to70	2.21E-08
1421	ALL	SCHOOL	314597.5	3902835	1.36E-05	9901	DieselExhPM	1.01E-08	30YrCancerRMP_Inh_FAH16to70	1.01E-08

HARP2 - HRACalc (dated 22118) 11/8/2023 7:18:56 AM - Output Log

GLCs loaded successfully
Pollutants loaded successfully
Pathway receptors loaded successfully
****
RISK SCENARIO SETTINGS

Receptor Type: Resident
Scenario: NCChronic
Calculation Method: Derived

****
EXPOSURE DURATION PARAMETERS FOR CANCER
Exposure duration are only adjusted for cancer assessments

****
PATHWAYS ENABLED

NOTE: Inhalation is always enabled and used for all assessments. The remaining pathways are only used for cancer and noncancer chronic assessments.

Inhalation: True
Soil: False
Dermal: False
Mother's milk: False
Water: False
Fish: False
Homegrown crops: False
Beef: False
Dairy: False
Pig: False
Chicken: False
Egg: False

****
INHALATION

Daily breathing rate: LongTerm24HR

Worker Adjustment Factors
Worker adjustment factors enabled: NO

Fraction at time at home
NOTE: Exposure duration (i.e., start age, end age, ED, & FAH) are only adjusted for cancer assessments.

****
TIER 2 SETTINGS
Tier2 not used.

****

Calculating chronic risk
Chronic risk breakdown by pollutant and receptor saved to: F:\Jobs\41150044HZ\HARP\OPSHRA\hra\WestsideChronicHRANCChronicRisk.csv
Chronic risk total by receptor saved to: F:\Jobs\41150044HZ\HARP\OPSHRA\hra\WestsideChronicHRANCChronicRiskSumByRec.csv
HRA ran successfully

*HARP - HRACalc v22118 11/8/2023 7:19:31 AM - Chronic Risk - Input File: F:\Jobs\41150044HZ\HARP\OPSHRA\hra\WestsideChronicHRAHRAInput.hra

REC	GRP	NETID	X	Y	CONC	POLID	POLABBREV	SCENARIO	CV	CNS	IMMUN	KIDNEY	GILV	REPRO/ DEVEL	RESP	SKIN	EYE	BONE/ TEETH	ENDO	BLOOD	ODOR	GENERAL	INH_CONC
570	ALL	SCHOOL	315894.1	3899563	2.96E-05	9901	DieselExhPM	NonCancerChr	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.93E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.96E-05
863	ALL	RESIDENT	316094.1	3900563	5.73E-05	9901	DieselExhPM	NonCancerChr	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.15E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.73E-05
944	ALL	RESIDENT	316194.1	3900963	0.000118	9901	DieselExhPM	NonCancerChr	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.36E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.18E-04
945	ALL	RESIDENT	316294.1	3900963	0.000116	9901	DieselExhPM	NonCancerChr	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.32E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.16E-04
964	ALL	RESIDENT	316194.1	3901063	0.00017	9901	DieselExhPM	NonCancerChr	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.40E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.70E-04
985	ALL	RESIDENT	316294.1	3901163	0.000331	9901	DieselExhPM	NonCancerChr	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.63E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.31E-04
996	ALL	RESIDENT	314094.1	3901263	0.000134	9901	DieselExhPM	NonCancerChr	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.68E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.34E-04
1397	ALL	RESIDENT	314352.3	3900458	0.00011	9901	DieselExhPM	NonCancerChr	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.20E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.10E-04
1398	ALL	RESIDENT	316092.7	3901224	0.000471	9901	DieselExhPM	NonCancerChr	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.42E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.71E-04
1399	ALL	RESIDENT	316171.8	3901213	0.000452	9901	DieselExhPM	NonCancerChr	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.03E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.52E-04
1400	ALL	RESIDENT	316370.7	3901115	0.000238	9901	DieselExhPM	NonCancerChr	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.75E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.38E-04
1401	ALL	RESIDENT	316081.5	3901009	0.000141	9901	DieselExhPM	NonCancerChr	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.81E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.41E-04
1402	ALL	RESIDENT	316271.4	3901006	0.000134	9901	DieselExhPM	NonCancerChr	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.69E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.34E-04
1403	ALL	RESIDENT	316340.9	3900952	0.000112	9901	DieselExhPM	NonCancerChr	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.23E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.12E-04
1404	ALL	RESIDENT	316177.6	3900899	9.99E-05	9901	DieselExhPM	NonCancerChr	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.00E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.99E-05
1405	ALL	RESIDENT	316274.4	3900910	0.000101	9901	DieselExhPM	NonCancerChr	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.01E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.01E-04
1406	ALL	RESIDENT	316339	3900898	9.61E-05	9901	DieselExhPM	NonCancerChr	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.92E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.61E-05
1407	ALL	RESIDENT	316161.7	3900838	8.77E-05	9901	DieselExhPM	NonCancerChr	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.75E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.77E-05
1408	ALL	RESIDENT	316230.7	3900843	8.75E-05	9901	DieselExhPM	NonCancerChr	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.75E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.75E-05
1409	ALL	RESIDENT	316278.6	3900839	8.55E-05	9901	DieselExhPM	NonCancerChr	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.71E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.55E-05
1410	ALL	RESIDENT	316325.2	3900834	8.29E-05	9901	DieselExhPM	NonCancerChr	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.66E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.29E-05
1411	ALL	RESIDENT	316376.3	3900832	8.10E-05	9901	DieselExhPM	NonCancerChr	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.62E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.10E-05
1412	ALL	RESIDENT	316420.5	3900832	7.95E-05	9901	DieselExhPM	NonCancerChr	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.59E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.95E-05
1413	ALL	RESIDENT	316477.7	3900826	7.61E-05	9901	DieselExhPM	NonCancerChr	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.52E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.61E-05
1414	ALL	RESIDENT	316157.7	3900745	7.37E-05	9901	DieselExhPM	NonCancerChr	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.47E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.37E-05
1415	ALL	RESIDENT	316255.4	3900600	5.73E-05	9901	DieselExhPM	NonCancerChr	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.15E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.73E-05
1416	ALL	RESIDENT	316442.8	3900600	5.27E-05	9901	DieselExhPM	NonCancerChr	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.05E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.27E-05
1417	ALL	RESIDENT	316170.3	3900530	5.35E-05	9901	DieselExhPM	NonCancerChr	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.07E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.35E-05
1418	ALL	RESIDENT	316261.9	3900530	5.22E-05	9901	DieselExhPM	NonCancerChr	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.04E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.22E-05
1419	ALL	RESIDENT	316348.9	3900532	5.03E-05	9901	DieselExhPM	NonCancerChr	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.01E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.03E-05
1420	ALL	RESIDENT	316457.7	3900524	4.75E-05	9901	DieselExhPM	NonCancerChr	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.50E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.75E-05
1421	ALL	SCHOOL	314597.5	3902835	1.36E-05	9901	DieselExhPM	NonCancerChr	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.71E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.36E-05
1422	ALL	WORKER	314564.6	3901240	0.000257	9901	DieselExhPM	NonCancerChr	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.14E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.57E-04

HARP2 - HRACalc (dated 22118) 11/8/2023 7:45:21 AM - Output Log

GLCs loaded successfully
Pollutants loaded successfully
****
RISK SCENARIO SETTINGS

Receptor Type: Worker
Scenario: Cancer
Calculation Method: Derived

****
EXPOSURE DURATION PARAMETERS FOR CANCER

Start Age: 16
Total Exposure Duration: 25

Exposure Duration Bin Distribution
3rd Trimester Bin: 0
0<2 Years Bin: 0
2<9 Years Bin: 0
2<16 Years Bin: 0
16<30 Years Bin: 0
16 to 70 Years Bin: 25

****
PATHWAYS ENABLED

NOTE: Inhalation is always enabled and used for all assessments. The remaining pathways are only used for cancer and noncancer chronic assessments.

Inhalation: True
Soil: True
Dermal: True
Mother's milk: False
Water: False
Fish: False
Homegrown crops: False
Beef: False
Dairy: False
Pig: False
Chicken: False
Egg: False

****
INHALATION

Daily breathing rate: Moderate8HR

Worker Adjustment Factors
NOTE: The worker adjustment factors below are only used for cancer assessments. However, the GLC adjustment factor is also applied to 8-hr noncancer chronic assessments.
Worker adjustments factors enabled: YES
GLC adjustment factor: 2.8
Exposure frequency: 250

Fraction at time at home
3rd Trimester to 16 years: OFF
16 years to 70 years: OFF

****
SOIL & DERMAL PATHWAY SETTINGS

Deposition rate (m/s): 0.05
Soil mixing depth (m): 0.01
Dermal climate: Mixed

****
TIER 2 SETTINGS
Tier2 not used.

****

Calculating cancer risk
Cancer risk saved to: F:\Jobs\41150044HZ\OpsHRA\WorkerOpsScreen\Worker25yrOpsCancerRisk.csv
HRA ran successfully

*HARP - HRACalc v22118 11/8/2023 7:40:44 AM - Cancer Risk - Input File: F:\Jobs\41150044HZ\OpsHRA\WorkerOpsScreen\Worker25yrOpsHRAInput.hra

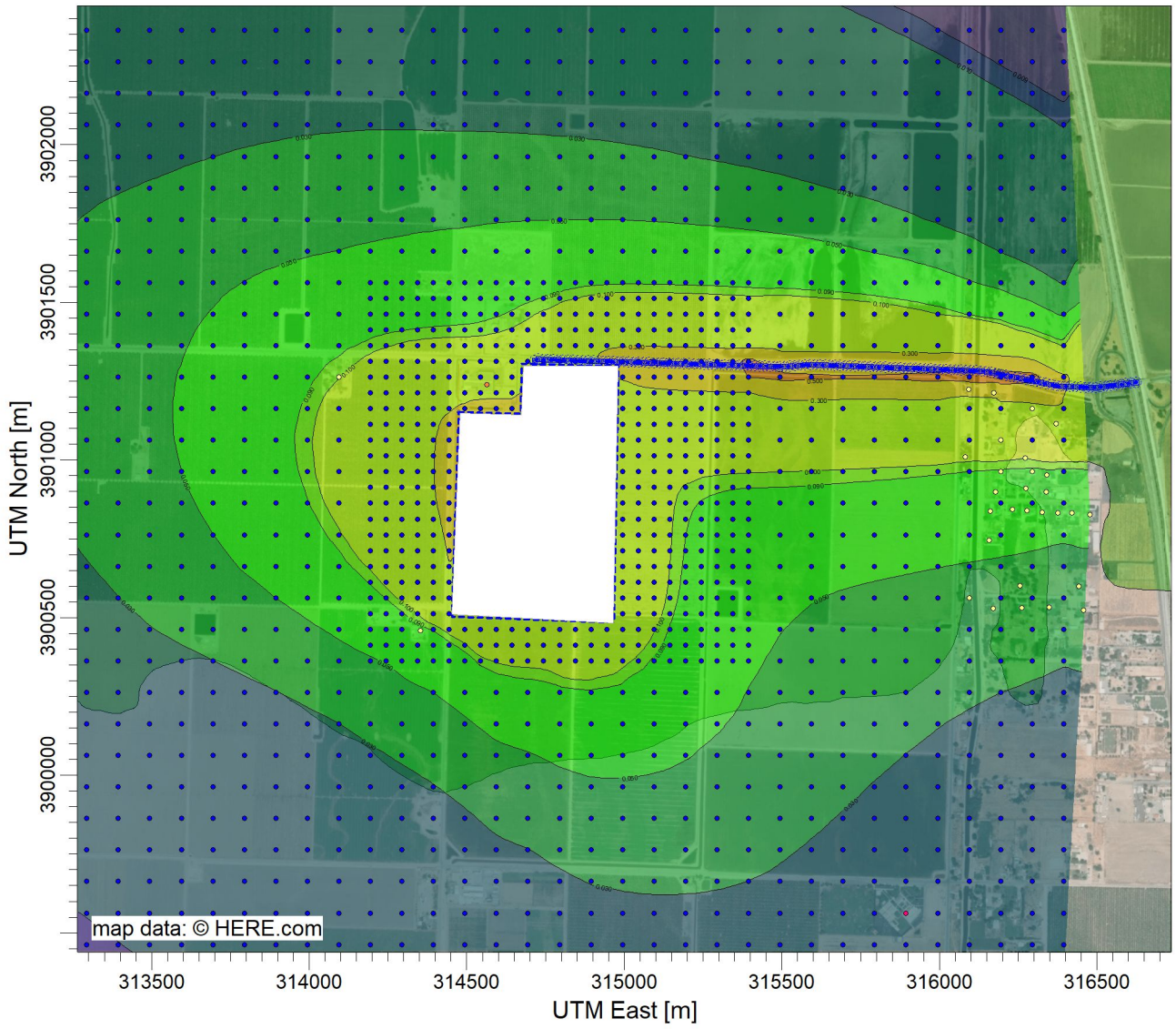
INDEX	GRP1	GRP2	POLID	POLABBRE'	CONC	RISK_SUM	SCENARIO	DETAILS	INH_RISK
1	WORKER		9901	DieselExhP	0.000257	4.45E-08	25YrCancer	*	4.45E-08

*HARP - HRACalc v22118 11/8/2023 10:39:12 AM - Cancer Risk - Input File: F:\Jobs\41150044HZ\HARP\OPSHRA\hra\WestsideOpsHRAHRAInput.hra

REC	GRP	NETID	X	Y	CONC	POLID	POLABBREV	RISK_SUM	SCENARIO	DETAILS	INH_RISK	SOIL_RISK	DERMAL_RISK	MMILK_RISK	WATER_RISK	FISH_RISK	CROP_RISK	BEEF_RISK	DAIRY_RISK	PIG_RISK	CHICKEN_RISK	EGG_RISK	1ST_DRIVER	2ND_DRIVER	Column1
1422	ALL	WORKER	314564.6	3901240	0.000257	9901	DieselExhPM	1.91E-07	30YrCancerRi	*	1.91E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	NA	NA	5.14E-05
570	ALL	SCHOOL	315894.1	3899563	2.96E-05	9901	DieselExhPM	2.21E-08	30YrCancerRi	*	2.21E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	NA	NA	5.93E-06
1421	ALL	SCHOOL	314597.5	3902835	1.36E-05	9901	DieselExhPM	1.01E-08	30YrCancerRi	*	1.01E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	NA	NA	2.71E-06

PROJECT TITLE:

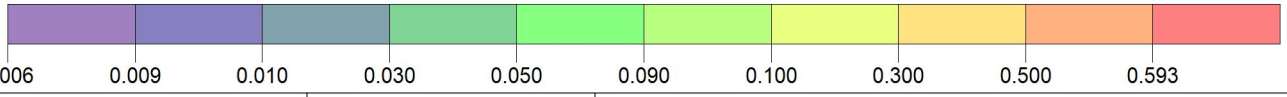
Westside Industrial
Operational HRA - Residential Cancer Risk



PLOT FILE OF PERIOD VALUES FOR SOURCE GROUP: ALL

Risk/Million

Max: 0.593 [Risk/Million] at (316094.08, 3901262.90)



COMMENTS:	SOURCES: **2**	COMPANY NAME:	
	RECEPTORS: **1422**	MODELER:	
	OUTPUT TYPE: **Concentration**	SCALE: 1:21,838 0 0.5 km	
	MAX: **0.593 Risk/Million**	DATE: **11/8/2023**	PROJECT NO.:

AERMOD View - Lakes Environmental Software

F:\Jobs\41150044HZ\ConHRA\ConHRA.isc

Appendix C:
Energy Supporting Information

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Appendix C: Energy Supporting Information

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Construction Vehicle Fuel Calculations 2

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Operational Detailed Vehicle Fuel Consumption Calculations..... 5

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Off-Road Construction Equipment
Fuel Consumption

Westside Industrial Project - Construction
Off-Road Equipment Fuel
Source: AQ/GHG Appendix, CalEEMod Output

Unmitigated Construction Scenario

Off-Road Equipment									
Phase Name	**Equipment Type**	**Fuel Type**	**Engine Tier**	**Days**	**Number per Day**	**Hours Per Day**	**Horse-power**	**Load Factor**	**galllons**
Site Preparation	Rubber Tired Dozers	Diesel	Average	20	6	11	367	0.4	10464
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	20	8	11	84	0.37	2954
Grading	Excavators	Diesel	Average	20	10	12	158	0.38	7781
Grading	Graders	Diesel	Average	20	5	12	148	0.41	3932
Grading	Rubber Tired Dozers	Diesel	Average	20	5	12	367	0.4	9513
Grading	Tractors/Loaders/Backhoes	Diesel	Average	20	10	12	84	0.37	4028
Grading	Scrapers	Diesel	Average	20	10	12	423	0.48	26314
Building Construction	Cranes	Diesel	Average	275	1	9	367	0.29	14224
Building Construction	Forklifts	Diesel	Average	275	3	9	82	0.2	6576
Building Construction	Generator Sets	Diesel	Average	275	1	9	14	0.74	1385
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	275	3	9	84	0.37	12462
Building Construction	Welders	Diesel	Average	275	1	9	46	0.45	2767
Paving On-Site	Pavers	Diesel	Average	50	2	9	81	0.42	1653
Paving On-Site	Paving Equipment	Diesel	Average	50	2	9	89	0.36	1557
Paving On-Site	Rollers	Diesel	Average	50	2	9	36	0.38	665
Architectural Coating	Air Compressors	Diesel	Average	30	1	6	37	0.48	173
Off-Site Prep	Excavators	Diesel	Average	10	3	8	36	0.38	177
Off-Site Prep	Crawler Tractors	Diesel	Average	10	1	8	87	0.43	162
Off-Site Prep	Graders	Diesel	Average	10	1	8	148	0.41	262
Off-Site Prep	Rollers	Diesel	Average	10	2	8	36	0.38	118
Off-Site Prep	Signal Boards	Electric	Average	10	1	8	6	0.82	0
Off-Site Prep	Tractors/Loaders/Backhoes	Diesel	Average	10	2	8	84	0.37	269
Off-Site Prep	Rubber Tired Loaders	Diesel	Average	10	1	8	150	0.36	233
Off-Site Prep	Scrapers	Diesel	Average	10	1	8	423	0.48	877
Paving Off-Site	Rollers	Diesel	Average	10	3	8	36	0.38	177
Paving Off-Site	Paving Equipment	Diesel	Average	10	1	8	89	0.36	138
Paving Off-Site	Pavers	Diesel	Average	10	1	8	81	0.42	147
Paving Off-Site	Tractors/Loaders/Backhoes	Diesel	Average	10	2	8	84	0.37	269
Paving Off-Site	Signal Boards	Electric	Average	10	1	8	6	0.82	0
								gallons fuel	**109,276**

ARB 2021, Low Emission Diesel (LED) Study: Biodiesel and Renewable Diesel Emissions in Legacy and New Technology Diesel Engines, November 2021
Average Value for CARB Reference Fuel - Nonroad Transient Cycle - BSFC = 0.054 gal/bhp-hr

Off-Road Construction Equipment
Fuel Consumption

Westside Industrial Project - Construction
Energy Calculations - Construction Vehicle Fuel
Source: AQ/GHG Appendix, CalEEMod Output, EMFAC2021 v1.0.2

Vehicle Type	Total VMT (mi)	mi/gal	gal	Vehicle Cat	
Worker	1,385,524	25.58	54,165	LDA,LDT1,LDT2	Kern-San Joaquin
Vendor	325,945	6.92	47,093	HHDT,MHDT	Kern-San Joaquin
Hauling	213,920	6.07	35,220	HHDT	Kern-San Joaquin
Onsite truck	800	6.07	0	HHDT	Kern-San Joaquin
	1,926,189		**136,478**	**gallons**	
	Combined VMT				

Note: Fuel Economy Factors are from Calendar Year 2024

Westside Industrial Project - Operations Project Energy Consumption Summary

Summary of Energy Use During Operations		(Annually)	
Operation vehicle fuel	723,186	gallons	Gasoline
	696,091	gallons	Diesel
	7,616	gallons	Natural Gas
	436,088	kw-hours	Electricity
Operational Building Energy			
Operation natural gas	0	MMBtu	
Operation electricity	9,009,866	kw-hours	

Westside Industrial Project - Operations
Energy Calculations - Building Electricity Consumption

Operational Year	**2026**
County	**Kern-San Joaquin**

Building Energy Fuel	**Electricity (kWh/yr)**
Unrefrigerated Warehouse-No Rail	7,017,846
Parking Lot	1,972,629
Guard/Pump Houses	19,390
Total Building Energy	9,009,866

Westside Industrial Project - Operations 2026
Energy Calculations - Operations Fuel Use from Mobile Sources

Total Operational FUEL Consumption for ALL LAND USES (gallons for fuels, Kw-hr for electricity)

Fuel	All Vehicles			HHDT	LDA	LDT1	LDT2	LHD1	LHD2	MCY	MDV	MH	MHDT	OBUS	SBUS	UBUS
Gasoline	723,186			66	293826	32560	187573				209161					
Diesel	696,091			693493	255	5	326				2013					
Natural Gas	7,616			7616												
Electricity	436,088			70604	313075	1894	25158				25357					

Trucks

Unrefrigerated Wareho Total Consumption by Vehicle Category

Fuel	Units			HHDT	LDA	LDT1	LDT2	LHD1	LHD2	MCY	MDV	MH	MHDT	OBUS	SBUS	UBUS
Gasoline	gal				288695	32523	186842				208703					
Diesel	gal				255	5	326				2013					
Natural Gas	gal															
Plug-in Hybrid	gal				5131	37	731				459					
Electricity	kwhr				269748	1431	16536				19254					
Plug-in Hybrid	kwhr				43327	464	8622				6103					

Passenger Vehicles

User Defined Industrial Total Consumption by Vehicle Category

Fuel	Units			HHDT	LDA	LDT1	LDT2	LHD1	LHD2	MCY	MDV	MH	MHDT	OBUS	SBUS	UBUS
Gasoline	gal			66												
Diesel	gal			693493												
Natural Gas	gal			7616												
Plug-in Hybrid	gal															
Electricity	kwhr			70604												
Plug-in Hybrid	kwhr															

Land Use Type	Season	Annual VMT	LDV	MHD	HHDT%	LDA%	LDT1%	LDT2%	LHD1%	LHD2%	MCY%	MDV%	MH%	MHDT%	OBUS%	SBUS%	UBUS%
Unrefrigerated Warehouse-No R	Annual	19,816,427	100.0%			49.8%	4.2%	24.3%				21.7%					
User Defined Industrial	Annual	4,436,894			100.0%												
	Annual				0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Region	Year	County-Specific Fuel Economy (gal/mi)															
Kern-San Joaquin	**2026**	**Fuel**			**HHDT**	**LDA**	**LDT1**	**LDT2**	**LHDT1**	**LHDT2**	**MCY**	**MDV**	**MH**	**MHDT**	**OBUS**	**SBUS**	**UBUS**
Kern-San Joaquin	2026	**Gasoline**			0.2582	0.0326	0.0393	0.0396	0.1015	0.1170	0.0238	0.0501	0.2266	0.2089	0.2060	0.1009	0.1663
Kern-San Joaquin	2026	**Diesel**			0.1591	0.0224	0.0413	0.0285	0.0636	0.0767		0.0402	0.1062	0.1131	0.1439	0.1225	0.1044
Kern-San Joaquin	2026	**Natural Gas**			0.1944									0.1402	0.1298	0.1726	0.1525
Kern-San Joaquin	2026	**Plug-in Hybrid**				0.0327	0.0328	0.0329				0.0334					

Region	Year	County-Specific Electric Car Economy (kw-hr/mi)															
Kern-San Joaquin	2026	**Fuel**			**HHDT**	**LDA**	**LDT1**	**LDT2**	**LHDT1**	**LHDT2**	**MCY**	**MDV**	**MH**	**MHDT**	**OBUS**	**SBUS**	**UBUS**
Kern-San Joaquin	2026	**Electricity**			1.8291		0.3861	0.3861	0.6512	0.6414		0.3861		1.0842	1.1085	1.0535	1.7433
Kern-San Joaquin	2026	**Plug-in Hybrid**				0.3020	0.3020	0.3020				0.3020					

Fossil Fuel Consumption - weighted by EMFAC Vehicle Type and Fuel

Region	Year	Fuel			HHDT	LDA	LDT1	LDT2	LHDT1	LHDT2	MCY	MDV	MH	MHDT	OBUS	SBUS	UBUS
Kern-San Joaquin	**2026**	**CVMT Fraction**			**0.9913**	**0.9146**	**0.9937**	**0.9852**	**0.9870**	**0.9897**	**1.0000**	**0.9837**	**1.0000**	**0.9822**	**0.9910**	**0.9914**	**0.9185**
Kern-San Joaquin	2026	**Gasoline**			0.0001	0.9813	0.9985	0.9929	0.6549	0.4093	1.0000	0.9849	0.8040	0.2141	0.7447	0.2284	0.1682
Kern-San Joaquin	2026	**Diesel**			0.9910	0.0013	0.0001	0.0024	0.3451	0.5907		0.0118	0.1960	0.7766	0.2512	0.5871	0.0967
Kern-San Joaquin	2026	**Natural Gas**			0.0089									0.0093	0.0041	0.1845	0.7351
Kern-San Joaquin	2026	**Plug-in Hybrid**				0.0174	0.0014	0.0047				0.0032					

Electricity Factors (mi/kw-hr) - Weighted by EMFAC Vehicle Type and Fuel Type

Region	Year	Fuel			HHDT	LDA	LDT1	LDT2	LHDT1	LHDT2	MCY	MDV	MH	MHDT	OBUS	SBUS	UBUS
Kern-San Joaquin	2026	**EVMT Fraction**			**0.0087**	**0.0854**	**0.0063**	**0.0148**	**0.0130**	**0.0103**	0.0000	**0.0163**	0.0000	**0.0178**	**0.0090**	**0.0086**	**0.0815**
Kern-San Joaquin	2026	**Electricity**			1.0000	0.8297	0.7070	0.6000	1.0000	1.0000		0.7116		1.0000	1.0000	1.0000	1.0000
Kern-San Joaquin	2026	**Plug-in Hybrid**				0.1703	0.2930	0.4000				0.2884					

Westside Industrial Project - Operations 2026
Energy Calculations
Onroad Mobile Sources

Operational Year	**2026**	
County	**Kern-San Joaquin**	
Gasoline	**723,186**	**gallons**
Diesel	**696,091**	**gallons**
Natural Gas	**7,616**	**gallons**
Electricity	**436,088**	**kw-hr**

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B-2: San Joaquin Valley Air Pollution Control District Supporting Documents

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THE CARL MOYER PROGRAM GUIDELINES

2017 Revisions

VOLUME I: PROGRAM OVERVIEW, PROGRAM ADMINISTRATION AND PROJECT CRITERIA

Approved by the Board: APRIL 27, 2017

California Environmental Protection Agency

Air Resources Board

In Memory of Dr. Carl Moyer

(1937 - 1997)

This program is named in honor of the late Dr. Carl Moyer, whose extraordinary dedication, hard work, vision and leadership made this program possible. He created and masterminded this program, in a noble effort to unite business and government in the name of public interest to improve California's air quality.

This update was a collaborative effort and has benefited from the valuable contributions of the participating air quality management districts and air pollution control districts, and all other stakeholders. The Air Resources Board appreciates the considerable efforts of air district staff both in the development of these guidelines as well as the day-to-day implementation of the Carl Moyer Memorial Air Quality Standards Attainment Program.

Disclaimer

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EXECUTIVE SUMMARY

Since 1998, the Carl Moyer Memorial Air Quality Standards Attainment Program (Moyer Program or Program) has cost-effectively reduced smog-forming and toxic emissions. Approximately $1 billion has been allocated to date and the Program continues to provide over $60 million in grant funding each year to clean up older polluting engines throughout California. The regulatory, technological and incentives landscape has changed significantly since the creation of the Moyer Program and to address evolving needs, the Legislature has periodically modified the Program to better serve California. Most recently, Senate Bill (SB) 513 (Beall, 2015) has provided new opportunities for the Program to contribute significant emission reductions alongside implemented regulations, advance zero and near-zero technologies, and combine program funds with those of other incentive programs.

This report addresses the implementation of SB 513 by the Air Resources Board (ARB or Board) and California's air pollution control and air quality management districts (air districts) through new guidelines to serve California's air quality goals. SB 513 requires the Board to adopt updated guidelines by July 1, 2017.

California's strategic plans for air quality and mobility, including the State Implementation Plan (SIP) and the Sustainable Freight Action Plan, point to the need for combustion engines to transition to zero and near-zero emission alternatives. This move is critical to California's clean air mission, to the attainment of health-based air quality standards, and to meeting future transportation goals without harm to public health and the environment. Public incentive funds are an increasingly important part of this transition. Incentives both encourage customers to purchase cleaner technologies and stimulate the marketplace to manufacture cleaner technologies.

Collaboration is paramount to the Moyer Program's ongoing success. The changes made through SB 513 were supported and informed by a coalition that included air districts, environmental organizations, industry stakeholders, equipment dealers, and consumers. Many different alternatives and approaches were considered. The result was a working group consensus on new program objectives and improvements essential to continuing program value. In turn, ARB staff developed and conducted public workshops on a proposal to implement those program improvements. Three key changes to the program are described below.

Cost-effectiveness. SB 513 specified that the Board consider the cost of technology and the cost of regulations in establishing a new limit. Staff proposes a tiered cost-effectiveness approach that will allow the Program to more effectively incentivize deployment of cleaner technologies. This two-step approach would support both conventional diesel clean-up projects and emerging technologies at appropriate funding levels. First, staff proposes to increase the general cost-effectiveness limit from the current $18,260 up to $30,000 per weighted ton of emission reductions. This reflects the cost-effectiveness of more recent regulations and will enable more meaningful grants for cleaner engines at the required standard. For advanced technology projects that are zero-emission, or alternatively meet the cleanest certified optional standard applicable

by source category, staff proposes that air districts be given the option to apply a cost-effectiveness limit of up to $100,000 per weighted ton, limited to the increment of emissions reductions beyond those achieved at the required standard. This higher limit would provide additional incentive to turn engines and fleets over to the cleanest certified technologies now emerging in the marketplace.

Infrastructure. SB 513 provides broader opportunity for air districts to support infrastructure projects. The staff proposes to provide air districts with the ability to fund infrastructure projects where the greatest penetration of commercially available advanced technology vehicles and equipment exists. These categories include commercial battery charging and alternative fueling stations for on-road and off-road vehicles and equipment, and continued support for marine shore power electrification and stationary agricultural projects. To provide project selection transparency for publicly accessible projects staff proposes requiring a competitive bid process when the project includes public access. Air districts would retain the flexibility to select projects that meet their local needs and priorities. Per SB 513, infrastructure projects would not be required to meet a cost-effectiveness limit.

Project Co-Funding. As envisioned in SB 513, leveraging of funds allows air districts to work with grant applicants to co-fund projects with other incentive programs up to the cost of the project, without penalizing project cost-effectiveness. Project cost sharing supports the deployment of the cleanest technologies statewide by providing opportunities to co-fund private, local, State and federal funding to cover technology costs. Staff proposes the following safeguards consistent with SB 513: the requirements of all contributing programs must be met, incentives must not exceed the total project costs, there can be no double counting of emission reductions for SIP credit, and the applicant should provide a 15 percent cost share for private sector projects.

Even as the 2017 Guidelines would implement the program improvements directed by SB 513, they retain the Moyer Program's longstanding core objectives. The proposed Guidelines are intended to:

- Ensure continued program accountability and good stewardship of public funds;
- Ensure Moyer projects provide emission reductions that the U.S. Environmental Protection Agency (EPA) will find creditable in the SIP;
- Emphasize reduction in communities with higher pollutant exposure, including communities of minority and low-income populations;
- Provide sufficient incentive to encourage California businesses to participate in and benefit from the program, getting surplus emission reductions within cost-effectiveness limits.

This report describes Moyer Program context and background, and explains how a renewed Moyer Program can support the changing landscape of clean air technology in

and beyond California. Staff's proposed changes will ensure that Moyer can assist the technology shifts that bring California closer to the clean air future called for in our State's strategies.

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VOLUME I

(The Carl Moyer 2017 Guidelines are comprised of two Volumes. Volume I includes the program overview, program administration, source category chapters and appendices. Volume II includes the On-Road and Off-Road Voucher Incentive Programs, and the Agricultural Assistance Program.)

THE CARL MOYER PROGRAM GUIDELINES

PART 1 of 3

PROGRAM OVERVIEW, PROGRAM ADMINISTRATION AND PROJECT CRITERIA

CHAPTER 1: PROGRAM OVERVIEW

The Carl Moyer Memorial Air Quality Standards Attainment Program (Moyer Program or program) is a grant program that funds the incremental cost of cleaner-than-required engines, equipment, and other sources of air pollution. Since 1998, the Moyer Program has been successful in reducing smog-forming and toxic emissions cost-effectively. Although air pollution regulations have significantly reduced emissions and improved air quality across the State, many areas of California continue to experience unhealthy air. The Moyer Program complements California's regulatory program by providing incentives to obtain early or extra emission reductions, especially from emission sources in minority and low-income communities and areas disproportionately impacted by air pollution. Incentives encourage customers to purchase cleaner technologies, and stimulate the marketplace to manufacture cleaner technologies. Although the Moyer Program has grown in scope, it retains its primary objective of obtaining cost-effective and surplus emission reductions to be credited toward California's legally-enforceable obligations in the State Implementation Plan (SIP) – California's road map for attaining health-based national ambient air quality standards.

The 2017 Moyer Program Guidelines (Guidelines) update the program to meet new opportunities provided by Senate Bill 513 (SB 513, Beall, 2015). These changes – cost-effectiveness limits that recognize technology and regulatory costs, the ability to leverage Moyer dollars with project co-funding, added eligibility for infrastructure projects – enable the Moyer Program to fully support emission reductions within the changing landscape of clean air technology.

This program update arrives in time to support the multiple strategic planning efforts that are relying on emission reductions from incentive programs. California's strategic plans for air quality and mobility, including both the Proposed 2016 State Strategy for the SIP and the Sustainable Freight Action Plan, point to the need for combustion engines to transition to zero and near-zero emission alternatives. This move is critical to the State's clean air mission, to the attainment of air quality standards, and to meeting future transportation goals without harm to public health and the environment. The Moyer Program is particularly important among mobile source strategies identified for the SIP, contributing reductions needed toward ozone attainment milestones in the South Coast Air Basin in 2023 and 2031.

The Guideline updates were developed in close and continuing consultation with air quality management districts and air pollution control districts (air districts), who ultimately implement Moyer Program projects. This includes the formation of several teams with specific responsibilities in re-crafting the guidelines, and input from larger group and rural sections meetings. A total of five public workshops were held to collect input from the public, including initial workshops in the San Joaquin Valley and South Coast air basins.

A. Background

The Moyer Program has been a successful and popular air pollution reduction program. Since 1998, Moyer Program grants have enabled the owners of diesel engines to go beyond regulatory requirements by retrofitting, repowering, or replacing their engines to gain early or extra emission reductions. Over the past 18 years more than $900 million in program grants have cleaned up over 50,000 engines, reducing oxides of nitrogen (NOx) and reactive organic gases (ROG) by 178,000 tons and toxic diesel particulate matter (PM) by 6,500 tons. Moyer incentive funds have not only removed old, dirty equipment that would have otherwise remained in operation for years to come, but have benefited the economy by increasing consumer demand for newer and cleaner technologies.

The Moyer Program has been successfully implemented through the cooperative efforts of the Air Resources Board (ARB) and California's air pollution control and air quality management districts (air districts). The Health and Safety Code (H&SC) directs ARB to oversee the program by managing and distributing funds; developing and revising guidelines, protocols, and criteria for covered vehicle projects; and determining methodologies to evaluate project cost-effectiveness. Air districts follow the Board-approved Guidelines to select, fund, and monitor specific clean air projects in their areas, providing grants to public and private entities for the incremental cost of cleaner-than-required engines and/or equipment.

Air districts enjoy considerable flexibility in implementing the Moyer Program. Each air district may focus its funds on specific source categories, to tailor projects to meet local air quality objectives while still ensuring the proper and responsible use of State funds.

Emission reductions funded through the Moyer Program must be permanent, surplus, quantifiable, and enforceable in order to meet the underlying statutory provisions and be SIP-creditable. To ensure that projects are surplus to regulations, funded projects must not be required by any federal, State or local rule or regulation. In most cases project life – the period in which surplus emission reductions are delivered – must be at least three years, so that the program does not fund actions that would otherwise be taken to comply with regulatory deadlines, as well as to help ensure cost-effectiveness. A maximum project life is also established to ensure that the emission reductions remain real for a specified period.

The Guidelines require that emission control technologies be certified or verified by ARB or by U.S. EPA when ARB does not have an applicable certification or verification program. Robust administrative requirements also help ensure emission reductions are enforceable and are achieved for the life of a project. Grantees sign contracts or agreements enforceable for the life of a project. Their replaced engines must be scrapped. Incentive program review by ARB and fiscal audits by Department of Finance help ensure Moyer funds are serving the purpose of achieving expected emission reductions.

1. **Project Types**. The Moyer Program funds clean air projects involving a wide variety of vehicles and equipment. Typical project types include:

   (A) **Replacement.** An older vehicle or piece of equipment that includes an engine with remaining useful life is replaced with a newer, cleaner vehicle or piece of equipment. On-road trucks and buses may be replaced through a fleet modernization contract or through a voucher incentive program (VIP). Off-road equipment also may be replaced under contract or through off-road VIP. In all cases, the older vehicles and equipment are scrapped.

   (B) **Repower.** A newer, cleaner engine is installed in place of a higher-polluting engine in an existing vehicle or piece of equipment.

   (C) **Retrofit**. An emission control system is added to an in-use engine, vehicle or piece of equipment.

   (D) **Vehicle Retirement (car scrap).** Light duty scrap programs pay the owners of older, more polluting vehicles that still have remaining useful life to voluntarily retire those vehicles earlier than they would have otherwise.

   (E) **Infrastructure.** Moyer funds provide for the installation of fueling or energy infrastructure to fuel or power covered sources. Though infrastructure does not directly deliver emission reductions, it enables the advanced clean vehicles and equipment that do.

More details on eligible project types can be found in the source category chapters of the Guidelines. Other projects may be eligible; interested applicants should reference the details in each section and consult with their local air district for additional solicitation material, program brochures, and to discuss potential Moyer Program projects.

2. **Funding Sources**. The Moyer Program has been funded through a variety of mechanisms since its inception in 1998. In the program's first four years, the California Legislature funded the Moyer Program through annual budget appropriations. Voter approval of *Proposition 40: The California Clean Water, Clean Air, Safe Neighborhood Parks, and Coastal Protection Act of 2002* provided program funding for the fifth and sixth years.

   Bills enacted in 2004 (SB 1107 and Assembly Bill (AB) 923) provided for continuous funding of the Moyer Program thereafter. The program is currently authorized at $69 million per year from these sources:

   (A) **Smog Abatement Fee.** SB 1107 adjusted the smog abatement fee collected for new vehicles registered by the Department of Motor Vehicles (DMV) from $6 to $12, while extending the new vehicle Smog Check exemption period. This additional fee is directed to fund the Moyer Program (H&SC § 44091.1). SB 1107 funds do not have a sunset date.

(B) **Tire Fee.** AB 923 adjusted the tire fee that is assessed on purchasers of new tires from $1 per tire to $1.75 per tire (Public Resources Code section 42885). This legislation was due to sunset in 2015; AB 8 extended that date through 2023.

ARB receives from DMV the funds from the additional $6 portion of smog abatement fees, and from the Board of Equalization the funds from the additional $0.75 portion of tire fees. ARB distributes these funds, currently about $65 million per year to air districts following a statutory formula (H&SC § 44299.2).

In addition, AB 923 gave air district governing boards the authority to increase the vehicle registration surcharge by $2 to pay for specific clean air incentive programs, including projects eligible for grants under the Moyer Program. AB 923 $2 DMV funds have become the primary source of the 15 percent Moyer match required of air districts receiving more than the minimum allocation. Nineteen air districts have adopted the $2 Motor Vehicle Registration fee, providing these air districts about $50 million per year for incentive projects. The $2 DMV surcharge fees are sent directly by DMV to the air districts.

B. Program Legislative History

The Moyer Program was created in 1998 when $25 million was included in the fiscal year 1998-1999 State budget to fund a lower-emission heavy-duty engine incentive program. ARB adopted the first set of Moyer Program Guidelines in early 1999, and legislation (AB 1571) enacted in 1999 formally established the statutory framework for the program (H&SC § 44275 et seq.). The program initially focused on reducing NOx emissions from heavy-duty diesel engines in order to implement a strategy in the 1994 California SIP for ozone that called for the early introduction of cleaner engines. The scope of the program has expanded over the years with statutory changes adding both new covered pollutants and new source categories.

Legislation enacted in 2001 (AB 1390) required air districts with a population of over 1 million to expend 50 percent of Moyer Program funds for projects that operate or are based in environmental justice areas (H&SC § 43023.5).

Legislation enacted in 2004 (AB 923 and Senate Bill (SB) 1107) provided increased and continued funding through 2015 while significantly expanding the Moyer Program. AB 923 expanded the Moyer Program to include light-duty vehicle projects and agricultural sources of air pollution as defined in Health and Safety Code section 39011.5(a). AB 923 also expanded the Moyer Program from a NOx focused incentive program to include projects that also reduce reactive organic gases and fine particulate matter (PM_{10}). This change allowed the Moyer Program to more comprehensively address California's air pollution challenges, including the air toxic risk associated with emissions from diesel engines. Additional legislation enacted in 2004 (AB 1394) directed ARB to include in the Moyer Program heavy-duty fleet modernization projects that reduce NOx and/or PM_{10} emissions through the replacement of old trucks.

Legislation enacted in 2005 (SB 467) required ARB to revise the Moyer Program Guidelines to include projects in which an applicant turns in off-road equipment powered by internal combustion engines and replaces that equipment with new zero-emission technologies.

Legislation enacted in 2006 (SB 225) provided additional resources for program administration to address the expansion of the program. This legislation increased allowable expenditures for air districts' program administration from 2 percent of program funds for outreach to 5 percent for air districts with one million or more inhabitants and to 10 percent for those with less than one million inhabitants. ARB was provided 4 percent of program funds for outreach, oversight, and administration. These additional resources enabled ARB and the air districts to improve program accessibility, efficiency and accountability.

Legislation enacted in 2009 (SBx2 3) allows a maximum project life of 10 years for off-road farm equipment projects. This legislation also allows for funding of these off-road farm equipment projects up to the compliance date as determined by statute, regulation or rule.

Legislation enacted in 2010 (AB 1507) required ARB to revise the Guidelines by July 1, 2011, to allow for the combination of Moyer Program funds with funds designed to reduce greenhouse gas emissions from federal programs or the Alternative and Renewable Fuel and Vehicle Technology Program without including them in the cost-effectiveness calculation for the Moyer Program funds.

Legislation enacted in 2013 (AB 8) extended funding of AB 923 tire fees ($1.75 per tire) through year 2023, effectively reauthorizing the Moyer Program and associated local funds through that year. AB 8 also directed ARB to convene a working group and work with local air districts to evaluate the Moyer Program and provide recommendations for program changes. The efforts of this working group led to SB 513.

Signed by the Governor in 2015, SB 513 provided new flexibilities that allow the Moyer Program to continue to make a viable contribution to emission reductions in California into the future. SB 513 was implemented in two phases; the early revisions became effective January 1, 2016, following a public meeting and 45-day public comment period, under authority delegated to the Executive Officer. Remaining updates are scheduled for consideration by the Board in April 2017. The most noteworthy changes enabled by SB 513 included:

1. Updating cost-effectiveness criteria, authorizing the Board, in collaboration with the air districts, to establish and revise cost-effectiveness limits to account for the costs of technology and regulation;

2. Allowing for a separate school bus cost-effectiveness limit to allow the Program to fund at the levels equivalent to the Lower-Emission School Bus Program. This change has already been implemented through the amendment of the 2011 Guidelines that became effective January 1, 2016.

3. Expanded opportunities for infrastructure projects; and

4. Allowing project co-funding without penalizing cost-effectiveness.

C. Summary of Changes for the 2017 Guidelines

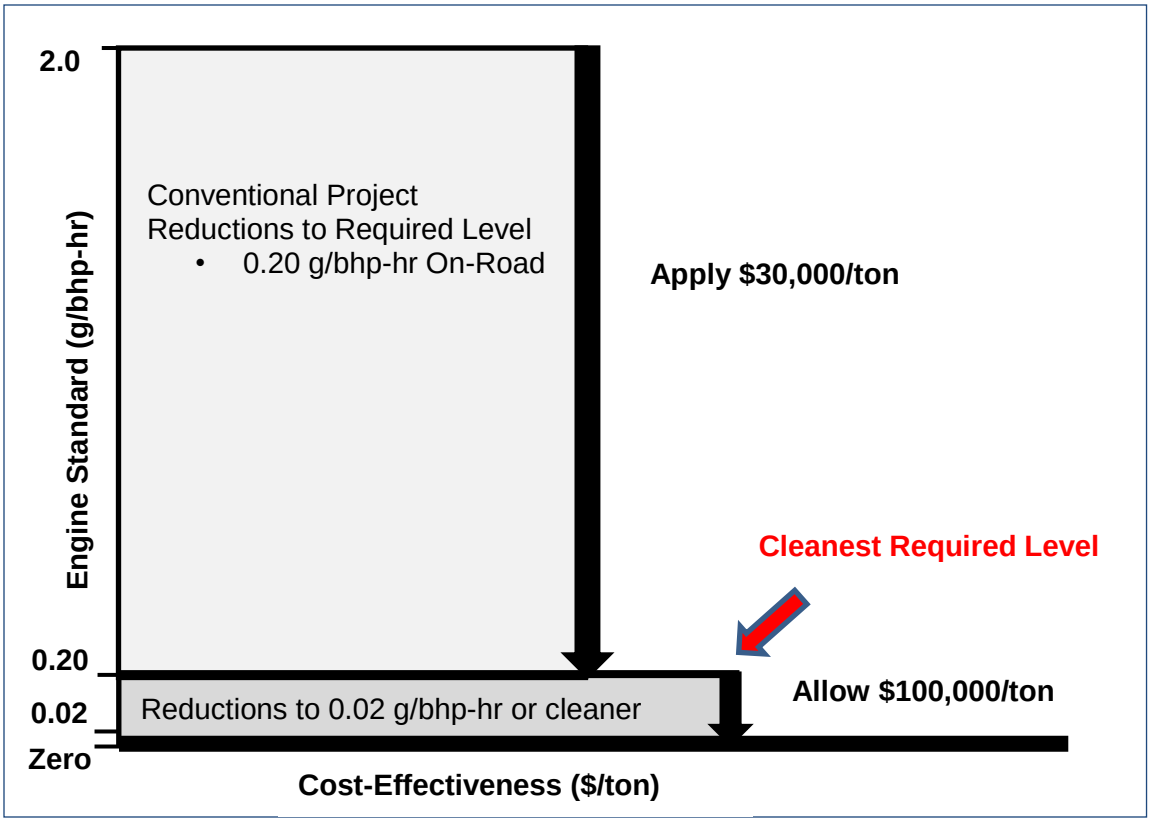
The 2017 Guidelines are proposed as an update to the Moyer Program to reflect the opportunity and flexibility provided by SB 513. The key program changes to be implemented through these Guidelines include the following. (Additional detail is included in the Staff Report issued to accompany Board consideration of these Guidelines.)

1. **Establish New Cost-Effectiveness Limits.** SB 513 specified that the Board, in collaboration with the air districts, should consider the cost of technology and the cost of regulations in establishing cost-effectiveness values. The proposed Guidelines include a tiered cost-effectiveness approach that will allow the program to meet dual needs – supporting both conventional projects and emerging technologies. The general cost-effectiveness limit would be increased from the current $18,260 up to $30,000 per weighted ton of emission reductions (particulate matter (PM) reductions would still be weighted by a factor of 20 due to diesel PM toxicity). The increase in the base limit reflects more recent regulatory costs and will enable more meaningful grants for cleaner engines at the required standard.

   For advanced technology engines that are zero-emission or, alternatively, meet the cleanest optional standard level certified, the proposal allows air districts to choose to apply a cost-effectiveness limit of up to $100,000 per weighted ton. This higher limit would provide additional incentive to turn engines and fleets over to the cleanest certified technologies now emerging in the marketplace.

   Figure 1 below illustrates how the dual cost-effectiveness limits would be implemented under the proposed change for an on-road engine meeting the 0.02 g/bhp-hr Optional Low NOx standard.

Figure 1: Illustration of Dual Cost-Effectiveness Limit for On-Road Projects



2. **School Buses**: Note that a separate cost-effectiveness limit of $276,230 per weighted ton will continue to apply to school bus projects, to enable consistency with the funding levels used in California's Lower-Emission School Bus program as directed by SB 513. This program change has already been made, through a revision to the Moyer Program 2011 Guidelines effective January 1, 2016.

3. **Expansion of Infrastructure Program**. SB513 provided new opportunities to fund installation of fueling or energy infrastructure for zero and near zero alternative vehicles and equipment and other projects that enable clean air technologies. Under SB 513, infrastructure projects are not subject to the cost-effectiveness limit. Infrastructure categories included in the chapter are commercial battery charging and alternative fueling stations for on-road and off-road vehicles and equipment, and continued support for marine shore power electrification and stationary agricultural electrification projects. Proposed funding limits for infrastructure projects are as follows:

   (A) Up to 50 percent of eligible costs for all projects;

   (B) Up to an additional 10 percent (total of 60 percent) for publicly accessible stations;

(C) Up to an additional 15 percent (total of 65 percent) for projects including on-site solar or wind power generation;

(D) Up to 100 percent for electric charging stations and alternative fueling stations for school buses. This is consistent with recent Board direction to consider opportunities for funding to assist public school buses.

To provide project selection transparency for public accessible projects staff proposes requiring a competitive bid process when the project includes access to the public. The proposal also provides flexibility for air districts to select projects that meet their local needs and priorities.

4. **Opportunity to Co-Fund Moyer Projects with Other Public Funds.** Proposed Guideline changes would provide now opportunities for Moyer Program funds to co-fund projects with other incentive programs without a cost-effectiveness penalty, as provided for in SB 513. Co-funding would allow projects to be approved with support from multiple program grants up to the total eligible cost of the project. Moyer Program and AB 923 funds would continue to be subject to cost-effectiveness limits (except in the case of infrastructure), regardless of whether such thresholds apply in other contributing programs. There is no limit on the number of co-funding sources that can be used to fund a project, as long as the total project costs are not exceeded and a 15 percent applicant cost share requirement is met for private sector projects. Provisions in the General Criteria and Program Administration Chapters would safeguard against double counting of emission reductions, and the Moyer Program will account for all emission reductions for SIP purposes. Projects would still be required to meet the individual requirements of each funding source.

5. **Changes to Program Administration**. Program administration affects air district implementation of all Moyer projects, and ARB staff has worked with air districts to streamline and reorganize the administrative requirements that ensure program accountability. A major reporting update made in SB 513 was changing the two year expenditure deadline for grant funds to a four year liquidation deadline. Guideline changes to reflect this provide additional time to complete more complex projects, while contract execution will serve as an interim milestone for progress tracking. Another key change to the chapter is the phase-in of accounting principles, as recommended by California Department of Finance, to improve fiscal transparency and lower the cost of program audits. The updated Guidelines also provide air districts procedures for redirection of unallocated grant funds to districts with ready projects.

6. **Changes to the On-Road Sections**. This version of the Guidelines would merge previous 2011 Guideline chapters 4, 5 and 6 into one comprehensive chapter for heavy-duty trucks and buses. The On-Road Voucher Incentive Program (VIP) program would remain separate in Part II of the Guidelines. A significant change in the on-road section is the addition of funding caps for new technologies such as Optional NOx and zero emission engines. Staff also

modified VIP funding caps for conventional project types. The fleet size limit of ten or less vehicles was removed; however, fleets larger than ten would have to use cleaner engine technology.

7. **Changes to the Off-Road Sections**. The proposed 2017 Guidelines would combine previous chapters 7, 8, 9 and 10 into one off-road equipment chapter, while Off-Road VIP remains separate. Staff proposes to extend the eligibility for large fleets (more than 5,000 horsepower) to one additional opportunity after January 1, 2017. This will provide large fleets a path to add Tier 4 final equipment while retaining broader opportunity for medium fleets within this time frame. Program changes also allow equipment with Tier 3 engines and portable equipment to be eligible for equipment replacement.

8. **Changes to the Locomotive Section**. Program guidelines would be updated for locomotive projects to require all new equipment be Tier 4 or cleaner. Staff also proposes to allow the reuse and/or the recycling of the baseline chassis while still requiring the baseline engine to be destroyed. Idle limiting devices and retrofit projects would no longer be eligible for funding.

9. **Changes to the Marine Section**. For marine projects, proposed changes would include allowing the cleanest technologies to be eligible for the highest maximum percentage of eligible cost, and allowing compliant Tier 2 engines to be repowered. Vessels that are compliant with the Commercial Harbor Craft replacement schedule would become eligible for the same funding amounts as unregulated vessels. Provisions would also be added for hybrid system vessel retrofits.

10. **Emissions Estimates and Deterioration**. Staff proposes that project evaluation consider the emissions that occur due to deterioration of vehicles and equipment emission controls over time. Deterioration rates used in ARB emissions inventories are available for on-road trucks and off-road equipment. Including these factors in Moyer Program emissions and cost-effectiveness calculations for both old and new equipment will better reflect real-world engine emissions over project lives, and align Moyer calculation methods with those used in ARB planning inventories and SIP air quality modeling.

11. **Other Changes**.

    (A) New purchase projects that expand fleets would no longer be eligible projects, due to SIP creditability concerns.

    (B) The baseline vehicle for Light Duty Vehicle projects must have an engine model year of 2003 or older.

    (C) Only minor changes are proposed for the Agricultural Assistance Program (Part III).

(D) Appendices have been re-worked. Calculations in Appendix C are updated to improve the flow of calculations; formulas have been added to account for engine deterioration and calculate the new dual cost-effectiveness limits. Emission factors have been updated in Appendix D and now include deterioration. The appendices for acronyms, definitions and references have been updated. Previous appendices E and G have been removed, with cost-effectiveness information moved to Appendix C and capital recovery tables moved to Appendix D.

CHAPTER 2: GENERAL CRITERIA

The criteria listed below apply to all Carl Moyer Memorial Air Quality Standards Attainment Program (Moyer Program) projects. In addition to the criteria below, Moyer Program projects must also meet the additional project criteria found in the applicable source category chapter and the Program Administration Chapter. In cases where there is a conflict between the Guidelines and statute, the Moyer Program statutory provisions take precedence over the Guidelines. In cases where the source category requirements conflict with either the criteria listed below or Program Administration requirements, the source category requirements take precedence.

A. Covered emission reductions obtained through Moyer Program projects must not be required by any federal, State or local rule or regulation, memorandum of agreement, memorandum of understanding, settlement agreement, mitigation requirement, or other legal mandate.

B. If a Moyer Program project contract has not been fully executed prior to the approval date of an air quality management district or air pollution control district (air district) governing board or Air Resources Board (ARB) rule or regulation (or the promulgation date of a federal regulation) the air district must consider the rule or regulation when evaluating a project's eligibility. If a Moyer Program project contract has been fully executed prior to that date, the air district does not need to consider the rule in evaluating whether the project's emission reductions are surplus.

C. An air district must consider all applicable rules or regulations when determining eligibility for a project. If an existing contract is amended to increase the total Moyer Program funding of the project, then the air district must reevaluate eligibility and consider all applicable rules or regulations. If the total dollars do not increase, then the air district does not need to reevaluate eligibility.

D. A grant applicant subject to an in-use regulation may be eligible to receive funding through the Moyer Program if the applicant has met all compliance requirements of applicable regulations. Documentation of regulatory compliance must be provided by applicants to air districts prior to funding.

E. Participating air districts retain the authority to impose additional more stringent requirements in order to address local concerns.

F. No project funded by the Moyer Program may be used for credit under any federal or State emission averaging, banking or trading program throughout the contract term. No covered emission reductions generated by the Moyer Program may be used as marketable emission reduction credits, or to offset any emission reduction obligation of any person or entity throughout the contract term (Health and Safety Code (H&SC) § 44281(b)).

G. The new engine, vehicle, or equipment must remain in service for the entire contract term, which must extend to the end of the project life. Throughout the contract term, the emission reductions funded by the Moyer Program must not be used to generate credits or compliance extensions and must be excluded when determining regulatory compliance (H&SC § 44281(b)).

H. The State Board and the air districts shall take all appropriate and necessary actions to ensure that all covered emission reductions achieved from a Moyer Program project are creditable in the State Implementation Plans (SIP) and are enforceable, surplus, quantifiable and permanent (H&SC § 44286(g)).

I. When Moyer funds are used for co-funded projects, the Moyer Program will account for all covered emission reductions for SIP purposes (H&SC § 44287.2(a)(4)).

J. ARB will provide protocols for calculating surplus covered emission reductions over the life of representative project types (H&SC § 44283(c)).

K. Engines operating under flexibility provided by an enforcement discretion advisory, mail-out or other advisory issued by ARB, an air district, or the United States Environmental Protection Agency (U.S. EPA) are not eligible for funding.

L. Projects funded by the Moyer Program must be included when determining the size of the fleet for regulatory compliance.

M. Projects selected for funding must meet cost-effectiveness limits per weighted ton of oxides of nitrogen (NOx), reactive organic gases, and particulate matter reduced, as calculated in accordance with Appendix C, except in the case of infrastructure projects.

N. Moyer funds, all local air district AB 923 funds, and match funds must be included in the project cost-effectiveness calculation and are subject to cost-effectiveness limits (H&SC § 44283(d)). Funds from sources other than those listed here are not required to be included in the project cost-effectiveness calculation (H&SC § 44287.2(a)).

O. Applicants must report to air districts all private or public financial incentives applied for or used to co-fund Moyer projects (H&SC § 44283(g)). The air district must ensure that the sum of the other incentive funds and the Moyer funds does not exceed the total project cost (H&SC § 44287.2(b)). Appendix C contains an example of the calculation methodology.

P. Projects co-funded with Moyer and other public funds must meet all requirements of the contributing programs. Grantees from non-public entities must provide at least 15 percent of the Moyer eligible cost from non-public sources.

Q. Moyer Program grants can be no greater than a project's incremental cost. Incremental cost is defined in Appendix B, and some source category chapters provide additional guidance.

R. Moyer Program funds cannot be used to pay for energy or fuel costs. However, local funds under an air district's budget authority or fiduciary control (i.e., match or other local funds) may be used to fund energy or fuel costs other than standard gasoline or diesel fuel, when those costs are integral to a project receiving grant funding under the Moyer Program (H&SC § 44283(f)).

S. Projects must have at least 75 percent of their total activity for the project life in California, unless otherwise stated in the source category chapters. Activity outside of California is excluded from the covered emission reductions used to determine grant funding and SIP emissions benefits.

T. Project engines and retrofits must use only the fuel allowed by the engine certification or retrofit device verification during the project life. Fuel additives are prohibited unless specifically allowed in the engine certification or retrofit device verification.

U. Emission reduction technologies must be certified or verified by ARB. If an ARB certification or verification process does not exist or if engines or retrofits are preempted from ARB certification/verification, then an engine or retrofit must be certified/verified to Federal standards as applicable. For the purposes of the Moyer Program, a technology granted a conditional certification/verification by ARB is considered certified/verified. An ARB certification process may not exist for some zero-emission technologies. See the relevant source category chapter for specific requirements for zero-emission technologies.

V. In circumstances where an eligible vehicle or piece of equipment has more than one engine, the air district may choose to base the cost-effectiveness calculation on overall vehicle/equipment emission reductions rather than on a per engine basis. The project must meet the current project cost-effectiveness limit.

W. Prior to destruction, an engine that is required to be dismantled may be used as a test engine for purposes of retrofit or fuel verification. This can occur as long as the engine complies with the requirements of the guidelines, and the old engine must be destroyed before a payment to the grantee is issued for the new engine.

X. Funding is not available for projects where a spark-ignition engine (i.e., natural gas, gasoline, etc.) is replaced with a diesel engine.

Y. For repower and replacement projects the replacement engine must achieve an annual NOx emissions benefit of at least 15 percent to receive any funding for NOx reductions.

Z. For a repower project, the installation of the engine must be completed in a manner that does not void the engine warranty provided by the manufacturer or any remaining warranty provided by the equipment/vehicle manufacturer.

AA. No public monies are allowed for the support of any sectarian or denominational school, or any school not under the exclusive control of the officers of the public schools. (Cal. Const. Art. 16 § 5 and Art. 9 § 8).

BB. The revised cost-effectiveness limit and capital recovery factors may be used by air districts once the Board adopts the updated Moyer Program Guidelines, but must be used by July 1 following its adoption. ARB will update the cost-effectiveness limit and capital recovery factors annually through a Mail-Out.

CC. ARB may approve, on a case-by-case basis, projects that vary from the requirements of these Guidelines or that do not meet all eligibility criteria in the Guidelines. Projects with case-by-case approvals must provide permanent, surplus, quantifiable, enforceable, cost-effective emission reduction benefits in California for the full contract term. Additional information regarding approval of case-by-case projects is found in the Program Administration chapter.

CHAPTER 3: PROGRAM ADMINISTRATION

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CHAPTER 3: PROGRAM ADMINISTRATION

This chapter describes the administrative requirements that the Air Resources Board (ARB), air quality management districts or air pollution control districts (air districts), and interested parties must follow to ensure that Carl Moyer Memorial Air Quality Standards Attainment Program (Moyer Program) projects achieve State Implementation Plan (SIP)-creditable emission reductions.

A. Background

An air district may choose to require more stringent administrative procedures in implementing its local program. Some source category chapters of the Moyer Program Guidelines (Guidelines) give additional administrative requirements. In a case where the source category requirements conflict with requirements specified in this chapter, the source category requirements take precedence.

These Guidelines must be used for all projects funded with fiscal year 2017-18 (Moyer Program Year 20) and subsequent years' funds. The 2017 Guidelines may be utilized for previous year funds after the Board approval date, and applied to projects for which contracts are fully executed after the Board approval date. When an air district begins applying the 2017 Guidelines to projects, it must continue to apply only the 2017 Guidelines to all subsequently funded projects. ARB will follow these 2017 Guidelines for administration of the Moyer Program following Board approval.

For projects funded using fiscal year 2016-17 (Year 19) and previously awarded funds, an air district may use either the 2011 Guidelines or these 2017 Guidelines, with any applicable program advisories and mail-outs. An air district may not apply elements of both Guidelines to a project.

B. Grant Fund Allocation and Solicitation

1. **Grant Funds Notification**. During each fiscal year, ARB will send a solicitation letter to each air district's Air Pollution Control Officer (APCO) with notification that Moyer Program funds for that year are available. Enclosures with the letter will include the application for funds, a tentative allocation of regular program funds (not including State Reserve funds) for all air districts showing a breakdown of project and administrative funds, and any associated match funds requirement.

2. **Tentative and Final Funds Allocation**. After a review of projected revenues for the current fiscal year, a tentative funds allocation for all air districts will be determined by ARB under the requirements of Health and Safety Code (H&SC) section 44299.2(a); it may include funds returned or reverted to ARB under section 44287(j). Following receipt and review of air district applications, ARB will determine a final funds allocation that (a) considers any update in projected revenues and (b) redistributes any funds declined by air districts to other air districts that have requested additional funds. This redistribution will also follow

the allocation requirements of Health and Safety Code section 44299.2(a). The typical timeline for the initial allocation, air district application, final allocation, disbursement and subsequent expenditure of a fiscal year's grant funds is provided in Table 3-1.

Table 3-1
Moyer Program Regular Funds Timeline

Date	Action
By end of January	ARB sends application packet to air districts
By end of March	Air districts apply to ARB for funds
By end of April	ARB notifies air districts of final awards
By end of May	Air districts return signed grant agreements
June 30 of Following Year	Target date for contracts to be executed
June 30 of Second Year	Deadline for air districts to receive fund disbursements.
June 30 of Fourth Year	Deadline for air districts to liquidate funds

3. **State Reserve Funds**. ARB may direct up to ten percent of Moyer Program funds available each fiscal year to eligible projects selected in accordance with Health and Safety Code section 44286(d). ARB shall annually post on its website a solicitation packet for State Reserve projects. The solicitation packet will include the application requirements and due date, project eligibility criteria, and project selection criteria.

C. Air District Applications for Grant Funds

1. **Air District Options**. An air district may consider the following options upon receiving the solicitation:

   (A) Accept the tentative allocation in full without change, and commit to the associated match funds amount;

   (B) Accept the tentative allocation but request additional funds, and commit to the associated match funds amount;

   (C) Accept the minimum allocation of $200,000, with no match requirement;

   (D) Accept the minimum allocation and authorize the funds be designated to the Rural Assistance Program, for the current year and up to four additional years unless rescinded in a future year;

   (E) Accept the tentative allocation and authorize the funds be designated to a lead air district for Moyer Program funding in the region, for the current year and up to four additional years unless rescinded in a future year;

   (F) Decline an allocation. In this case the air district's share of funds will be redistributed with the final funds allocation.

2. **Application and Resolution**. Within 60 calendar days of the date of the solicitation letter, an air district accepting or designating funds will provide ARB a completed application indicating the option chosen above and signed by the APCO. The application will include a board resolution or minute order that supports the option chosen, and will indicate the district is maintaining a Moyer Program Policies and Procedures manual that meet the requirements of this section. For air districts accepting funds the resolution or minute order will commit the district to participate in the Moyer Program, comply with Program requirements, and commit to providing matching funds if requesting funds above the minimum allocation. If the air district board is unable to consider the Moyer Program application within the 60 days following the solicitation letter, the application will indicate when a resolution or minute order will be considered by the board.

3. **Match Funds**. An air district requesting the tentative allocation or a greater amount must make a match funds commitment equal to 15 percent of State funds requested. The district will indicate on its application the source of match funds. An air district may account for up to 15 percent of its match requirement with in-kind contributions. Sources and requirements for match funds are described in Section I of this chapter.

4. **Policies and Procedures**. To remain eligible for continued funding, an air district will maintain a Moyer Program Policies and Procedures Manual. The manual will focus on the district's local implementation of the Moyer Program Guidelines, including roles and responsibilities within the district and local application of Moyer Program policies. Air district staff will review the manual at least once a year and make it available when requested by ARB staff or a member of the public. The manual will include at least the following elements:

    (A) Roles and responsibilities within the air district for program implementation, including staff or positions responsible for: responding to ARB funding solicitations; evaluation, selection and inspection of projects; and obtaining governing board approval for program participation and projects to be funded;

    (B) Identification of the project source categories supported by the air district Moyer Program, and the schedule for solicitation and review of applications to be submitted under these source categories;

    (C) Procedures for project selection, including cost-effectiveness or other criteria applied to rank projects, or whether projects are selected in order of application receipt (first-come, first-serve); and any procedures that vary by source category;

    (D) Procedures for notifying successful applicants of their grant awards, and for notifying applicants who have not been awarded grants;

(E) Where applicable, project selection procedures that ensure priority for funding projects that will reduce air pollution in communities with the most significant exposure to air pollution (H&SC § 43023.5);

(F) Where applicable, the procedures for selecting projects to be funded with Moyer Program match funds;

(G) The method for calculating interest earned on Moyer Program funds held by the air district;

(H) Procedures for grantees to submit program invoices and receive payment, including itemization required to limit reimbursement to eligible costs, conditions for progress or partial payment, and practices for withheld payments pending grantee reporting;

(I) Methods the air district will use to verify the destruction of engines and equipment when required, consistent with minimum standards specified in these Guidelines by source category;

(J) Methods the air district will use to store and retrieve digital photographs documenting project inspections along with associated project-specific information;

(K) Procedures, schedules and required content for grantee reports;

(L) The types of acceptable documentation for establishing historical annual usage, and procedures for considering and granting usage waiver requests, including supporting information to be provided by the grantee;

(M) Procedures for working with nonperforming grantees to gain full compliance with contracts and program requirements;

(N) Any air district program requirements that are more stringent than those specified in Moyer Program Guidelines and Mail-Outs;

(O) Any ARB approvals of air district program elements that vary from those required by Moyer Program Guidelines and Mail-Outs, e.g., methods of ensuring engine or equipment destruction that vary from those specified in the source category chapters.

D. Grant Application Review and Grant Award

1. **Review Period**. ARB will review an application immediately upon receipt and, when necessary, provide the air district with a written explanation of what is missing from the application within ten working days of its receipt. ARB will approve completed applications that fulfill all criteria no later than 60 working days after receipt, including time for ARB review and comment on air district Policies and Procedures if desired (H&SC § 44287(m)).

2. **Conditional Approval**. ARB may elect to approve an application that is missing a particular item and make the submittal of that item a Special Term and Condition of the Grant Agreement. For example, sometimes air district staff is unable to obtain a board resolution or minute order before the application

deadline. In such a case, ARB may allow a board resolution or minute order to be submitted with the signed Grant Agreement or prior to the air district's initial disbursement.

3. **Policies and Procedures Review**. The grant application includes the air district's statement that it is maintaining a manual of current policies and procedures consistent with the requirements above. ARB may choose to review an air district's Policies and Procedures Manual, and an air district may request ARB's review of its manual's completeness and consistency with these Guidelines. ARB comments on an air district's Policies and Procedures Manual will be provided by email or in other written format. An air district's policies and procedures as implemented can only be fully evaluated during a program review process.

4. **Grant Award Notification and Signature**. ARB will prepare and submit to qualifying air districts each year a notification of final grant awards, accompanied by a Grant Agreement for review and signature. A deadline for air district acceptance of the grant award will be specified in a cover letter sent with the Grant Agreement. The Grant Agreement package will include two copies of a cover sheet indicating the amounts of funds granted for projects and for administration, the required amount of match funds if applicable, any Special Terms and Conditions, and General Terms and Conditions for the grant. The district APCO will sign both copies of the cover sheet and return them with original signatures to ARB. Following signature by ARB Budgets Chief, ARB will return one original copy to the air district for its records.

E. Fund Disbursement

1. **Procedure**. ARB may disburse funds following signature of the Grant Agreement by both parties. To obtain funds the air district will submit a completed current Grant Disbursement Request Form, available on the Moyer Program website. The Grant Disbursement Request Form must include an original signature by a party authorized and designated by the air district's Governing Board. Any Special Terms and Conditions in the Grant Agreement must be met before ARB will disburse funds associated with the grant award. Disbursement requests must be received by ARB by May 15 each year to ensure payment within the fiscal year. Any funds not disbursed by June 30 two years following the award will be reallocated to all districts in the subsequent grant cycle.

2. **Initial and Additional Disbursements**. An air district may request an initial disbursement of $200,000 or 10 percent of its project funds, whichever is greater. The air district may request additional disbursements when the criteria below have been met.

    (A) The preceding Yearly Report demonstrates on-time liquidation consistent with Health and Safety Code section 44287(j); or if not, any funds not

liquidated on time have been received by ARB. ARB will not require a return of funds under executed contract. ARB may require an air district to change the funding years from which funds are assigned to projects in the statewide database (Clean Air Reporting Log or CARL) to facilitate on-time liquidation.

(B) The Grant Disbursement Request Form is accompanied by a list of projects under executed contract with invoices pending, approved by an air district governing board, or under air district staff review for eligibility and funding. The total cost of the projects listed should equal or exceed the amount of the disbursement request.

3. **Administration Funds**. An air district may also request some or all of its administrative funds with an initial disbursement. The air district will receive one check for both program administration and project funds, but must account for the expenditure of administration and project funds separately.

F. Redirection of Funds

1. **Procedure**. An air district may redirect funds to another air district or the Rural Assistance Program by submitting to ARB the items below. For funds already disbursed by ARB and due for liquidation by June 30 of the current fiscal year, the air district must submit these items no later than March 31 to allow time for processing new grant agreements. For funds not yet disbursed by ARB and due for disbursement by June 30 of the current fiscal year, the air district must submit these items no later than March 15 to allow time for processing new grant agreements and subsequent processing of a disbursement request for the air district receiving the redirected funds. A redirection request includes:

   (A) The Moyer Program Redirection of Funds form, with the appropriate portions completed in consultation with ARB staff and indicating the sums of project and administrative funds to be redirected, which may include interest or other earned funds due for liquidation;

   (B) Resolutions or minute orders adopted by the boards of the air districts transferring and receiving funds that authorize the redirection;

   (C) A memorandum of understanding (MOU) or equivalent signed by the air pollution control officers of the affected air districts. The MOU must:

      (1) Specify the details and conditions of the redirection of funds;

      (2) Identify which air district is responsible for any required match associated with the redirected funds;

      (3) Identify the funding year and the associated liquidation deadline for the redirected funds;

      (4) Specify how and when payment will be made to the air district receiving the funds, including one of the following:

a. If the transferring air district has not submitted a disbursement request to ARB, the MOU will specify that the air district that is receiving the funds will submit the request to ARB following ARB approval of revised grant agreements.
b. If the transferring air district has the funds already, the MOU will specify that it will pay the receiving air district directly, following ARB approval of revised grant agreements.

2. **Amended Grant Agreements**. After receiving the items above from the transferring air district, ARB staff will develop new or amended grant agreements. District APCOs must sign and return the grant agreement cover sheets for signature by the ARB Budgets Chief. After ARB signature of both revised grant agreements, the receiving air district may request either a disbursement of funds from ARB or payment from the transferring air district. An air district receiving funds from another district will submit a copy of the check to Moyer Program staff.

3. **Retention of Administrative Funds**. Air districts redirecting project funds but retaining, with approval of the receiving air district, associated administrative funds must provide to ARB by the close of the fiscal year in which the funds were transferred a description of how administrative funds were utilized for the period since the grant award, including but not limited to the following:

   (A) A summary of air district activities to solicit project applications, including copies of any written grant solicitations and lists of potential applicants to which outreach was directed;

   (B) A list of project applications submitted and reviewed;

   (C) A breakdown of staff time devoted to Moyer Program activities;

   (D) A summary of any Moyer Program training activities for air district staff.

G. Rural Assistance Program

1. **Purpose**. The Rural Assistance Program (RAP) is a partnership among rural air districts, the California Air Pollution Control Officers Association (CAPCOA), and ARB to enhance rural air district participation in the Moyer Program. RAP facilitates air district participation by streamlining the grant administrative process and by encouraging the pooling of financial and technical resources. The reduction in cost and staff resources lowers the threshold for participation in the Moyer Program and maximizes project funding in rural areas.

2. **Designation or Redirection to RAP**. An air district may designate funds to RAP in its application for Moyer Program funds (see Section C.1.(D)). An air district may also redirect funds to RAP after it has executed a grant with ARB, but must do so by March 1 of the year by which funds must be disbursed, as shown in the example timeline below. RAP funds that have been disbursed to air districts and

subsequently returned to ARB will be reallocated to other RAP projects whenever possible.

Table 3-2
Example RAP Funds Calendar:
Moyer Program Year 18 (Fiscal Year 2015-2016)

January–April 2016	Air district applies for funds and executes Year 18 Grant Agreement; funds are designated to RAP.
March 1, 2018	Deadline to redirect air district's grant funds to RAP
June 30, 2018	Deadline for air districts to receive fund disbursements. Target date to expend Year 18 grant award.
June 30, 2020	Deadline to liquidate Year 18 grant award

3. Roles and Responsibilities among RAP Program partners are as follows:

(A) ARB notifies CAPCOA of funds designated or redirected to RAP, and develops and administers grant agreements between ARB and recipient air districts.

(B) CAPCOA selects a program administrator, which may be CAPCOA staff, an air district, or a third party. CAPCOA also establishes criteria for project selection and approves projects selected by the Program Administrator.

(C) The RAP Program Administrator provides outreach for RAP, prepares the application and project solicitation, performs initial application screening, ensures project eligibility, ranks projects based on CAPCOA criteria, selects projects, and determines recipient air districts.

(D) Donor air districts designate all or a portion of their Moyer allocations to RAP on their Moyer grant award application, or redirect grant funds already accepted to RAP using the procedure in Section F of these Guidelines. Air district boards approve designation or redirection of RAP funds via resolution or minute order.

(E) Recipient air districts sign grant agreements with ARB to accept funds for RAP projects, maintain a Policies and Procedures Manual, and are responsible for grant obligations, including contracts with grantees for project implementation, project inspections, monitoring and reporting. Air district boards approve receipt of RAP funds via resolution or minute order.

H. AB 923 - $2 Motor Vehicle Fee

1. **Project Eligibility**. State law allows air districts to collect an additional $2 motor vehicle registration surcharge (MV Fee) (H&SC § 44223) which must be used to fund the following project categories (summarized) (H&SC § 44229(b)):

   (A) Projects eligible for grants under the Moyer Program.

   (B) The new purchase, retrofit, repower or add-on equipment for previously unregulated agricultural sources of air pollution (Agricultural Assistance Program, H&SC § 39011.5).

   (C) Purchase of new school buses or the repower or retrofit of emissions control equipment for existing school buses pursuant to the Lower-Emission School Bus Program adopted by the Board.

   (D) An accelerated vehicle retirement or repair program that is adopted by ARB.

   (E) Onboard natural gas tank replacements in existing school buses 14 years or older or the enhancement of deteriorating natural gas fueling dispensers of fueling infrastructure pursuant to the Lower-Emission School Bus Program adopted by the Board.

   (F) Alternative fuel and electric infrastructure projects solicited and selected through a competitive bid process.

2. **Match**. $2 MV Fees used to meet the Moyer Program match fund requirement (See Section I) are subject to the same eligibility, reporting, review and auditing requirements as State-provided Moyer Program funds. $2 MV Fee funds used to meet the match requirement are not required to be expended within two years from the date of their collection. However, air districts must expend sufficient match funds to meet the obligations for the Moyer Program funds received each year.

3. **Reporting and Oversight**. Reporting and oversight of the $2 MV Fee depends upon whether the fee is used to meet the Moyer Program's match requirement and whether the air district takes SIP credit for $2 MV Fee projects. Table 3-3 summarizes the various scenarios for treatment of $2 MV Fee funds and projects. Sections M and R of this chapter further describe $2 DMV fee reporting and oversight.

Table 3-3
Summary of $2 MV Fee Requirements and Oversight

Requirement	$2 MV Fee Used as Match	$2 MV Fee Used for SIP Credit	$2 MV Fee Not Match/ not SIP
Liquidation of funds within four years	[a]	--	--
Meet full and complete Moyer Program Guideline criteria	√	--	--
Subject to ARB Incentive Program Review	√	--	[b]
Subject to ARB project eligibility evaluation (e.g., cost-effective and surplus)	√	√	√
Fiscal reporting to ARB (list total funds expended in seven basic categories)	√	√	√
Detailed reporting to ARB (project specifics submitted in current database)	√	√	--

[a] Sufficient funds must be liquidated, regardless of their year of origin or source, to provide the required match by that year's liquidation deadline. For example, for Year 18, air districts must complete liquidation of applicable Year 18 match funds by June 30, 2020. When those funds were received is not a factor in determining this deadline.

[b] Non-match projects funded with AB 923 $2 MV Fee may be evaluated by ARB in conjunction with Incentive Program Review. Evaluation of these projects will be limited to project eligibility. Any irregularities regarding non-match AB 923 $2 MV Fee project eligibility must be reported separately from Incentive Program Review findings.

I. Air District Match Funds

1. **Requirement**. Air districts participating in the Moyer Program are required to provide match funding. Air districts implementing the Moyer Program must commit match funds equaling 15 percent of the regular Moyer Program funds received. An air district receiving the minimum grant award of $200,000 is exempt from this match requirement.

2. **Federal Funds**. Air districts may use federal funds as Moyer Program match if written confirmation is received from the administering federal agency (for example, the United States Environmental Protection Agency) that (1) the administering agency has no objection to the air district using those funds as match, and (2) the emission benefits obtained from those funds will not be used by the administering agency in a State Implementation Plan. The air district must also ensure that it will not use such funds as match for any other program and that the use of the funds as Moyer Program match does not conflict with any State or local requirements regarding the funds. If this option is used, supporting documentation must be included in all relevant project files.

3. **Program Basis**. Air districts may meet their matching fund requirement on an overall program basis rather than a project-by-project basis. In other words, air

districts do not need to provide match funds towards each project funded, but must fund enough projects (in total or in part) with match funds in order to meet the match requirement. Match funds are included in cost-effectiveness calculations and subject to the same cost-effectiveness limits as other Moyer program funds.

4. **Match Fund Sources**. Match funds may be any funds under an air district's budget authority or fiduciary control that are committed to be expended in accordance with Moyer program requirements. Match funds may also be provided by a port authority, or a local government teamed with an air district. Match funds provided by a port authority or a local government shall not exceed 30 percent of the total required matching funds in any air district that applies for more than $300,000 of the state board funds (H&SC § 44287(e)). Port authorities may participate through projects involving their own equipment, or by soliciting port tenants to apply for project funding.

5. **In-Kind Contributions**. Up to 15 percent of an air district's match requirement may be fulfilled through in-kind contributions (H&SC § 44287(h)). Air districts may use any funds under their budget authority, except for Moyer Program administrative funds and interest or other funds earned on Moyer Program funds, to cover their in-kind contributions. When using air district funds for in-kind match, air districts must follow all relevant statute, guidelines, and other legal requirements for expending such funds. In-kind contributions have the same expenditure timeline as match funds. Air district in-kind match funds spent on program administration and outreach must meet the documentation requirements in Section J.

6. **Eligible Projects**. Match funds may be used to pay for any project that meets all Moyer Program criteria. Match funds may also be used to pay for the incremental cost of electricity or alternative fuels serving a Moyer program eligible source category.

J. Air District Administration Funds

1. **Air District Funding**. Air districts with one million or more inhabitants may use up to 6.25 percent of their Moyer Program funds on program outreach and administration, while air districts with under one million inhabitants may use up to 12.5 percent of their Moyer Program funds (H&SC § 44299.1(c)-(d)). Air districts shall maintain an outreach program consistent with Health and Safety Code section 44290.

2. **Allowable Costs**. Table 3-4 lists allowable administration costs and documentation that the air district is required to maintain for Moyer Program administrative funds. Air districts will make available the documentation shown in the table for review during ARB or other State agency monitoring visits, reviews and audits. Such administrative records for a given funding year must be retained for a minimum of five years following the applicable funding year

liquidation deadline. For example, for Year 16 (fiscal year 2013-2014) funds, the funding year liquidation deadline is June 30, 2018, and administrative records would be retained through June 30, 2023.

Table 3-4
Administration and Outreach Costs and Documentation

Allowable Cost	Required Documentation
Air district staff time	Personnel documentation that may include timesheets or output of labor tracking software; duty statements or job descriptions indicating percentage of staff time; or written summaries of Moyer Program staff activities with time estimates by activity or task.
Consultant fees	Consultant contracts and invoices
Printing and mailing costs	Receipts and invoices. Copies of solicitations and outreach materials indicating availability of grants
Travel expenses	Receipts and invoices. Travel cost criteria must be consistent with written air district travel policies for other air district programs, cited in the Policies and Procedures Manual or local administrative manual.
Indirect costs	Indirect cost calculation methodologies must be described or cited in the Policies and Procedures Manual or local administrative manual, and calculated costs must be documented.

3. **Mitigation for Unallowable Costs**. An air district that charges unallowable costs for program administration or outreach must substitute eligible administration and outreach expenses equal to the dollar amount found ineligible, or return the funds for the unallowable cost to ARB.

K. Accounting Principles

Air districts must establish accounting practices for Moyer Program funds consistent with the requirements below, as early as practicable and no later than July 1, 2019.

1. **Moyer Funds Account**. Moyer Program funds (Moyer funds) must be accounted for as separate funds within the air district's general ledger following generally accepted accounting principles (GAAP). An air district receiving a total allocation of one percent or more of all Fiscal Year 2016-17 Moyer Program funds must use a Special Revenue Fund for Moyer funds accounting. Other air districts may use a Trust Fund.

2. **Timing of Recognition in Financial Statements**. Moyer Program grants are voluntary non-exchange transactions to the air district. As such the air district should recognize revenues in the fiscal period when all eligibility requirements have been met and the resources are available. For reference see Governmental Accounting Standards Board (GASB) Statements 33 and 34.

3. **Required Financial Statements**. Financial statements containing at minimum the following account balances and transaction classes, as applicable, will be prepared at least annually.

   (A) Balance Sheet:

      (1) Cash and Cash Equivalents (cash, investment pools, petty cash)

      (2) Moyer Program Fund Revenue Receivable (grant funding from ARB)

      (3) Recapture Revenue Receivable (recapture funds receivable from grant participants for unmet contractual obligations)

      (4) Salvage Revenue Receivable (revenue receivable from retired equipment sold or auctioned for scrap metal)

      (5) Accounts Payable (vendor invoices pending for Moyer projects)

      (6) Fund Balance

         a. Restricted for Air District Projects
         b. Restricted for State Reserve, Multi-District, RAP Projects
         c. Restricted for Administration and Operating Costs

   (B) **Statement of Revenues, Expenditures, and Changes in Fund Balance:**

      (1) Revenue Subsidiary Ledgers

         a. Regular Moyer Funds Project Revenue
         b. State Reserve and Multi-District Project Revenue
         c. Rural Assistance Program Project Revenue
         d. Administration and Operating Revenue
         e. Recapture Revenue
         f. Salvage Revenue
         g. Interest Revenue

      (2) Expenditure Subsidiary Ledgers:

         a. Project Expenditures (from regular Moyer grant, recapture, salvage, interest)
         b. State Reserve and Multi-District Project Expenditures
         c. Rural Assistance Program Project Expenditures
         d. Administration and Operating Expenditures including indirect costs

      (3) Awards Returned: Moyer Program air district money returned to ARB for reallocation

      (4) Transfers In/Out

4. **Interest Revenue**. Any interest earned on investment of Moyer fund cash balances must be deposited in the Moyer funds account and used to fund

Moyer-eligible projects, or to fund administration up to the portion provided for in Health and Safety Code section 44299.1(c)-(d), or be remitted to ARB.

(A) An air district electing not to invest Moyer Program fund cash balances but investing other cash balances should deposit the Moyer Program funds in a separate checking account to clearly indicate that no such moneys were invested.

(B) When invested, Moyer Program funds should receive equitable pro-rated interest earned on the total funds invested. As State funds, Moyer Program funds may be invested only in accounts or instruments that reflect the risk appetite of the State. For reference see Office of the State Treasurer Local Agency Investment Guidelines. Any loss from investments not made in accordance with standards set forth in California Government Codes must be covered by the air district.

5. **Recapture and Salvage Revenue**. Revenues earned or collected by the air district through Moyer Program resources, including revenues obtained through salvage and sale of scrapped equipment, must be reported and either retained as a supplemental source of funds for Moyer projects or forwarded to ARB for deposit to the Air Pollution Control Fund. If recaptured funds or salvage revenues are invested, such revenues must meet the requirements of Section K.4.(B) above. Air districts are not required to earn funds through program actions, or expected to base business decisions on their ability to generate returns or collect funds through program activity.

6. **Expenditures for Moyer Program Projects**. All project expenditures out of the Moyer funds account must meet the Moyer Program Guidelines current at the time of contract execution, including any revisions to those Guidelines in effect at the time of contract execution.

7. **Reporting Requirements**. No later than six months after the air district fiscal year end, the district will append to its Yearly Report a Balance Sheet and a Statement of Revenues, Expenditures and Changes in Fund Balance, in formats consistent with GAAP.

8. **Records Retention**. Grant receipts and expenditure documents including invoices, contracts, vouchers, personnel and payroll records should be retained for five years after the grant liquidation period or the last recorded grant transaction, whichever is later.

L. Co-funding Moyer Program Projects with Other Funding Sources

1. **Purpose**. Senate Bill 513 (Beall, 2015) provides new opportunities to co-fund Moyer Program projects with other funding sources. These Guidelines specify requirements that apply when multiple funding sources are proposed to support a Moyer Program eligible project. All co-funded projects must adhere to the Moyer Program objective to achieve cost-effective and surplus emission reductions to

be credited toward California's legally enforceable obligations in the SIP (H&SC § 44286(g)). There is no limit on the number of co-funding sources to fund a project as long as total project costs are not exceeded and the applicant cost share requirement is met.

2. **Designation of Non-Moyer Funds**: Funds other than Moyer Program grant funds may be used to co-fund Moyer Program eligible projects, when all program criteria associated with each funding source are met. Funding sources are grouped into the following categories. Definitions of these categories can be found in Appendix B.

   (A) Federal funds;

   (B) State funds;

   (C) Local funds;

   (D) Penalty funds;

   (E) Other applied funds.

3. **Mitigation Funds**. Mitigation funds may be used to co-fund a Moyer project if an air district submits a request for a case-by-case determination in accordance with Section U and receives ARB approval.

4. **Cost-effectiveness Calculation**. The non-Moyer funds described above are not required to be included in Moyer project cost-effectiveness calculations (H&SC § 44287.2(a)). Match funds and all AB 923 $2 DMV Fees are required to be included in project cost-effectiveness calculations.

5. **Applicant Cost Share**. An applicant that is not a public entity must provide at least 15 percent of a project's Moyer eligible cost from non-public sources. The applicant cost share cannot be covered through in-kind contributions. An air district may request a case-by-case determination from ARB to waive all or part of an applicant's cost share, in accordance with Section U. In its waiver request, an air district must identify the source(s) and amount(s) of the proposed project's funding and explain the reasons for the cost share waiver, discussing at a minimum either or both of the following factors:

   (A) The public benefit of the project that is above and beyond the emission reductions achieved;

   (B) How the project will advance newer and cleaner technology.

6. **Applicant Disclosure and Payment**. The sum of project funding from all sources may not exceed the total project cost (H&SC § 44287.2(b)). Applicants must disclose all sources of funding applied for at the time of the Moyer project application, and again when submitting each invoice to the air district, prior to payment of Moyer Program grant funds (H&SC § 44283(g)). An air district may not issue payment of Moyer Program grant funds until all funding sources have

been identified and verified and the air district can ensure that the sum of the grants awarded to the project, including both Moyer and non-Moyer funds, does not exceed the total project cost.

7. **Emission Reductions**. All covered emission reductions achieved from a project with multiple funding sources will be credited as reductions from the Moyer Program to ensure proper SIP accounting, improve the likelihood of federal credit, and avoid risk of double-counted reductions. Other emission reductions, such as greenhouse gases, may be claimed by other programs that co-fund a project.

8. **Reporting of Project Data**. For co-funded projects an air district will report in CARL consistent with the reporting requirements of Section M. The air district will also report other co-funding sources and funding amounts. When reporting project funding sources to CARL, air districts will categorize certain co-funding sources as specified below.

   (A) Funding from investor owned utilities will be reported as “other applied funds,” and funding from publicly owned utilities as “local funds.”

   (B) Supplemental environmental project funds will be reported as “other applied funds.”

   (C) Funds from local transit agencies will be reported as “local funds.”

M. Yearly Report

1. **Reporting Requirement**. Each year by June 30, ARB will prepare and make available to air districts a certification form with instructions for completion of the Yearly Report. Air districts will complete, certify and submit the Yearly Report by August 29. An air district that has designated to another air district or the Rural Assistance Program all grant funds for all years covered in the Yearly Report is not required to complete a report.

2. **Reporting in CARL**. Air districts will report project information in the Clean Air Reporting Log (CARL) database, either via CARL forms or batch import, sufficient to populate the required data fields and to calculate covered emission reductions and cost-effectiveness for source categories where required. The air district will ensure the information in CARL is complete, correct, and supported by documentation. The air district will report on projects funded in whole or part with these funds:

   (A) Granted Moyer Program funds;

   (B) Match funds;

   (C) Interest and other non-grant revenues earned to support the Moyer Program;

   (D) Multi-district and State Reserve funds;

(E) Rural Assistance Program funds;

(F) Non-Moyer funds as specified in Section L;

(G) AB 923 $2 DMV fees used for projects claimed for SIP credit;

(H) Other funds that ARB oversees relative to the Moyer Program.

3. **Report Content**. The Yearly Report will include the following information as of June 30, the end of the past fiscal year:

(A) Output generated by the Required Reports utility of CARL for the default years specified in the utility.

(B) Contract execution and liquidation status of Moyer Program funds, including match funds, earned interest funds, multi-district and State Reserve funds, RAP funds, and other funds for which the air district has a Moyer Program obligation during the fiscal years covered by the report. Funds will be reported relative to the progress milestones identified in Sections N and O below.

(C) A funding summary by project type of non-match projects funded with AB 923 $2 MV fees when no SIP credit is claimed. Projects funded with AB 923 $2 DMV fee funds not used as match and not claimed for SIP credit need not be entered into CARL, but the air district will summarize in the Yearly Report the amounts of such funds expended for each of the project categories identified in Section H.1.

(D) For the most recent fiscal year, additional funds available to the Moyer Program from the following sources. These funds will be included in the target for the funding year due for liquidation in four years unless the air district directs ARB staff to include them in an earlier year target.

(1) The amount of any interest accrued on Moyer Program funds held in local accounts. An air district may choose to designate in the Yearly Report all or a portion of this interest for remittance to ARB.

(2) Funds recaptured from liquidated projects, including funds provided back to the air district following ARB enforcement actions, identified by project name and funding year.

(3) Non-grant revenue earned for the Moyer Program by the air district, such as from the sale of scrapped engines or equipment.

(E) A list of any projects identified as non-performing and a brief narrative of any related enforcement actions.

(F) The portion of match funds to be met through in-kind contributions, as provided in Section I.5.

4. **Report Certification and Documentation.** The air district APCO, Chief Financial Officer (CFO), and Moyer Program administrator must sign and certify that the project and fiscal information contained within the Yearly Report is, to the

best of their knowledge, accurate and complete. The APCO may also serve as the Moyer Program Administrator. The APCO may designate an alternate to the CFO if the designated alternate is someone other than the APCO or Program Administrator. The air district will maintain documents in support of the report at the air district office, and make them available to ARB staff upon request.

5. **Project Eligibility**. Receipt of a Yearly Report by ARB does not imply ARB approval of project eligibility. Air district staff is responsible for project approval and funding eligibility determinations. Air districts that are found to have funded ineligible projects will be required to substitute eligible projects equal to the amount found ineligible or return the ineligible amount to ARB.

N. Progress Tracking

1. **Progress Milestones**. To support timely emission reductions and track progress toward statutory fund liquidation requirements, air districts and ARB will work together to meet recommended progress milestones as follows. After execution of a grant agreement with ARB for Moyer Program funds, air districts will make every effort to have 50 percent of the project funds awarded under executed contract by June 30 of the next calendar year, and 100 percent of the project funds under executed contract by June 30 of the second calendar year after the agreement. Air districts will also make every effort to have 50 percent of project funds liquidated within two years, and 75 percent of project funds liquidated within three years. Similar progress milestones apply to any match funds associated with granted project funds. Progress will be reported in Yearly Reports. Table 3-5 shows an example of progress milestones for the 2018 Yearly Report.

Table 3-5
Example Progress Milestones: 2018 Yearly Report

Timeline	Fiscal Year	Funding Year	Milestone
1 year	2016-17	19	50% of project funds under executed contract
2 years	2015-16	18	100% of projects funds under executed contract
			50% of project funds liquidated
3 years	2014-15	17	75% of project funds liquidated
4 years	2013-14	16	100% of grant funds liquidated (Section O)

2. **Cumulative Tracking**. ARB will provide tools in CARL to track district progress toward milestones. Except in the case of a four-year funds liquidation deadline, districts may track progress on a cumulative basis. In the table above, for

example, an air district demonstrating the portion of funding year 17 project funds liquidated would count any funds liquidated from funding years 18 to 20.

3. **Funding Targets**. To assist cumulative tracking and reporting, ARB will maintain in CARL appropriate progress tracking targets for each funding year. These funding targets will include the total funds required to meet contract execution and liquidation progress milestones. ARB will adjust progress tracking targets to account for the movement of funds into and out of an air district's account, including redirected funds, RAP grants, adjustments for in-kind match, and other changes agreed to in consultation with districts.

4. **Execution Progress for Vouchers**. For Moyer voucher programs, the voucher issue date is used in lieu of executed contract date to gauge progress in contract execution.

5. **Cancelled Contracts**. Any funds associated with an engine, vehicle, or equipment cancelled from a contract prior to the liquidation of the contract as a whole will no longer be considered executed beginning at the time of the cancellation.

6. **Follow-up Actions**. Progress milestones are advisory in nature. ARB liaisons and management will work with air districts that do not demonstrate sufficient progress toward contract execution and project liquidation targets in the Yearly Report. When an air district cannot demonstrate at least one-half of funds are under contract after two years, and one-half of funds liquidated after three years, the district will append to the Yearly Report a progress statement. The statement will address the reasons for delays in executing contracts or completing payment for projects, and the schedule for follow-up actions. Such actions may include specific steps to improve progress or the redirection of funds to air districts better equipped to meet statutory liquidation deadlines.

O. Funding Year Liquidation

1. **Liquidation Requirement**. By June 30 of each year, air districts must have liquidated all Moyer Program funds associated with the funding year four calendar years prior, as well as interest, recaptured funds, and other funds added to the funding target for that year. For example, funds awarded for Year 18 (fiscal year 2015-2016) must be fully liquidated by June 30, 2020. Before submitting the Yearly Report an air district may attempt to resolve an apparent liquidation shortfall by modifying in the CARL database the funding years from which funds are assigned to projects.

2. **Match Liquidation**. Match funds must be liquidated by the same liquidation deadline as the Moyer Program funds with which they are associated regardless of the date such funds were collected by the air district.

3. **Liquidation Terms**. Air districts are advised of the distinction between project liquidation used for cumulative progress tracking in Section N and funding year

liquidation as required in this section. Project liquidation is demonstrated when all funded equipment in a project are paid-in-full and post-inspected; liquidated projects are credited in cumulative progress tracking. Funding year liquidation is demonstrated when all funds assigned to a funding year have been paid out in full, with the exception of any withheld payments. Liquidated projects are credited in cumulative progress tracking.

4. **Data Completion**. A funding year that has been liquidated by an air district and all associated projects will be removed from cumulative tracking. Projects associated with liquidated funding years may not be revised in or removed from the CARL database after the funding year is liquidated, except in unusual circumstances following consultation with and written approval by ARB staff.

5. **Withheld Payments**. For completed projects for which all invoices have been paid except for a small amount withheld pending grantee reporting, both the paid funds and the withheld funds will be considered liquidated for the purpose of funding year liquidation. Withheld payment practices must be addressed in the project's contract and in the air district's Policies and Procedures Manual. Withheld progress payments considered to be liquidated per this section that are not ultimately paid to the grantee due to non-performance will be reported as recaptured funds.

P. Return and Reallocation of Funds

1. **Return of Unliquidated Funds**. If the Yearly Report identifies a liquidation shortfall that cannot be resolved through reassignment of liquidated funds from more recent years, and the remaining unliquidated funds are not under executed contract, the air district must submit and ARB must receive a check for the shortfall amount by September 28 (i.e., 90 days after the June 30 liquidation deadline and 30 days after the Yearly Report deadline). ARB will provide Instructions for the return of funds in the Yearly Report certification form. No additional disbursements will be made to the air district until funds subject to return have been received by ARB.

2. **Return of Other Funds**. An air district choosing to remit to ARB all or a portion of earned interest, or to return other funds following consultation with ARB, may do so following instructions in the Yearly Report certification form.

3. **Reallocation**. ARB will add funds returned by air districts to the subsequent cycle of Moyer Program funding, following the allocation requirements of Health and Safety Code section 44299.2.

Q. Program Nonperformance

1. **Monitoring Nonperformance**. As directed by Health and Safety Code section 44291(d), ARB monitors air district programs to ensure that participating air districts conduct their programs consistent with the criteria and guidelines established by the Board. Program non-performance is an air district's

non-compliance with program Guidelines or statute that is not corrected by the air district in a timely or satisfactory fashion. ARB may become aware of possible air district non-performance through Yearly Reports, Incentive Program Review, district self-reporting or other means. Examples of program non-compliance with program guidelines or statute include, but are not limited to, the following:

(A) Failure to return unliquidated funds within 90 days of the liquidation deadline (H&SC § 44287(j));

(B) Misuse of Moyer Program funds, including funding of ineligible projects;

(C) Insufficient or improper program oversight and enforcement, including widespread deficiencies in project contracting, inspections, reviews or audits;

(D) Insufficient, incomplete, or inaccurate project documentation;

(E) Failure to submit timely and accurate reports to ARB;

(F) Other non-compliance with program guidelines or statute.

2. **Nonperformance Procedures**. When ARB determines that an air district program is not complying with program guidelines, the ARB liaison and manager will work with air district staff to understand the issues, and develop a plan and timeline to resolve them. If the ARB Branch Chief determines that the issues related to program nonperformance have not been resolved, ARB will send by email to the air district program contact a program nonperformance notification, that contains the following:

(A) Description of the unresolved issues, including pertinent details such as names of involved persons and projects, dates, dollar amounts, and citations of relevant program guidelines sections, Health and Safety Code sections, and regulations; and

(B) Possible solutions to the problem, if some have been identified, and/or an offer ARB assistance; and

(C) Arrangements for a possible meeting between the ARB Branch Chief and the air district APCO to agree on a plan and timeline for resolving the problem. The plan and timeline shall be recorded by the ARB air district liaison and emailed to the air district APCO within five business days of the meeting.

3. **Withholding of Funds by ARB**. Lacking satisfactory resolution of the issues that have resulted in the nonperformance notification, the ARB Executive Officer will determine if the nonperformance warrants withholding funds that have been granted to the air district and not yet awarded to approved projects. If so, ARB will send a letter of program non-performance to the district APCO. The letter will set a public meeting to be held at the air district's offices (or other appropriate

facility within the air district). The purpose of the meeting will be to consider public comments prior to withholding any funds.

R. Incentive Program Review

1. **Purpose**. ARB conducts Incentive Program Reviews to help ensure that air district programs achieve expected emission reductions and are implemented in a manner consistent with these Guidelines and State law (H&SC § 44291, 39500). ARB Incentive Program Reviews place emphasis on collaboration with the affected air district in the review process. Features of this approach include a joint initial review of project files, ongoing and regular communication with air district staff throughout the file review process, and where possible an opportunity for districts to correct problems prior to their inclusion as findings in the final report.

2. **Scale of Review**. ARB uses a risk-based approach to select specific air district programs and projects to review, and to select fiscal years within the scope of each review. Air districts are selected for Incentive Program Review based on identified need or with consideration of program funding amount. ARB's objective is to review over a five-year period air district programs receiving at least 80 percent of Moyer Program funds. Air district implementation of other State incentive programs will be selected as appropriate for review at the same time as the Moyer Program review.

3. **Fiscal Compliance Audits**. ARB may also contract with independent auditors including the California Department of Finance Office of State Audits and Evaluations, to conduct audits of incentive program fiscal compliance. The independent auditors will conduct these audits in accordance with Generally Accepted Government Auditing Standards, and will prepare reports on the results of the audits including any findings. ARB retains final authority with respect to corrective measures and follow-up, in consultation with the air district.

4. **ARB Responsibilities**. ARB will conduct Incentive Program Reviews in a manner that reflects its entrusted accountability and responsibilities.

    (A) ARB will generally define the scope of a Moyer Program review to cover a period of up to five fiscal years not covered in the previous review. The scope of years within review may vary for other incentive programs. Once a funding year is reviewed, ARB will not review it again unless warranted. ARB may investigate possible fraud or misuse of funds in any program year.

    (B) ARB will maintain open channels of communication with the air district during the review. ARB will fully explain the review's scope and procedure at the beginning of the process, discuss preferred channels of communication with the air district, inform the air district of potential issues as they unfold, provide full and ongoing opportunity for air district input, provide the air district opportunities to correct problems that arise during

the review process, thoroughly discuss any findings and recommendations with the air district before and during the exit interview, and provide the air district an opportunity to formally respond to the Incentive Program Review report.

(C) To ensure objectivity and predictability, ARB will base its findings and recommendations on State law, applicable guidelines and Mail-Outs, grant agreements, email communications between ARB and the air district, the air district's Policies and Procedures Manual, case-by-case determinations, and the air district's local requirements.

(D) All Incentive Program Review reports, air district responses, and related documents shall be made available to the public via posting on ARB's Moyer Program website.

(E) ARB will conduct follow-up activities to ensure any deficiencies remaining following review are promptly and effectively mitigated. ARB will offer its assistance to air districts working to correct deficiencies.

5. **Air District Responsibilities**. Air district staff and management will participate in entrance and exit interviews, support collaborative review and open communication with ARB staff, ensure that program files and other requested information are available to reviewing staff of ARB and the Department of Finance, work to fully and promptly mitigate deficiencies identified during the review, work to resolve any disagreements, and request assistance from ARB as necessary.

6. **DMV Fee Project Evaluation**. AB 923 $2 MV Fee projects are subject to Incentive Program Review or evaluation as follows:

(A) A Moyer Program match project funded with the AB 923 $2 MV Fees will be subject to the same review and oversight requirements and protocols as other Moyer Program match projects.

(B) A non-match project funded with the AB 923 $2 MV Fee may be evaluated by ARB in conjunction with an Incentive Program Review. Evaluation of these projects will be limited to project eligibility. Any irregularities regarding non-match AB 923 $2 MV Fee project eligibility will be reported separately from other Incentive Program Review findings.

S. Requirements for Project Applications

1. **Data Required for CARL**. Project applications must include the information needed for calculation of project cost-effectiveness in the CARL database.

2. **Existing Engine Usage**. Project applications must include documentation of existing engine usage, such as miles traveled, hours operated, or fuel consumed per year, for 24 months or as specified in these guidelines by source category.

This information will be used to evaluate project cost-effectiveness and the maximum grant award amount.

3. **Active Duty Military Applicants**. If an applicant has been on active military duty at any time during the previous 24 months, documentation prior to deployment and covering the same length of time as the deployment period may be used to meet the title, registration, usage, and operation in California requirements as applicable for each source category. The applicant must submit a copy of DD Form 214, Certificate of Release or Discharge from Active Duty to verify military service during the deployment period.

4. **Third Party Signature**. Applications must include a signature and date section for third parties. A third party may complete an application or part of an application on an owner's behalf if the vehicle, engine, or equipment owner signs and dates the application.

5. **Applicant Certification**. Project applications must include language informing the applicant that by signing and submitting the application, the applicant certifies under penalty of perjury that the information in the application is accurate and true. In addition, the application must include the following statements that the applicant or the applicant's designee must certify as accurate and true:

   (A) A disclosure statement consistent with Section L.6. of this chapter, specifying whether the applicant has submitted an application for incentive funds to any other entity or program for the same equipment (for example, repowering of the same engine). The applicant must disclose to whom other applications were submitted, whether funds have been awarded or may be awarded, and the amount or potential amount of other funding.

   (B) A regulatory compliance statement certifying that the applicant is currently in compliance with all federal, State, and local air quality rules and regulations at time of application submittal, and is not aware of any outstanding or pending enforcement actions.

6. **Applicant Non-Disclosure**. An applicant who is found to have applied for or received incentive funds from another entity or program for the same project without disclosing that information as required by these Guidelines shall be disqualified from funding for that project from all sources within the control of an air district or ARB. The air district or ARB may also seek civil penalties for such non-disclosure.

7. **Subsequent Applications**. An applicant may re-apply for project funding if a previous application for the same project has been rejected by the air district and is no longer being considered for funding.

T. Application Evaluation and Project Selection

1. **Review for Completeness**. Air districts must review all applications for completeness upon receipt, and notify an applicant within 30 working days of receipt if the application is not complete (H&SC § 44288(a)). The air district must make every effort to clearly state to the applicant what is required to make the application complete. The application and all correspondence with the applicant should be kept in the applicant's project file. Additionally, the record of each project's rating and ranking as applicable, receipt date, and other project selection criteria must be maintained with the project file.

2. **Credibility**. Air districts are responsible for determining that project applications are credible, made in good faith, and in compliance with the Moyer Program and its objectives.

3. **Eligibility**. Air districts must ensure that the emission reductions provided by selected projects are eligible and surplus to adopted regulations and other legal requirements. This should include checking to ensure the project meets the minimum requirements in the appropriate source category chapter, including:

   (A) Documentation of historical vehicle, equipment, or engine usage;

   (B) Documentation of project costs;

   (C) Engine or retrofit device Executive Orders, if applicable;

   (D) Proof of a vehicle compliance check as needed for on-road projects;

   (E) Other documentation identified in the source category chapter.

4. **Application Tracking**. Air districts must have a system for tracking applications. CARL may be used to satisfy this requirement if an air district enters the data from all applications received into this database, whether the application is provided funding or not. Air districts not using CARL will track the information needed to populate required CARL data fields. A tracking system is not required for air districts receiving under one-half percent of the current fiscal year total Moyer Program Funds, or $450,000, whichever is less.

5. **Project Selection**. After reviewing applications for project eligibility, the air district must follow its Policies and Procedures Manual in selecting projects to fund. Projects approved for funding must meet all applicable requirements of these guidelines.

6. **Communities with Most Significant Exposure**. Air districts with a population of one million or more residents must select projects from their applicant pools in a way that ensures that 50 percent or more of their Moyer Program funds are expended to reduce air pollution in communities with the most significant exposure to air pollution, including communities of minority and low-income populations (H&SC § 43023.5). Air districts may track this on a cumulative basis.

7. **Project Evaluation**. An air district must evaluate projects to ensure each project selected for funding meets the emission reduction and cost-effectiveness

requirements of the Moyer Program as applicable. Projects may not be funded when CARL indicates these requirements are not met. In such cases, an air district representative believing a project should qualify may contact his or her ARB liaison to further evaluate project eligibility.

8. **Recordkeeping**. The air district must maintain a file for each project selected for funding. Files may be retained in an electronic format if complete and easily accessible. Unless otherwise specified by source category or in Section K.8., project files must be retained three years following the end of the contract term. In the event final payment has not been issued prior to the end of the contract term, the three-year clock is re-started upon final payment. Applications for unfunded projects must be kept a minimum of two years following the solicitation period, or two years from receipt if there is not a specified solicitation period.

9. **Subsequent Application and Double-Counting**. Moyer Program participants that received funding and are still under contract may not apply for funding for the same project from the Moyer Program (including a Voucher Incentive Program), from the Proposition 1B Goods Movement Emission Reduction Program, or any other program.

    (A) If an air district chooses to amend a contract to reduce the term, the amended project must be cost-effective during the reduced contract term, based on the cost-effectiveness values and limit that applied when the original contract was executed. If an air district agrees to accept a prorated repayment of the Moyer Program grant, the repayment and amended contract execution must both occur prior to the execution of any new contract for funding.

    (B) Emissions reductions from previously funded projects must not be included as emissions benefits of any subsequent project for the Moyer Program (including a Voucher Incentive Program) or the Proposition 1B Goods Movement Emission Reduction Program.

U. Case-by-Case Determination Process

1. **Limitations**. ARB Moyer Program staff may approve on a case-by-case basis a project that varies from specific requirements of these Guidelines only if such approval will not adversely affect achievement of surplus, quantifiable, enforceable and permanent emission reductions. Case-by-case approvals also may not result in an exceedance of the applicable cost-effectiveness limit, or reduce program transparency, or cause a violation of law or regulation. Air districts are required to request a case-by-case determination even if they believe a project is similar to previously-approved case-by-case projects.

2. **Procedure**. An air district may request ARB review of the project for a case-by-case determination using the procedure below. After receipt of all

information needed, ARB will respond to the air district within 15 business days with a determination or estimated date of determination.

(A) The air district will submit the following to the Moyer Program air district liaison:

(1) A summary of the request, with reference(s) to the pertinent area(s) of the Guidelines for which the air district is asking for additional guidance and approval;

(2) Documents providing information essential to the determination, including but not limited to: baseline and new engine information; the associated ARB engine Executive Orders and/or U.S. EPA Certificates of Conformity for baseline and new engines; other related applicant information from a completed application;

(3) Other information and documents as requested by Moyer Program staff.

(B) ARB will make one of the following determinations:

(1) Approved. Approval of a project does not imply or equate to "blanket approval" of other similar projects.

(2) Not Approved. Non-approval of a project does not imply or equate to "blanket non-approval" of other similar projects.

(3) No Action / Case-by-Case Approval Not Required: ARB evaluation concludes that a case-by-case determination is not required as the request already conforms to the requirements or intent of the Guidelines.

3. **Public Availability and Recordkeeping**. ARB will post on the Moyer Program website all case-by-case determinations submitted for review. Air districts will keep a copy of the determination, either approved or not approved, in the project file.

4. **After Contract Execution.** Air Districts should always attempt to request a case-by-case determination prior to contract execution. ARB will consider requests for case-by-case determination subsequent to contract execution only when an unforeseen event leads to a project or program element that varies from the requirements of these Guidelines.

V. Minimum Contract Requirements

1. **General Requirements**. Except as specified for on-road and off-road voucher incentive programs, air districts participating in the Moyer Program must execute contracts with prospective grantees who will receive funds under the Moyer Program. All Moyer Program project contracts must include the elements described in this section. Projects funded by the Moyer Program may not be used to generate a compliance extension or credit for regulatory compliance. All

executed project contracts and contract amendments must be kept in the air district's project files.

2. **Party Names and Date**. All contracts must state the name of the air district and the grantee as parties to the contract. Contracts must include signature blocks with an area for the dates the contract is signed, or the execution date must otherwise be clearly indicated in the contract. In any case where digital signature is used in lieu of original signature, the digital signature must comply with California Government Code section 16.5 and Title 2, California Code of Regulations, sections 22000 – 22005.

3. **Notices**. All contracts must include contact information for both parties to the contract, including how to send and receive notices.

4. **Funds from Other Sources**.

   (A) Grantees must certify that they have disclosed all funding sources that they have applied for or received for a project, and that the grantee will notify the air district of additional sources of funding received for the total cost of the project, including any sources that become available after contract execution (H&SC § 44283(g)).

   (B) Grantees that co-fund a project must meet all criteria associated with each funding source used to fund the project (H&SC § 44287(a)).

   (C) A grantee that is not a public entity must provide at least 15 percent of a project's Moyer eligible costs from non-public sources (see Section L). The contract must prohibit the grantee from receiving grants and other funds that exceed the total project cost.

   (D) A grantee may receive Moyer Program funding from multiple air districts for the same project if these entities are coordinating to jointly fund portions of the project. The contract must list the entities involved and funding provided.

5. **Contract Term**. All contracts must specify the term of the contract. The contract term shall include two time frames – "project completion" and "project implementation" – to ensure that the air district and ARB can fully enforce the contract during the life of the Moyer Program-funded project.

   (A) Project Completion. Project completion is the time frame starting with the date of execution of the contract to the date the project post-inspection confirms that the project has become operational. This includes the time period when an engine, equipment, or vehicle is ordered, delivered and installed. The contract must include a specified time frame in which project completion will occur so that the contract is liquidated within four years from the original date of contract execution. Under no circumstance may the liquidation date be extended beyond four years from the original date of contract execution.

(B) Project Implementation. The project implementation time frame is the second part of the contract term, and must equal the project life used in the project cost-effectiveness calculation. The contract must specify that the grantee is required to operate and maintain their Moyer Program funded project according to the terms of the contract for the full project implementation period.

6. **Project Specifications**. All contracts must include detailed information on the baseline and new vehicles, equipment, and/or engines that were used in the project cost-effectiveness calculation. This requirement may be met by including the project application as an attachment to the contract as long as the application is accurate and complete.

   (A) A program-eligible replacement vehicle, equipment and/or engine that is verified or certified to achieve equivalent or greater reductions than the original project replacement vehicle, equipment and/or engine may be substituted with prior approval of the air district.

   (B) At least 24 months of documented and verified historic usage is required for the baseline engine, such as miles traveled, hours operated, or fuel consumed, and in this case usage is not required to be in the contract. If this information is not available, the air district may estimate the usage for the old engine and the estimated usage must be included in the contract.

      (1) The types of acceptable documentation for establishing historical annual usage will be clearly defined in each air district's Policies and Procedures Manual and will be subject to ARB approval.

      (2) Additional forms of documentation to verify historical annual usage that are not included in an air district's Policies and Procedures Manual can be evaluated and approved by ARB on a case-by-case basis.

   (C) Contracts must also contain a statement that the project complies with the Moyer Program Guidelines and that the grantee will meet the following requirements:

      (1) Certify that the grantee's fleet, engine(s), or equipment/vehicle is in compliance with all applicable federal, State, and local air quality rules and regulations at time of contract execution.

      (2) Maintain compliance with all applicable federal, State, and local air quality rules and regulations for the full contract term.

      (3) For repower projects, the installation of the engine must be completed in a manner such that it does not void the engine warranty provided by the manufacturer and any remaining warranty provided by the equipment/vehicle manufacturer.

   (D) Contracts must specify the following:

(1) Projects funded by the Moyer Program must be included when defining the size of the fleet for determining regulatory requirements.

(2) Throughout the contract term, projects funded by the Moyer Program must not be used to generate credits or compliance extensions, and must be excluded when determining regulatory compliance.

7. **Maintenance**. All contracts must require the grantee to maintain the vehicle, equipment, engine, and/or funded infrastructure according to the manufacturer's specifications for the life of the project, and include a prohibition on engine tampering. The grantee must maintain a working hour meter for projects that use hours of operation as a means of calculating emission reductions and cost-effectiveness. If the hour meter fails, the grantee must immediately notify the air district, and remain responsible for validating any hours not recorded by the hour meter. The grantee must either repair or replace the non-operating meter or provide other documentation of equipment operating hours acceptable to the air district.

8. **Payment**. Before a Moyer Program payment may be made to a project participant, the project contract must be executed, an eligible invoice must be received by the air district, and the project post-inspection must be successfully completed to document the completion of the work specified in the invoice. The equipment must be operational before the final payment is issued. All contracts must include the following payment terms:

   (A) **Maximum Contract Amount**. The maximum contract amount must not exceed the maximum funding level corresponding to the current program cost-effectiveness limit, nor may the maximum contract amount exceed the project incremental cost. The maximum contract amount must also comply with any funding caps and other criteria for the specific project category as identified in these Guidelines.

   (B) **Itemized Invoices**. Payment terms must require itemized invoices from the engine or equipment supplier for repowers and infrastructure projects, paid invoices from the vehicle owner for new vehicles, and satisfactory post-inspection by the air district prior to payment of the owner's invoice. An invoice payment for a specific vehicle, engine, or equipment may not exceed the amount indicated on the project contract for that vehicle, engine, or equipment. The contract should be clear that the air district will pay the lower of the contract amount or the final invoice amount. Invoices must meet the minimum requirements of Section Y to be eligible for Moyer Program funding.

9. **Reporting**. All contracts must include a provision for grantees to submit annual reports commencing no later than 18 months after project post-inspection and continuing annually thereafter throughout the project implementation phase of the

contract. The air district must include the dates the grantee Annual Report is due.

(A) During the project implementation phase, the air district is responsible for monitoring the project to assure the project is operational and the project emissions reductions are realized.

(B) The contract must inform the grantee that noncompliance with the reporting requirements will require on-site monitoring or inspection(s).

10. **On-Site Inspections, Audits and Records**. All contracts must include language that allows the air district, ARB, or their designee to conduct an inspection or audit of the project, including the engine, vehicle or equipment and associated records, during the contract term. Contracts must also require the owner to maintain and retain usage and other records associated with the project for at least three years after the end of the contract term.

11. **Repercussions for Nonperformance**. Air districts must include repercussions for non-compliance with the obligations of the contract.

(A) The contract must specify that by executing the contract, the grantee understands and agrees to operate the vehicle, equipment, and/or engine according to the terms of the contract and to cooperate with the air district and ARB in implementation, monitoring, enforcement, and other efforts to assure the emission benefits are real, quantifiable, surplus, and enforceable.

(B) The contract must describe the repercussions to the grantee for noncompliance with contract requirements, including but not limited to cancelling the contract and recapturing project funds in proportion to any loss of emission reductions or underutilization as agreed to in the contract (H&SC § 44291(c)).

(C) The contract must inform the grantee that ARB and the air district have the authority to seek any remedies available under the law for noncompliance with Moyer Program requirements and nonperformance with the contract.

(D) The contract must state that ARB, as an intended third party beneficiary, reserves the right to enforce the terms of the contract at any time during the contract term to ensure emission reductions are obtained.

W. Project Pre-Inspection

1. **Requirements**. Upon confirming a project's eligibility the air district must complete a pre-inspection prior to contract execution, except as specified in this section.

(A) All projects must be pre-inspected personally by air district staff, except that air districts may choose to allow public agencies (e.g., public works departments, transit organizations, and school districts) to provide

documentation of the engine(s), equipment, and usage in lieu of a pre-inspection.

(B) Air districts receiving less than one-half of one percent of the current fiscal year total Moyer Program Funds, or $450,000, whichever is less, may reduce their required project pre-inspections to a minimum of 25 percent of the total number of projects associated with the current fiscal year funds. At least one project must be selected from each source category funded, however.

2. **Documentation**. The pre-inspection form and information to be documented must include, at a minimum, the following:

(A) Information regarding the baseline engine, vehicle, or equipment as needed to uniquely identify, establish eligibility, provide a basis for emission calculations, populate the CARL database, and ensure contract enforceability. Such information includes (as applicable) make, model, year, horsepower, fuel type, engine family, engine tier, serial number, vehicle identification number (VIN), and any additional information pertinent to the project. Engines without a visible and legible serial number must be uniquely identified by having the engine block stamped with a Moyer Program number or alternative permanent marking such as an engine tag.

(B) The project usage (hours or miles) meter reading if used in the project cost-effectiveness calculation. The inspector must verify that stated project usage is reasonable given the usage meter reading.

(C) Verification that the engine is operational (with a start-up) and that the engine is working as described in the application (document function and use).

(D) Photo documentation of the engine, vehicle, or equipment information. The photos must include the legible serial number of the engine (if available) and/or any other identifying markings.

(E) Other relevant information including, but not limited to:

(1) Name of inspector;

(2) Date of inspection;

(3) Name and contact information of engine or equipment owner; and

(4) Location of the engine or equipment.

3. **Compliance Certification**. No later than the time of pre-inspection the air district must obtain certification and submission of supporting documentation from the applicant that their engine(s), vehicle/equipment, or project fleet is currently in compliance with the applicable rules or regulations affecting the engine(s), vehicle/equipment for which they are requesting funding.

4. **Recordkeeping**. The air district must maintain a hard copy of the completed pre-inspection form in the air district's project file.

5. **Inspection after Contract Execution**. The project pre-inspection must be completed prior to a project contract execution and the information in the contract must be consistent with the information gathered during the pre-inspection. An air district may apply to ARB for approval to conduct pre-inspections after contract execution only on a case-by-case basis. Case-by-case approval of such a procedure will depend upon the following conditions being met:

   (A) The air district describes the program benefits it would achieve by conducting pre-inspections after contract signature.

   (B) The project contract includes language to indicate contract terms may be adjusted or the contract may be deemed void based upon information collected during the pre-inspection. The air district must also include a process for informing the prospective grantee of such.

   (C) The air district's Policies and Procedures Manual clearly specifies the process for conducting pre-inspections after contract execution and any additional procedures enacted to ensure the project achieves real, surplus, enforceable, and quantifiable emission reductions. Work on the project engine, vehicle, or equipment may not commence until after the pre-inspection.

X. Project Post-Inspection

1. **Requirement**. An air district must gather and document post-inspection information on all projects funded under the Moyer Program. For post-inspection of infrastructure projects, see Chapter 10 for further guidance.

   (A) The air district will conduct a post-inspection after it receives an invoice for a project from the grantee or otherwise receives notice the project is complete. Information on the invoice must be consistent with the information gathered at the post-inspection. If the post-inspection occurs before the air district receives the project invoice, the invoice must be reviewed for consistency with the new engine, vehicle, or equipment information from the post-inspection form.

   (B) When 20 or more vehicles are included in a vehicle replacement project for a public fleet or transit agency, the air district is not required to post-inspect each replacement vehicle, but must inspect no fewer than five percent of the vehicles included in the project.

   (C) The inspector must record, at a minimum, information regarding the new project engines, vehicles/equipment, and retrofit devices as needed to uniquely identify, establish eligibility, provide a basis for emission calculations, and ensure contract enforceability. Information sufficient to populate all required fields in CARL must be recorded. Submersible pump

inspections may have the applicant take a picture of the motor name plate information including, make, model, and serial number prior to installation inside the irrigation well. The air district will verify the make, model and horsepower rating information with the project invoice.

(D) The engine must be operational in the equipment or vehicle as stated in the contract. The inspector must visually witness all engine startups and operation of all mobile projects.

(E) The engine, vehicle/equipment, and retrofit information must be documented with photos. The photos must include the serial number of the engine or retrofit (if legible) and/or any other identifying markings. Photos of the scrapped or destroyed engine must be included.

(F) The post-inspection form must also contain other relevant information including, but not limited to:

(1) Name of inspector;

(2) Date of inspection;

(3) Name and contact information of engine or equipment owner; and

(4) Location of the engine or equipment.

(G) The air district must maintain a hard copy of the completed post-inspection form in the air district's project file.

2. Equipment Labels. Post-inspection of a retrofit device requires the collection of additional information from the labels affixed on both the retrofit device and the engine. If the proper labels are missing, payment may not be made until this is corrected. Potential scenarios are summarized below, which air district staff must address prior to payment:

(A) The retrofit device is properly labeled but the engine lacks a label: An engine label should be readily obtainable from the retrofit manufacturer by reference to the serial number. The air district may make payment once the grantee has been informed that the engine must also be labeled.

(B) The retrofit device is labeled but the label does not have the required items: The air district may make payment once it gets approval from ARB regarding an approved alternate label or a compliant label has been installed on the retrofit device.

(C) The engine is properly labeled but the retrofit device lacks a label: The air district may make payment once a compliant label has been installed on the retrofit device.

(D) No label is found on either the engine or the retrofit device: The air district may make payment once a compliant label has been installed on both the engine and the retrofit device.

3. **Electric Motors**. Post-inspection of a new electric motor on an agricultural pump must also include recording of the serial number of the variable frequency device if the project includes one.

4. **Verification of Destruction**. The air district must verify that the existing (old) engine is destroyed and rendered permanently unusable and irreparable, consistent with requirements in the source category chapters of these guidelines and with the air district Policies and Procedures Manual.

   (A) Air district staff must verify and document through photographic or video evidence that the destroyed engine serial number matches that on the project contract.

   (B) Air district staff must verify that engines without a visible and legible serial number are uniquely identified by the correct air district stamp or other permanent marking prior to engine destruction.

5. **Consistency with Contract**. The air district must verify that the information collected in the post-inspection is consistent with the project contract.

Y. Project Invoice and Payment

1. **Prior to Payment**. Except as specified below, an air district will make payment for a project or equipment only after air district post-inspection finds the project or equipment in place and operational, and the district receives an invoice itemized in sufficient detail to ensure that only completed and eligible project costs are reimbursed, and other sources and amounts of funding for the project are reviewed to ensure the sum of all project funds does not exceed the total project cost (per Section L). Exceptions are limited to progress or partial payments in cases where the grantee provides the air district with sufficient evidence of completing milestones specified in the contract, consistent with conditions specified in air district Policies and Procedures. The air district must maintain a clear record of progress payments in the project file and in records of the district administration or fiscal unit. Progress payments include final payments that are withheld until all reporting requirements are met (also known as “withheld payments”).

2. **Eligible Costs**. Equipment and parts on engine repower or retrofit projects are eligible for funding only if they are required to ensure the effective installation and functioning of the new engine or retrofit, and are not part of typical vehicle or equipment maintenance or repair. Taxes and the installation and transport costs for eligible hardware are eligible for funding at the air district’s discretion. For labor expenses paid, the invoice must detail the number of hours charged and the hourly wage. See source category chapters for additional specification of eligible costs.

3. **Ineligible Costs**. Ineligible repower costs include tires, axles, paint, brakes, and mufflers. See source category chapters for additional specification of ineligible costs.

4. **Limitations on Applicant Action before Air District Approval**. An applicant may not order or make a down payment on a new engine, piece of equipment, or vehicle prior to contract execution or approval by the air district governing board or board designee. Dealers ordering engines, equipment, or vehicles prior to air district approval of grant applications assume all financial risk and are in no way ensured program funds. A grantee may not receive engines, equipment, or vehicles, nor may work begin on a repower or retrofit project, until the project contract is fully executed, unless the air district has provided the potential grantee with written notification that any work performed is not guaranteed funding until a contract is executed. For infrastructure projects, discretionary costs may be accrued by an applicant prior to contract execution, but such costs are not reimbursable until after contract execution.

5. **Invoice Procedures**. The air district will maintain copies of all invoices and documentation of payment in the project file or otherwise keep copies on-site at the air district office and be readily available. Invoices received after the project post-inspection has been complete must be evaluated for consistency with the information gathered during the project post-inspection. Additional project invoicing requirements may also be included in the source category chapters of these guidelines.

6. **On-Road Compliance Checks**. For all on-road and emergency vehicle projects, should a compliance check indicate that there is an outstanding violation with any vehicle in the applicant's fleet, no payment may be made until the applicant provides proof to the air district that each violation has been corrected and each fine has been paid.

7. **Regulatory Compliance**. Where a contract requires a grantee to demonstrate that specific regulatory compliance requirements have been met in order to receive funding (such as engines subject to the Portable Equipment Airborne Toxic Control Measure), air districts may not pay invoices until the grantee has provided documentation that the requirements have been met. A project participant may demonstrate this via a detailed letter signed by the vehicle or equipment owner or legal representative or, if the regulation requires ARB (or the air district) to certify compliance, through ARB (or air district) certification. For more information, see the associated source category chapter. Air districts are not to be held liable if a grantee falsifies this documentation.

8. **Payment Recipients**. Payments typically will be made directly to the grantee. Payments may be made directly to a dealer or distributor only if such payment arrangements are specified in the contract.

Z. Grantee Annual Reporting

1. **Requirement**. Air districts will require all grantees to submit annual reports within 18 months of the project post-inspection and annually thereafter for the term of the contract.

2. **Report Format**. The air district will prescribe a format for the project annual report, to include the following information:

   (A) Grantee name, address, and telephone number.

   (B) Information needed to uniquely identify the project engine, vehicle, or equipment, such as engine make, model, horsepower, and serial number.

   (C) Estimated percentage of time the vehicle or equipment has been operated in California since the previous annual report.

   (D) Readings of the usage device (e.g., hour meter, odometer, or electronic monitoring unit).

   (E) Except for projects in which usage is not required to be specified in the contract (as allowed per Section V.6.(B)(1) above), if usage is more than 30 percent below that identified in the project application, the grantee must describe any conditions that are likely to have affected project usage, such as weather, permits, or major maintenance. In instances where annual usage is significantly lower than the contracted level due to unforeseen circumstances beyond the control of the grantee, the grantee may request a waiver from the air district per Section BB(4).

3. **Air District Review**. The air district will review the annual report for completeness, accuracy, and reported usage, and will maintain in the project file a copy of the report that is initialed and dated by the reviewing staff. An air district choosing an alternative method to indicate its review and approval of annual reports will specify the method in its Policies and Procedures Manual.

4. **Unsatisfactory Reporting**. If an annual report is incomplete, inaccurate or not received from the grantee on schedule, the air district will make a reasonable attempt to obtain a complete and accurate report from the grantee. If the air district is unable to obtain the report, the air district will identify the project for audit as described in Section AA below.

5. **Subsequent Grants**. Grantees that have not submitted complete required reports will not be granted funds for new Moyer Program projects until all reports are satisfactorily submitted.

AA. Air District Audit of Projects

1. **Requirement**. The air district will conduct audits of projects funded with Moyer Program funds. On an annual basis these audits will include five percent of

active projects or 20 active projects (whichever is less), including any audits conducted following unsatisfactory annual reporting as described in Section Z.4.

2. **Project Inspection**. Audits must be completed by air district staff and will at a minimum include an inspection that verifies that the engines, equipment, and emission control devices paid for are still owned by the grantee named in the contract, are still operational in the same equipment, and meet the mileage, fuel usage, or hours of operation indicated in the executed contract. This must be performed by checking the serial number of the engine; witnessing the operation of the engine; and checking the usage meter or fuel receipts.

3. **Multiple Equipment**. Audits of multiple equipment or engine projects of up to 25 pieces must include inspection of at least two pieces or equipment, and for projects of over 25 pieces must include inspection of at least five pieces.

BB. Nonperforming Projects

1. **Requirement**. The air district will work with nonperforming project grantees to ensure Moyer Program project requirements are met and emission reductions are achieved, consistent with procedures outlined in the district Policies and Procedures Manual. Air districts may consider unforeseen circumstances beyond the grantee's control in determining repercussions for nonperformance.

2. **Off-Road Contract Extension**. Off-road contracts for which usage requirements are not being met may be extended to capture the required usage, even if the contract extension overlaps the required compliance date. This revision only applies to off-road contracts that have been executed prior to August 15, 2008, and does not modify similar Moyer policy for other eligible categories.

3. **Recapturing Funds**. When an air district is not successful in gaining grantee compliance with the usage and program requirements specified in a contract, the district will make all reasonable efforts to recapture Moyer Program funds from the grantee. Recaptured funds will be reassigned to projects that achieve the shortfall in emission reductions or usage. The air district's efforts to recapture funds may be guided by circumstances such as suspected or actual fraud or misuse of funds, the amount of Moyer Program funding involved, or the ability of the grantee to repay the funds.

4. **Usage Threshold and Waiver Procedure**. The air district must take appropriate action to ensure emission reductions are realized for engines, equipment, vehicles or fleets, as well as usage for infrastructure projects. Except for projects in which usage is not required to be specified in the contract (as allowed per Section V.6.(B)), when average usage over a three year period for a contracted engine, equipment, vehicle or fleet is less than 70 percent of the activity required in the contract, the air district may choose, but is not limited to, the options below to address the underutilization. (In cases of projects which

may have a contracted project life of less than three years, the same activity threshold of less than 70 percent applies, averaged over the project life.)

(A) Extend the project contract for additional years (precluding overlap with an applicable rule implementation requirement).

(B) Return funds in proportion to the loss in emission reductions.

(C) Transfer ownership of the engine, vehicle, or equipment to another entity committed to complying with the contract terms.

(D) Recalculate a project's cost-effectiveness based on the reported decrease in usage. Based on this recalculation, if the project is still below the cost-effectiveness limit, consistent with the limit and methodology in effect on the date of contract execution and prior to the end of the contract, the air district must continue to monitor the project over the next year to determine if additional actions are necessary. (This option does not apply to infrastructure projects not subject to a cost-effectiveness limit.)

(E) Grant a usage waiver, without penalty, to the grantee for a defined time period. The grantee must demonstrate to the air district's satisfaction that the engine, vehicle, or equipment is not being underutilized in favor of operating other, higher-polluting equipment, and that the underutilization was due to unforeseen conditions beyond the grantee's control.

(1) The conditions under which a waiver may be issued include, but are not limited to, the following:

a. A decrease in usage due to economic recession;
b. Unforeseen fluctuations in water allocations or pumping needs for agricultural irrigation pump engines; or
c. Significant land fallowing for off-road agricultural equipment and agricultural irrigation pump engines.

(2) To be considered for a waiver, the grantee must provide a written request to the air district along with documentation that substantiates the need for the waiver and verifies that higher-polluting equipment is not consequently receiving more use.

a. The air district will specify the length of time for which the waiver is valid. The waiver will not exempt the grantee from any contract requirement to provide annual usage reports.
b. The waiver will be documented in writing, approved by the Air Pollution Control Officer or designee, and included in the project file.

(3) For projects that include multiple pieces of equipment or engines the air district may review and recalculate the funded equipment collectively to see if the project as a whole has performed as expected. A waiver is not required in this event.

5. **Funds Recaptured Following ARB Enforcement**. Program funds recaptured from a project grantee as a result of a settlement agreement executed by ARB shall be returned to the air district that granted the funds. Any penalties resulting from a settlement agreement executed by ARB or the Attorney General shall be deposited in the Air Pollution Control Fund (H&SC § 44291(e)).

CHAPTER 4: ON-ROAD HEAVY-DUTY VEHICLES

This chapter describes the minimum criteria and requirements for Carl Moyer Memorial Air Quality Standards Attainment Program (Moyer Program) on-road heavy-duty vehicles. All projects must also conform to the requirements in Chapter 2: General Criteria and in Chapter 3: Program Administration. Participating air quality management districts or air pollution control districts (air districts) retain the authority to impose additional requirements in order to address local concerns.

A. Projects Eligible for Funding

The Air Resources Board (ARB) has adopted many fleet rules that affect on-road heavy-duty vehicles. Various types of projects can be incentivized to provide surplus emission reductions from on-road heavy-duty vehicles. Table 4-1 summarizes project types and categories eligible for funding as well as whether those projects may be executed through contracts or the Voucher Incentive Program (VIP or Voucher). For more information on VIP, please see the VIP Guidelines at: https://www.arb.ca.gov/msprog/moyer/voucher/voucher.htm.

Table 4-1
Summary of On-Road Heavy-Duty Projects

Project Category	Project Type[(a)]		Execution Path
	Replacement	Repower/Conversion	
Heavy-Duty Trucks and Buses	✓	✓	Voucher or Contract
School Bus	✓	✓	Contract
Transit Fleet Vehicles	✓	✓	Contract
Drayage Trucks	✓	✓	Voucher or Contract
Solid Waste Vehicles	✓	✓	Contract
Public Agency/Utility Vehicles	✓	✓	Contract
Emergency Vehicles	✓		Contract

[(a)] Retrofit projects may also be eligible for funding on a case-by-case basis.

1. **Vehicle Project Types**. Projects must include commercially available technologies certified by ARB to be cleaner than the baseline engine (unless otherwise noted). Project types and applications include:

(A) Vehicle Replacements: The replacement of an older, dirtier vehicle with a newer, cleaner one. These projects may be funded through contracts or the VIP.

(B) Repowers: Repowers involve the replacement of an older, dirtier engine with a newer, cleaner one. Repowers may be funded in various applications. However, due to technological constraints presented with the limited feasibility of newer engines with advanced emissions control equipment fitting into older chassis and maintaining durability, repowers with diesel engines are rare project types for trucks. Repowers with alternative fuel engines may not have the same technological constraints and may become more prevalent. To ensure durability, certain projects may require prototype testing. However, if the project has been previously completed by the manufacturer, prototype testing is not required. Air districts that wish to fund repowers must receive prototype testing results. The testing must comply with the engine manufacturer quality assurance process that is equivalent to an Original Equipment Manufacturer (OEM) package. In these cases, a prototype vehicle (or vehicles) is thoroughly reviewed and tested to ensure that the installation meets OEM requirements, and the successful prototype installation is then replicated in other vehicles with the same chassis and engine combination. Air districts may approve repower projects that meet the OEM quality assurance process described above, subject to the following:

(1) Moyer Program funding may not be used for any costs associated with the prototype vehicle or vehicles.

(2) Repower contracts may not be executed until the prototype testing specified by the engine manufacturer is successfully completed.

(3) Written documentation from the engine manufacturer confirming that the prototype was successful must be maintained in the project file.

(4) If the proposed repower has been done previously by the manufacturer on the same chassis/engine configuration, prototype testing is not required. The manufacturer must provide written confirmation that the previous work was performed successfully and met OEM requirements.

(C) Conversions: Conversions involve the replacement or modification of the original engine or vehicle to include either a cleaner engine or other system that provides motive power and change of the fuel type used. Hybrid conversion systems using internal combustion engines must be certified according to “California Certification and Installation Procedures for Medium- and Heavy-Duty Vehicle Hybrid Conversion Systems.” The baseline engine model year for hybrid conversions must be 2010 or

newer. Tier 1 and Tier 2 certified conversion systems are certified to sell a limited number of units in California. The conversion system manufacturer must provide written confirmation that the funded vehicle would not exceed the certified allowable limit. All-electric conversion systems must receive an exemption Executive Order per Vehicle Code section 27156. The conversion system manufacturer must certify that the converted vehicle adheres to all applicable local, State, and federal requirements including safety standards issued by National Highway Traffic Safety Administration and California Highway Patrol (CHP).

2. **Project Categories**. Taking the above project types into consideration, the following categories may be eligible for funding:

   (A) Heavy-Duty Trucks and Buses: Heavy-duty diesel trucks and buses with gross vehicle weight ratings (GVWR) greater than 14,000 pounds (lbs.) are subject to the Statewide Truck and Bus Regulation. Replacement engines certified to the 2010 emissions standards or cleaner are eligible. For more information, see section C.2.(A).

   (B) School Buses: School buses as defined in Vehicle Code section 545 are subject to the Statewide Truck and Bus Regulation. They are required to be filtered unless operating under an ARB-issued extension up to January 1, 2018. Project types include replacements, repowers, and conversions. Replacement engines certified to the 2010 emissions standards or cleaner are eligible. For more information, see Section C.2.(B).

   (C) Transit Vehicles: Transit vehicles are subject to the Fleet Rule for Transit Agencies and must be compliant with final regulatory requirements. Project types for surplus reductions include replacements and repowers. All transit projects must use engines certified to optional low oxides of nitrogen (NOx) standards or cleaner. For more information, see Section C.2.(C).

   (D) Drayage Trucks: Drayage trucks are subject to the Statewide Drayage Truck Regulation. As of January 1, 2014, drayage trucks are required to be equipped with 2007 model year or newer engines. Therefore, engines older than model year 2007 are not eligible. Replacement engines certified to the 2010 emissions standards or cleaner are eligible. Cleaner technologies are currently being demonstrated, and may become available in the near future to enable opportunities for more funding. For more information on drayage truck funding opportunities, see Section C.2.(D)

   (E) Solid Waste Collection Vehicles (SWCV): Vehicles equipped with 2006 and older engines are subject to the SWCV Regulation and must meet final regulatory requirements. Vehicles equipped with 2007 and newer

engines are subject to the Statewide Truck and Bus Regulation. All solid waste collection vehicle projects must use engines certified to optional low NOx standards or cleaner. For more information, see Section C.2.(E).

(F) Public Agency and Utility Vehicles: Vehicles with GVWR over 14,000 lbs. owned by a municipality or utility that are equipped with engines certified to Particulate Matter (PM) emission standards greater than 0.01 grams per brake horsepower-hour (g/bhp-hr) are subject to the Fleet Regulation for Public Agencies and Utilities, except fleets that do not include any diesel engines. Engines are required to use the Best Available Control Technology as defined in the California Code of Regulations, title 13, section 2022.1(b). Private utilities become subject to the Statewide Truck and Bus Regulation starting January 1, 2021. Replacement engines certified to the 2010 emissions standards or cleaner are eligible.

(G) Emergency Vehicles: Emergency vehicles are not subject to in-use emissions regulations. Eligible vehicles also include prisoner transport buses. Project types mainly include replacements. Replacement engines certified to the 2010 emissions standards or cleaner are eligible. For more information, see Section C.2.(F).

(H) Case-by-Case Projects: These projects do not fall under any previously described category or do not meet all of the requirements of the Guidelines but otherwise provide real, surplus, quantifiable, enforceable, cost-effective emission reduction benefits in California for the entire project life. These may include transport refrigeration units (TRU), auxiliary power units (APU), and vehicles with 8,501-14,000 lbs. GVWR. For more information, see Section C.2.(G).

3. **Infrastructure Projects**. See Chapter 10 for details regarding applicant eligibility and project types for infrastructure projects in support of on-road applications. This includes infrastructure such as electrical charging (and solar-generated electricity) and alternative fuel stations for light, medium and heavy heavy-duty trucks. It also includes infrastructure for truck stop electrification, TRUs, transit vehicles, emergency vehicles, and school buses.

B. Determining Funding Amounts

The information contained in this section shall be used to determine the funding amount for which any given heavy-duty on-road project is eligible.

1. **State Funding Limits**. Funding for an on-road heavy-duty project includes funds from all State sources including the Moyer Program. The maximum dollar amount or maximum percentage of eligible cost (Tables 4-2 through 4-7), as applicable, represents a funding cap, or the maximum funding available for the project. If the project is co-funded with other State funds, the funding cap represents the maximum amount of funds from all State sources that can be

applied to the project. Federal, local, or other non-State grant funds can be used in addition to the funding caps stated in this chapter if the criteria for co-funded projects in Chapter 3, Section L are satisfied.

2. **Cost-Effectiveness**. The maximum amount of funding available to a project is limited by a cost-effectiveness limit (see Appendix C), in addition to the funding caps specified below.

3. **Maximum Funding Percentage**. For fleets with ten or fewer vehicles over 14,000 lbs. GVWR, the State funding amount cannot exceed 80 percent of the vehicle cost (excluding taxes and fees). For fleets with more than ten vehicles, the funding amount cannot exceed 50 percent of the vehicle cost (excluding taxes and fees). School buses, repowers, and emergency vehicles are not limited by maximum funding percentages based on fleet size. The funding caps that apply from these maximum percentages of eligible cost and maximum dollar amounts, as applicable, are summarized in Tables 4-2 through 4-7.

Table 4-2
State Funding Caps for Moyer School Bus Projects

Project Type	Funding Cap
School Bus Diesel or Alternative Fuel Replacements	$165,000
School Bus Optional Low-NOx or Hybrid Replacements	$220,000
School Bus Zero-Emission Replacements	$400,000
School Bus Repowers	$70,000
School Bus Electric Conversions	$400,000

Table 4-3
State Funding Caps for Conventional Diesel or Alternative Fuel or Hybrid Replacements (2013+ engine model year; 0.20 g/bhp-hr NOx or cleaner standard)

Weight Class	Funding Cap [(a)]
Heavy Heavy-Duty (HHD) GVWR > 33,000 lbs.	$60,000
Medium Heavy-Duty (MHD) GVWR 19,501-33,000 lbs.	$40,000
Light Heavy-Duty (LHD) GVWR 14,001-19,500 lbs.	$30,000
Emergency Vehicles GVWR > 14,000 lbs.	80% of Cost

[(a)] No more than 80 percent of vehicle cost for fleets with ten or fewer vehicles, no more than 50 percent of vehicle cost for larger fleets except for emergency vehicles.

Table 4-4
State Funding Caps for Optional Low NOx Replacements[a]

Optional Low NOx standard (g/bhp-hr)	HHD	MHD	LHD
0.02	$100,000	$80,000	$70,000
0.05	$80,000	$60,000	$50,000
0.10	$70,000	$50,000	$40,000
Transit Buses			$25,000

[a] No more than 80 percent of vehicle cost for fleets with 10 or less vehicles, no more than 50 percent of vehicle cost for larger fleets except for emergency vehicles.

Table 4-5
State Funding Caps for Optional Low NOx Repowers

Vocation Type	Funding Caps
Transit Bus	$20,000
Other Trucks and Buses	$40,000

Table 4-6
State Funding Caps for Zero Emission Replacements or Conversions

Weight Class/Vocation Type	Funding Caps[a]
Transit Bus	$80,000
HHD Truck or Bus	$200,000
MHD Truck or Bus	$150,000
LHD Truck or Bus	$80,000

[a] No more than 80 percent of vehicle cost for fleets with 10 or less vehicles, no more than 50 percent of vehicle cost for larger fleets except for emergency vehicles.

Table 4-7
State Funding Caps for Hybrid Conversions

Weight Class	Funding Caps[(a)]
LHD	$7,500
MHD	$10,000
HHD	$15,000

[(a)] No more than 80 percent of system cost for fleets with 10 or less vehicles, no more than 50 percent of system cost for larger fleets except for emergency vehicles.

4. **Project Life**. The minimum eligible project life for all projects is one year. The maximum eligible project life for each project type is summarized in Table 4-8.

Table 4-8
Maximum Project Lives for On-Road Vehicle Projects

Project Type	Maximum Project Life
Replacements	7 Years
Transit Bus Replacements	12 Years
Repowers	7 Years
School Bus Replacements	10 Years
Electric Conversions	5 Years
Emergency Vehicles	14 Years
Other On-Road Projects	3 Years

A longer project life may be approved on a case-by-case basis if applicants provide justifying documentation. The maximum project life does not consider regulatory requirements that may reduce the actual project life.

5. **Annual Usage**. Grant amounts will be based on the minimum of two 12-month periods of California usage during the previous twenty-four months. Fleet averages cannot be used. If a fleet has reported the existing vehicle in the Truck Regulations Upload and Compliance Reporting System (TRUCRS) under a limited-usage compliance option (such as the Low-Mileage Work Truck Option, the NOx Exempt Area Extension, etc.) and the historical usage exceeds the limit, the usage limit for that compliance option must be used to determine the State grant amount instead. On-road calculations shall be based on historical annual mileage instead of fuel usage or engine hours due to the fact that the mileage-based exhaust emission factors are more robust. Applicants must submit conclusive documentation of the existing engine or vehicle's mileage such

as logbooks, and maintenance records maintained for individual vehicles, or CHP inspection reports. In cases where only fuel use records are available, a case-by-case request must be submitted. The applicant must provide two years of historical fuel usage documentation to the air district. Documentation must show specific usage of the existing vehicle and may include fuel logs, International Fuel Tax Association reports for single fleets, purchase receipts or ledger entries. If the case-by-case is approved, fuel use will be converted to mileage according to the vocation.

6. **Calculating emissions**. Emission factors and deterioration rates in Appendix D, Tables D-1 through D-6 must be used to determine the emissions of the baseline and reduced engines; consequently, the engine model year and applicable emission standard will determine the relevant emission factors. Emission reductions for hybrid conversion systems must be based on the projected reduced usage of the baseline engine in the converted vehicle compared to the original vehicle. This can be based on estimated usage reductions for the specific application or vocation type provided by the dealer, installer, or manufacturer. Calculations for new hybrid vehicles will incorporate the certified emission standard and may also include projected reduced engine usage relative to a non-hybrid equivalent provided by the dealer, installer, or manufacturer. The emission factors and deterioration rates contained in Appendix D are based on ARB mobile source emissions inventory model (EMFAC2014) values. Information on EMFAC2014 is available at: http://www.arb.ca.gov/msei/modeling.htm.

7. **Two-for-One Replacement Calculations**. Projects in which two old vehicles of similar design and function are replaced with one vehicle are eligible for Moyer Program grant funding. The two baseline vehicles must be in the same weight class (LHD, MHD, or HHD) but may be in different weight classes if there is a ten percent or less variation in GVWR. If the two baseline engines are not the same model year, the newest engine model year must be used when calculating emission reductions. The maximum State funding amount must also be funded according to the lighter weight class of the two vehicles. The replacement vehicle's annual usage must be determined by adding the annual usage of both baseline vehicles together. The maximum annual usage that can count toward grant determinations for the two baseline vehicles is 30,000 miles each for a maximum total annual usage of 60,000 miles for the replacement vehicle. The replacement vehicle is eligible for only one grant based on the combined usage of the baseline vehicles.

8. **Expenses Eligible for Funding**. Moyer grant funding can only be used to pay for items essential to the operation of the vehicle. Electronic monitoring units – while they are not required by ARB – are an eligible expense if they are required by an air district. For replacements, eligible project costs include the cost of the cab and chassis including parts that are integrated into the vehicle. The cab and chassis cost may include but is not limited to the following:

(A) The capital cost of the cab.

(B) The capital cost of the chassis which may include but is not limited to:

(1) Engine

(2) Transmission

(3) Suspension system

(4) Steering system

(5) Frame

(6) Electrical system

(7) Cooling System

(8) Fuel system

(9) Emission system

C. Project Criteria

1. General Criteria

(A) Fleet Size: All fleet sizes are eligible for funding. The following criteria must be followed for each group:

(1) Fleet Size 1-10: To ensure smaller fleets have significant funding opportunities, air districts must reserve or prioritize funding for smaller fleets and should do so in a manner that works best with their programs. For example, air districts that issue on-road solicitations may review applications from smaller fleets first and award those fleets that are eligible prior to awarding fleets with more than ten vehicles. Air districts that fund projects on a first-come, first-served basis may modify or remove the reserve to meet liquidation deadlines and demand after smaller fleets have had a certain amount of time to apply for funding as specified in the air district's Policies and Procedures. Reserve funds may be used for school bus projects at any time.

(2) Fleet Size > 10: Fleets with more than ten vehicles must select optional low NOx or zero emission technologies except for certain operating vocations and locations defined in the Statewide Truck and Bus Regulation (i.e., school buses, log trucks, low mileage work trucks, agricultural vehicles, and NOx Exempt Areas).

(B) Weight Class Range:

(1) The replacement vehicle must be in the same weight class as the existing vehicle (either LHD, MHD, or HHD as defined in Appendix

B). An MHD vehicle can replace an HHD vehicle if they both have the same axle configuration (e.g. an existing HHD vehicle with two axles can be replaced with an MHD vehicle with two axles) but the funding amount must be at the MHD funding level.

(2) On-road heavy-duty vehicles (with GVWR over 14,000 lbs.) must be powered by an engine certified to the applicable heavy-duty intended service class as shown on the engine certification Executive Order. However, the following cases may be allowed:

a. MHD engines may be installed in HHD vehicles with GVWR up to 36,300 lbs. (ten percent higher than 33,000 lbs. GVWR) with written warranty verification by the engine and chassis manufacturer. A copy of the written warranty verification must be maintained in the air district project file.

b. HHD engines may be installed in MHD vehicles if necessary for vocational purposes but only if the GVWR are within ten percent of the HHD intended service class (i.e., GVWR of 29,701 lbs. or greater).

(C) At least 51 percent total annual usage must occur in California. Only usage in California can be used for on-road calculations.

(D) Compliance Check:

(1) Before contract execution, participants must be pre-screened for regulatory compliance, outstanding violations, open cases, and previous project funding by supplying to the air district the registered owner's name, company name or Doing Business As (DBA), address, Vehicle Identification Number (VIN) of the vehicle being replaced/repowered/converted, and TRUCRS ID or Drayage Truck Registry (DTR) number, if applicable. VINs of vehicles not subject to in-use diesel rules, such as CNG vehicles, need not be submitted, but every vehicle in the fleet needs to be in compliance and have no outstanding violations in order to receive funding. The air district need not validate this information and will not be held liable if participants falsify this information. The air district shall email this information to its ARB Moyer Program liaison.

a. The fleet owner will report in TRUCRS vehicles Subject to the Statewide Truck and Bus Regulation. The fleet owner must also provide the air district with the following:

i. A copy of the TRUCRS Fleet List located on the Vehicle Info tab showing the compliance option each vehicle in the fleet is using, and

ii. A copy of the TRUCRS General Fleet and Compliance Information Summary showing compliance located on Compliance Status tab ("Meets Small Fleet Option" will specify "yes" if the fleet is using the Small Fleet option), and

iii. A copy of the Compliance Certificate printed from TRUCRS, if applicable.

b. For Vehicles subject to the Drayage Truck Regulation, a copy of the DTR Compliance Search Page printout showing VIN and compliance status.

c. Vehicles Subject to Other On-Road Regulations:

i. Fleet information must be submitted by the air district to the ARB Moyer Program district liaison to check compliance with other regulations such as the Public Agency and Utility Regulation, when applicable. The fleet information needed for the compliance check may change with time.

ii. To receive funding, a fleet owner/operator must be compliant with all federal, State, and local air quality rules and regulations including the Periodic Smoke Inspection Program (PSIP). The application must include a statement of compliance in which the applicant must certify that they are in compliance at the time of application submittal. Air districts must also include the following language with a checkbox for the fleet owner/operator to indicate compliance:

I have read and understand that I am responsible for meeting the requirements of the PSIP. I am either currently in compliance with PSIP requirements or I have paid all penalties for non-compliance and continue to meet requirements since payment.

d. A regulation index for statewide on-road regulations is available at http://www.arb.ca.gov/msprog/truckstop/azregs/azregs.htm

(2) The liaison will email the air district the result of the compliance check within ten business days. All compliance check documentation must be kept in the project file.

(3) If the vehicle has already received funding and is still under contract, the air district will be notified and the project must be rejected.

(4) If there is an open case or outstanding violation, or if the fleet is not in compliance, the air district shall inform the participant in writing

that no disbursement may be made until the owner provides proof that the fleet has been brought into compliance and all fines have been paid. If the outstanding violation is based on problems with the baseline engine (e.g., gross polluter), then the violation must be cleared. The engine owner must pay the fine for each violation and submit documentation of violation correction with, or before submitting, the invoice.

(5) *Compliance Check Tool*: A compliance check tool for the Truck and Bus Regulation is available on ARB's website located at: https://www.arb.ca.gov/msprog/onrdiesel/tblookup.php. To help with the initial review, air districts may check current compliance status by entering any part of the company name, TRUCRS ID, or Motor Carrier Number in the search field. Only fleets that have confirmed compliance requirements and printed their certificate will be listed. Applicants must still meet the requirements in Section C.1.(D)(1)a.

(6) Other compliance tools issued by ARB may be used to meet the requirements of Section C.1.(D)(1) as they become available and are approved for use for the Moyer Program.

(E) Emission Reduction Technologies: Emission reduction technologies must be certified or verified by ARB and must comply with durability and warranty requirements. A technology granted a conditional certification or verification by ARB is considered certified or verified.

(F) Obtaining Financing: The participant may obtain financing to assist in the purchase of the emission reduction technology.

(G) Equipment Leasing is Not Allowed: If financing is necessary, the equipment purchase must be financed with a conventional purchase loan.

(H) Surplus requirements are determined by the regulation to which a project is subject. Any vehicle with an off-road engine that is subject to an on-road regulation must also comply with the on-road surplus requirements described in this chapter. For example, a yard truck with an off-road engine that is subject to the Statewide Truck and Bus Regulation must comply with all off-road eligibility and funding criteria described in Chapters 5, as well as all on-road surplus criteria described in this chapter.

(I) Engines operating under an extension not included in the applicable regulation, such as the Statewide Truck and Bus Regulation, or under program advisory are not eligible. This includes extensions received under enforcement settlement agreements. Fleets with PM filter availability extensions and economic hardship extensions are eligible but

PM reductions will not be funded. Fleet owners must submit documentation confirming extensions.

(J) The existing vehicle must be based in California as shown through vehicle registration. Air districts have the option to limit eligibility to applicants that reside within the district's air basin or operate their vehicles within specified air basins.

2. Project Categories and Applicable Project Types

(A) Heavy-Duty Trucks and Buses (Non-drayage)

(1) Eligibility: Heavy-duty vehicles following the Engine Model Year Schedule or taking one of the Statewide Truck and Bus Regulation compliance options below as defined in the Statewide Truck and Bus Regulation, California Code of Regulations, title 13, section 2025(f), (g), (h), (i), (m), and (p) may apply for funding:

a. Small Fleet option
b. Low Mileage Work Truck option
c. PM Filter Phase-In option
d. Log Truck Phase-In option
e. NOx Exempt Area extension
f. Agricultural Vehicle extension

Other vehicles subject to the Statewide Truck and Bus Regulation such as heavy cranes and sweepers or other vehicles approved to use credits or extensions specified in the regulation may also be eligible.

(2) Replacement Projects: Most replacement projects using engines certified to the 0.20 g/bhp-hr NOx and 0.01 g/bhp-hr PM standard are executed through the Voucher Incentive Program, including two-for-one replacements. This includes on-road vehicles subject to the Truck and Bus Regulation that are replaced with newer vehicles equipped with diesel or alternative fueled engines meeting the current standards with a surplus funding period of one to three years. Voucher replacement projects are not eligible for case-by-case requests. All requirements must be met. If the air district wishes to fund a replacement using criteria that does not meet voucher requirements such as having a longer project life or a minimum California usage of 51 percent, the project must be executed under this chapter through a contract.

(3) Repower and Conversion Projects: If the proposed repower has been done previously by the manufacturer on the same chassis/engine configuration, prototype testing is not necessary. The manufacturer must provide written confirmation that the

previous work was performed successfully and met OEM requirements. If it has not been done previously, prototype testing as described in Section A.1.(B) must be completed. Conversion systems must meet certification or aftermarket exemption requirements described in Section A.1.(C).

(4) Other Project Types: Other project types may be eligible if approved through case-by-case and must be funded through contract.

(5) Surplus: Vehicles can have a filter compliance deadline that is less than one year from the post-inspection date as long as PM emission reductions are not funded. The 2010 standard compliance deadline must be at least one full year from when the replacement vehicle is delivered and post-inspected.

(6) Maximum State Funding Amounts: The maximum amount of State funding that can go toward the purchase of a replacement vehicle equipped with either a diesel or alternative fuel engine meeting 0.20 g/bhp-hr NOx and 0.01 g/bhp-hr PM standards is shown in Table 4-3. Maximum funding for Optional Low NOx and Zero-Emission replacements are shown in Tables 4-4 and 4-6.

(7) Log Truck Requirements: Log trucks using the Log Truck Phase-In option must have log bunks permanently attached at pre- and post-inspection. Vehicles taking the Log Truck Phase-In option are not eligible for two-for-one replacements as described in Section B.7.

(B) School Buses

(1) General Eligibility: School buses are eligible for Moyer Program funding if they meet the general program criteria in Section C.1., as well as additional criteria in this subsection.

(2) Eligible Applicants: Public school districts in California that own their own school buses are eligible for funding. Where a Joint Power Authority (JPA) has been formed by several public school districts and the JPA holds ownership of the school buses, then the JPA is also eligible for funding. School transportation contractors, non-profit agencies, private schools, and other private companies are not eligible to receive funding for school bus projects.

(3) Truck and Bus Regulation Compliance: School buses subject to the Truck and Bus Regulation are only eligible if they meet one of the following requirements:

a. The existing school bus must have an OEM diesel particulate filter (DPF) installed.

b. The existing school bus must be retrofitted with a DPF that reduces diesel PM emissions by at least 85 percent.

c. The existing school bus must be reported in TRUCRS under the Low-Use exemption.

d. The existing school bus must be reported in TRUCRS under the Extension for the Unavailability of Verified Diesel Emission Control Strategy (VDECS). This extension expires on January 1, 2018, at which point such school buses will no longer be eligible for Moyer Program funding.

(4) Used Vehicle Eligibility: Used school buses are not eligible as replacements. The replacement vehicle for any project must be new.

(5) Maximum State Funding Amounts: School bus projects have unique maximum grant amounts as summarized in Table 4-2, and also a unique cost-effectiveness limit of $276,230/ton. This cost-effectiveness limit allows for funding amounts consistent with the Lower-Emission School Bus Program funding caps based on average school bus operating usage as determined by a limited number of previously-funded Moyer Program school bus projects. Individual vehicle usage that falls below the average may result in lower funding amounts.

(6) Calculating Emissions: Zero-emission school bus projects (including replacements, repowers, and electric conversions) are eligible for NOx, reactive organic gases (ROG), and PM emission reductions. All other school bus projects are eligible only for NOx and ROG emission reductions.

(7) Engine Intended Service Class: The weight class range for school buses is determined as in Section C.1.(B), but in cases where the Executive Order of the baseline school bus engine does not list an intended service class, the intended service class of the engine shall be assumed to be MHD.

(8) CHP Safety Certification. All existing school buses must have a current CHP safety certification (CHP Form 292) at the time funding is awarded for the project (i.e., the school bus may not have a lapsed CHP safety certification), and it must be currently registered with the Department of Motor Vehicles (DMV).

(9) School Bus Electric Conversion Projects. The baseline vehicle chassis must be ten years old or newer. CHP requires engineering plans, certified by a California licensed engineer, to be able to safety certify the school bus.

(C) Transit Vehicles (Urban Buses and Transit Fleet Vehicles)

(1) Eligibility: Transit vehicles that have achieved compliance with all applicable regulatory requirements are eligible for surplus emission reduction funding. New regulation requirements may affect surplus and funding amounts in the future.

(2) Replacement Projects: A replacement engine for a replacement vehicle project must be an ARB certified engine meeting emissions levels of 0.10 g/bhp-hr NOx or cleaner.

(3) Repower and Conversion Projects: A replacement engine for a repower project must be an ARB certified engine meeting emissions levels of 0.10 g/bhp-hr NOx or cleaner. If the proposed repower has been done previously by the manufacturer on the same chassis/engine configuration, prototype testing is not required. The manufacturer must provide written confirmation that the previous work was performed successfully and met OEM requirements. If it has not been done previously, prototype testing must be completed as described in Section A.1.(B). Conversion systems must meet certification or aftermarket exemption requirements described in Section A.1.(C).

(4) Maximum State Funding Amounts: The Federal Transit Administration (FTA) provides up to an 80 percent grant (Federal funding) for new urban bus purchases and repowers. Maximum State funding for transit projects has been specified to account for greater access to other funding resources. Funding caps for various project types are shown in Tables 4-4 through 4-6. If the Moyer Program grant is used to co-fund an eligible project, the sum of all grant funds received cannot exceed the total project cost. Additional criteria on co-funding projects with a Moyer Program grant can be found in Chapter 3, Section L.

(5) Applicable Emission Factors: Emission factor tables for urban transit buses are included in Appendix D as Tables D-3 and D-4. Other transit fleet vehicles such as shuttle buses must use the MHD or HHD emission factor tables, Tables D-1 and D-2. Cost-effectiveness calculations for transit urban buses do not include deterioration since those fleets are generally well-maintained per EMFAC 2014. Deterioration must also not be

included in the cost-effectiveness calculations for other transit vehicles.

(6) Calculating Emission Reductions: Cost-effectiveness calculations can only include emission reductions from the 2007 engine model year for a 12-year maximum project life. No other additional emission reductions may be included. Only NOx and ROG surplus emission reductions can be funded. PM emission reductions may also be funded for zero emission projects.

(D) Drayage Trucks

(1) Eligibility: Drayage trucks as defined in California Code of Regulations, title 13, section 2027(c)(15), are eligible for Moyer Program funding for up to one year before the applicable compliance deadline.

(2) Existing Engine: The baseline engine must be 2007 or newer. Beginning on January 1, 2023, drayage trucks will be subject to the Statewide Truck and Bus Regulation and must be compliant to the regulation to be eligible for funding (i.e., baseline engine must be model year 2010 or newer). If the baseline truck is not currently used for drayage activities and the engine is older than 2007, the replacement truck will be added to the DTR as non-compliant for the contract term.

(3) Replacement Projects: Replacements may be funded through voucher or contract.

(4) Repower and Conversion Projects: If the proposed repower has been done previously by the manufacturer on the same chassis/engine configuration, prototype testing is not necessary. The manufacturer must provide written confirmation that the previous work was performed successfully and met OEM requirements. If it has not been done previously, prototype testing as described in Section A.1.(B) must be completed. Conversion systems must meet certification or aftermarket exemption requirements described in Section A.1.(C).

(5) Calculating Emission Reductions: Only NOx and ROG emission reductions can be funded. PM emission reductions may be funded for zero-emission projects.

(E) Solid Waste Collection Vehicles (SWCV such as Transfer Trucks and Refuse Trucks)

(1) Eligibility: SWCV fleets that have achieved compliance with the final SWCV Regulation (CCR, title 13, sections 2020-2021.2)

deadline are eligible for funding. Solid waste transfer trucks and vehicles equipped with 2007 and newer engines are subject to the Statewide Truck and Bus Regulation and surplus will be determined according to that regulation.

(2) Replacement Projects: A replacement engine for a replacement project must be an ARB certified engine meeting emissions levels of 0.10 g/bhp-hr NOx or cleaner.

(3) Repower and Conversion Projects: A replacement engine for a repower project must be an ARB certified engine meeting emissions levels of 0.10 g/bhp-hr NOx or cleaner. If the proposed repower has been done previously by the manufacturer on the same chassis/engine configuration, prototype testing is not necessary. The manufacturer must provide written confirmation that the previous work was performed successfully and met OEM requirements. If it has not been done previously, prototype testing as described in Section A.1.(B) must be completed. Conversion systems must meet certification or aftermarket exemption requirements described in Section A.1.(C).

(4) Applicable Emission Factors: Emission factor tables for refuse trucks are included in Appendix D as Tables D-5 and D-6. Transfer trucks use Tables D-1 and D-2.

(5) Calculating Emission Reductions: Only NOx and ROG emission reductions can be funded. PM emission reductions may be funded for zero emission projects.

(F) Emergency Vehicles

(1) Eligible Vehicles: Authorized emergency vehicles as described in the California Vehicle Code 165 including, but not limited to fire apparatus, pumpers, ladder trucks, and water tenders. Other MHD HHD diesel authorized emergency vehicles, such as prisoner buses, are also eligible for funding under this chapter.

(2) Replacement Projects: Eligible projects are those in which a new or used replacement vehicle with an engine meeting the current model year California emission standard replaces an older, more polluting equipment or vehicle. The older, replaced vehicle must be destroyed. A fire truck reuse option is also available on a case-by-case basis. The fire truck reuse option allows fire departments to give away the existing old vehicle and destroy another older vehicle in its place.

(3) Eligible Costs: Eligible project costs include those parts specified in Section B.8. but excludes parts that are not bolted on and

movable, such as the tank on the water tender. In addition, the following costs are eligible:

a. Tax and transport for eligible parts or costs.

b. Labor for installation of or modification to parts eligible for funding.

(G) Case-By-Case Projects

(1) On-road heavy-duty diesel vehicles with GVWR of 8,501-14,000 lbs. may be considered for Moyer Program funding on a case-by-case basis.

(2) Retrofits

a. Only projects that reduce NOx emissions, including alternative fuel retrofit systems, are eligible for funding. The retrofit must be certified or verified by ARB to reduce NOx by at least 15 percent and reduce emissions to the 0.02 g/bhp-hr optional low NOx standard or cleaner. If the baseline engine does not meet 0.01 g/bhp-hr PM standards, the retrofit must also reduce emissions by at least 85 percent (verified Level 3).

b. The maximum State funding amount for retrofit projects is $20,000.

(3) Transport Refrigeration Units (TRUs): TRU projects are eligible for limited funding opportunities, but emission benefits are generally low because many older TRUs have already been replaced to meet regulatory requirements.

a. Funding opportunities may exist for zero emission replacement projects only.

b. Alternative technologies such as pure cryogenic systems are not required to be verified, but ARB must review and approve such systems in writing on a case-by-case basis.

c. The participant shall install an hour-meter or other means to measure usage on the TRU to track operating hours, and shall provide this information to ARB or the air district upon request.

d. The maximum State funding percentage is 50 percent.

(4) Auxiliary Power Units (APUs): Limited funding will be available for APUs, and only for projects approved through case-by-case. APUs are subject to the Airborne Toxic Control Measure to Limit

Diesel-Fueled Commercial Motor Vehicle Idling, California Code of Regulations, title 13, section 2485.

(5) Cost-effectiveness calculations for projects with power take-off (PTO) will be considered by ARB on a case-by-case basis. Hours of PTO operation must be documented through hour meter records or data from the emission control module.

(6) Case-by-case projects must receive approval from ARB prior to contract execution. These projects must follow the requirements as described in Chapter 3, Section U.

3. Participant Requirements

(A) Ownership: The participant must currently be the sole owner of the existing vehicle, documented through a copy of the existing vehicle title. The title must show no active lienholders. The title need not be a California title. In addition, the participant must have owned and operated the vehicle the previous 24 months. If the title does not show sole ownership for the previous 24 months, the applicant must be listed as one of the owners or shown as a registered owner on registration documentation for the previous 24 months. If the existing vehicle title is not available, then all three of the following must be used as alternative documentation until a duplicate title is received from the California DMV: 1) a copy of the current and valid vehicle registration, 2) a copy of the DMV Vehicle Registration Record (printout), and 3) a copy of the DMV receipt for duplicate title request. A copy of the duplicate title must be received by the air district before contract execution. If it is unclear whether a vehicle is owned or leased by a participant, the air district will determine whether the vehicle is eligible.

(B) Usage Documentation and Self-Certification for California Minimum Usage: Covering each 12-month period for the previous 24 months, the participant must:

(1) Submit conclusive documentation (logbooks, maintenance records, tax records, etc.) of annual miles traveled in California, and

(2) Certify that at least 51 percent of total usage has been in California.

(C) Military Service Provision: If an applicant has been on active military duty at any time during the previous 24 months, documentation prior to deployment and covering the same length of time as the deployment period may be used to meet the title, registration, usage, and operation in California requirements as described in Sections C.3.(A)-(B) and C.4.(C). The applicant must submit a copy of DD Form 214, Certificate of Release or Discharge from Active Duty to verify military service during the deployment period.

(D) Participants may only apply to one air district at a time for each project.

(E) Participants must submit an application for funding consideration.

(F) Participants must provide the air district with the full contact information of the seller/dealer of the replacement vehicle, or the business that performs the conversion or repower.

(G) The participant must be the sole registered owner of the replacement engine or vehicle for the duration of the contract term. Throughout the contract term (project life), the participant must annually:

(1) Provide registration and proof of insurance to the air district.

(2) Provide reports that include items specified by the air district which may include miles driven in the air district and in California, and details regarding maintenance and servicing.

(3) Operate the engine/vehicle within California for at least the percentage of time specified in the contract.

(H) Report accident or loss of vehicle: If the replacement engine/vehicle is in an accident or is stolen, the accident or theft must be reported to the air district within 10 business days. The participant must provide the police report, a letter from the insurance company regarding the accident or theft, and other information requested by the air district. The participant must repair the vehicle and return it to operation, if possible. If the vehicle is totaled, the participant and the air district staff must come to an agreement regarding any requirements that still need to be met. If the participant will continue the business, efforts should be made to obtain a substitute vehicle that can take over the terms of the contract. The substitute vehicle must be at least as clean as the original Moyer Program funded vehicle, be in the same weight class, and cannot have more miles than would have been accumulated based on the mileage used to determine the funding amount, or no more than 600,000 miles for HHD vehicles, 350,000 miles for MHD vehicles, and 250,000 miles for LHD vehicles.

(I) Any change of ownership, change in registration status, or change of mailing address during the contract term must be reported to the air district within 10 business days.

4. Existing Engine and Vehicle Requirements

(A) The existing vehicle must currently operate on diesel fuel or alternative fuel such as compressed natural gas.

(B) The existing vehicle must have an engine of model year 2010 or older, except if it is a school bus or log truck which may be powered by an

engine of any model year. The maximum chassis age for all-electric conversions must be no more than ten years old.

(C) The existing vehicle must either be: 1) currently registered and have been registered in California for the past 24 months supported by documentation showing no lapses (except for seasonal vehicles and those eligible under the military service provision); or 2) must have been registered in California for the previous eight consecutive months with supporting documentation supplemented by alternate documentation showing California operation for the past 24 months. California International Registration Plan (IRP) documents are acceptable. Out of State IRP or registration is not eligible. The existing vehicle must be based in California.

(D) If the existing vehicle operates seasonally, then the existing vehicle may be eligible to participate if it has been registered in California for three to six continuous months per 12 month period for the previous 24 months. DMV partial year registration documentation for each period the vehicle was registered must be included with the application.

(E) The participant must provide proof of insurance for the old vehicle for the previous 24 months.

(F) The existing vehicle must meet the criteria for either an LHD vehicle, MHD vehicle, or an HHD vehicle, as defined below:

(1) LHD vehicles must have a manufacturer GVWR of 14,001-19,500 lbs.

(2) MHD vehicles must have a manufacturer GVWR of 19,501-33,000 lbs.

(3) HHD vehicles must have a manufacturer GVWR of 33,001 lbs. or greater.

(4) GVWR may be documented with a photo of the vehicle manufacturer tag or a copy of the manufacturer build sheet. Air districts may request ARB approval of alternate GVWR documentation on a case-by-case basis.

(G) Engine Verification:

(1) The air district file must include a copy of the existing engine Executive Order. If an Executive Order is not available, the air district may request approval of alternative documentation on a case-by-case basis.

(2) If the old vehicle engine tag is missing, then verification of the engine information can be satisfied with the engine serial number. The participant must provide verification of the engine make, model, model year, engine serial number, and horsepower from the manufacturer. The participant may also verify the horsepower with the results of a dynamometer test. The dynamometer test will take into account a 15 percent loss in actual horsepower, accounting for transmission loss. Verification can include a letter or a printout from an engine manufacturer or dealership. On a case-by-case basis, ARB may approve other means of obtaining the information.

(H) The existing vehicle must be in operational or roadworthy condition, as determined through a CHP Biennial Inspection of Terminals (BIT) or equivalent air district-approved inspection. If the air district does not conduct a pre-inspection, the following methods may be used:

(1) The vehicle owner may submit a completed CHP 90-Day Safety Inspection Form documenting an inspection that occurred within 90 days of the application date; or

(2) An air district approved contractor may conduct the inspection of the old vehicle and provide pictures verifying that the vehicle is in operational condition.

(I) Glider Kits: Glider kits are replacement chassis and cabs for on-road heavy-duty vehicles. Glider kits are generally identified with a VIN starting with the letters “GL”. In situations where the model years of the glider kit vehicle’s chassis and engine differ, approval determination shall be made using the model year of the engine. Existing glider kit vehicles are eligible to participate but the replacement vehicle has to be a complete Original Equipment Manufacturer vehicle; i.e., the replacement vehicle cannot be a glider kit.

(J) Existing Vehicle Body Components: The body of the existing vehicle does not play a part in the participation in the program. Program funds can only be used to purchase the new vehicle, not external body components or parts used for a particular vocation (e.g., dump body). The common practice for vehicle owners to remove non-emission related body components from the existing vehicle and place them on the replacement vehicle is still permissible as long as the components do not exist on the replacement vehicle and are not a part of the paid components for the replacement vehicle.

(K) Operation of Existing Vehicle After Approval: If the existing vehicle is in an accident or has an engine failure after receiving approval from the air district but prior to replacement, then the existing vehicle will still be

eligible for receiving funds from the program as long as all other on-road requirements have been met.

5. Replacement Engine and Vehicle Requirements

(A) Emission Standards: Replacement vehicles with a 2013 model year or newer engine certified to a PM emission standard of 0.01 g/bhp-hr and a NOx family emission limit or NOx standard level of 0.20 g/bhp-hr or lower are eligible for funding (unless noted otherwise). New electric vehicles and non-combustion hybrid vehicles (e.g., electric vehicles powered by a hydrogen fuel cell) must have an ARB approval letter confirming the vehicle does not emit any vehicle exhaust emissions or fuel-based evaporative emissions. If the baseline engine model year is 2010, the replacement engine must be certified to a NOx standard level of 0.10 g/bhp-hr NOx or lower.

(B) Engine class: The engine's primary intended service class must match the replacement vehicle's weight class (i.e., an MHD diesel engine is used in a vehicle with a GVWR of 19,501- 33,000 lbs. and an HHD diesel engine is used in a vehicle with a GVWR greater than 33,000 lbs.). As an exception, an HHD engine may be installed in an MHD vehicle if necessary for vocational purposes, but only if the GVWR is within 10 percent of the engine's intended service class (i.e., GVWR of 29,701 lbs. or greater). Also, an MHD engine may be installed in an HHD vehicle, but only if the GVWR is within 10 percent of the engine's intended service class (i.e., GVWR of 36,300 lbs. or less).

(C) Mileage: A used HHD replacement vehicle must have less than 500,000 miles, a used MHD replacement vehicle must have less than 250,000 miles, and a used LHD replacement vehicle must have less than 150,000 miles with odometer verification to occur at the post-inspection.

(D) All-Electric Range: Electric vehicles and hybrid vehicles (new or converted) must demonstrate an all-electric range of at least 35 miles. Those with fast charge capability must demonstrate an all-electric range of at least 20 miles. If a vehicle is not certified to meet this range, it may only be approved for funding following ARB evaluation of demonstration test data verifying that minimum all-electric range requirements are met. If demonstration data has already been submitted to another ARB funding program and approved, demonstration requirements may be waived.

(E) Horsepower: The replacement engine horsepower must be no more than 25 percent greater than the existing engine horsepower. In limited situations, such as the non-availability of the original horsepower range for the specific application, the air district may approve a greater than 25 percent increase in horsepower.

(F) Weight Class: The replacement vehicle must be in the same weight class as the existing vehicle (either LHD, MHD, or HHD). An MHD vehicle can replace an HHD vehicle if they both have the same axle configuration (e.g. an existing HHD vehicle with two axles can be replaced with an MHD vehicle with two axles) but the funding amount must be at the MHD funding level.

(G) Body and Axle Configuration: The replacement vehicle must have the same axle and body configuration as the old vehicle. The air district may allow slight changes based on the latest technology. Changes must be requested and approved prior to the purchase of the replacement vehicle.

(H) Title: The replacement vehicle must have a clean title prior to purchase. The replacement vehicle must not have a salvage title and must not have been in an accident, repaired, and became available for resale.

(I) California Registration: The replacement vehicle must be registered in California or in the California IRP.

(J) The participant must maintain insurance coverage for the replaced/repowered/converted vehicle as required by law for the duration of the project life. The participant is encouraged to have replacement value insurance coverage to ensure complete repair or replacement in the event of major damage to the vehicle. If the vehicle is not repaired and replaced during the project life, the applicant must return prorated funds. See Section C.6.(I)(3).

(K) Warranty requirements: The following warranty requirements apply:

(1) Except for school buses, hybrids, and zero-emission vehicles, all participants must purchase a minimum of a one-year or 100,000 mile major component engine warranty for the replacement new or used vehicle or repowered engine. The warranty must cover parts and labor. If the purchase of a new or used replacement vehicle already includes a minimum one year or 100,000 mile warranty as specified above, a separate supplemental warranty is not required. However, it is recommended that the highest grade warranty be purchased in order to avoid expensive repairs in the future.

(2) Electric vehicles, hybrid vehicles, and conversion systems must have a minimum warranty period of 3 years or 50,000 miles. The warranty must cover the engine (if applicable) or motor, drivetrain, battery or energy storage, and parts and labor (including any part on the converted vehicle or engine that is damaged by the hybrid conversion system).

(3) For school buses, the vendor warranty must provide protection for a minimum of 60 months or 75,000 miles, whichever comes first, and provide full warranty coverage of, at a minimum, zero-emission or all-electric motor, drive train, batteries/energy storage system(s), parts and labor. Warranties must be fully transferrable to subsequent school bus purchasers for the full warranty coverage period. Warranties must cover the following for the full warranty period (unless otherwise denoted):

a. Extended Motor, Drivetrain (including Battery), and Zero-Emission Components: Provide warranty coverage against defects in material and workmanship for the motor, transmission, rear axle, and electric or zero-emission system components including the battery. Gaskets and seals are not required to be included under the warranty coverage.

b. Frame Rails, Cross Members, and Cab: For new school buses, coverage extends to structural cracks in the frame caused by defects in material workmanship and against corrosion perforation of the cab. For school bus conversions, the all-electric school bus vendor is only responsible for damage or corrosion tied to, or resulting from, their workmanship on, or handling of, these parts.

c. Battery Degradation Warranty: Provide warranty coverage against battery degradation below 80 percent of capacity.

(4) No Moyer Program funds will be issued for maintenance or repairs related to the operation of the vehicle. The participant takes sole responsibility for ensuring that the vehicle is in operational condition throughout the agreement period.

(L) Engine and Emission Control Modifications: Emission controls on the replacement vehicle engine cannot be modified except as permitted by law. Unauthorized modification to engine performance including, but not limited to, changes in horsepower, emission characteristics, engine emission components (not including repairs with like-original equipment manufacturers replacement parts), and modifications to the engine's emission control function or the electronic monitoring unit are not allowed.

(M) Service: At least one California service provider approved by the manufacturer must be available to repair and service the engine/vehicle.

6. Air District Requirements

(A) Requirements described in Chapter 3: Program Administration must be met unless otherwise stated in this chapter.

(B) Air districts must include the on-road category as a funding option in the air district's Moyer Program Policies and Procedures Manual before funding on-road projects. The Policies and Procedures must include the administrative tools that are needed to manage on-road projects, including memoranda of understanding (MOU) or agreements with vehicle dealerships/providers (if applicable) and dismantlers, reimbursement procedures, inspections, monitoring and enforcement, contract development, etc. Air districts are not required to submit the initial Policies and Procedures to ARB for approval, but it must be available upon request.

(C) Air districts may fund on-road projects through a regional program administered by one designated air district. The designated air district may be located within the region, or may be a large air district located outside the region.

(D) Air districts are responsible for ensuring all Moyer Program requirements are met. Air districts are encouraged but not required to have agreements or MOUs with vehicle dealerships. However, agreements or MOUs with participating dismantlers are required. Agreements or MOUs, should contain, at a minimum, the program requirements (including, but not limited to, the requirement that the dealer delivers the existing vehicle to a qualified dismantler within 60 calendar days of the date that the old vehicle was turned in to the dealer by the applicant) that are expected of each entity and the repercussions for noncompliance with the terms of the agreement or MOU for each entity. Air districts that fund projects through both VIP and this chapter can have one agreement with each dealer and dismantler for both programs as long as the dealer and dismantler agree to follow requirements of each program. State funds must not be provided by the air district for any dismantler or material costs, including hazardous waste abatement fees, labor costs, fines, permits, or other charges resulting from destruction or disposal.

(E) Reimbursement: To ensure that an application package is complete, the following items must be included and complete prior to reimbursement:

(1) Signed and complete application and fully executed contract.

(2) Documentation showing that the existing vehicle is roadworthy. This includes documentation showing that the old vehicle has passed a CHP BIT inspection in the past 90 days or conduct an equivalent vehicle inspection and sign as appropriate. If documentation is provided by a dealership, the air district reserves the right to audit the dealership's record of inspection.

(3) Invoices of the purchase and all work performed. If work was performed on the replacement vehicle, the invoices must include all

engine, transmission, engine horsepower derating, body and other work performed on the replacement vehicle.

(4) Digital photographs of the existing vehicle and the replacement vehicle or engine. If a contractor conducts any inspections, the air district will specify the required digital format. Reimbursement will not be processed until all photographs are received and verified by the air district. All photographs must be clear, and all VIN and engine serial numbers must be legible.

a. Photographs of the old vehicle must include the following views:

i. Right Side - hood down.
ii. Front - hood down.
iii. Left Side - hood down.
iv. Rear.
v. VIN Tag - inside vehicle or on frame rail.
vi. Engine serial number and engine information, if available (make, model year, engine family) - either tag or stamp on block.
vii. License plate.
viii. Left and right side of engine.

b. Photographs of the replacement engine or vehicle must include the following views:

i. At least one side of the vehicle.
ii. VIN Tag - inside vehicle or on frame rail.
iii. Engine serial number and engine information – tag (or primary motive power components).
iv. License plate.
v. Odometer reading.
vi. Left and right side of engine.
vii. Modifications (if any).

(5) Dealer/Provider/Installer certification that the old engine and/or vehicle will be delivered to a qualified dismantler within 60 calendar days of receipt of the old engine or vehicle. The certification must include the make, model, year, VIN, engine make, engine serial number, and the date the engine or vehicle is expected to be delivered to the dismantler. The location of the dismantler yard where the engine/vehicle will be destroyed must also be provided.

(6) Documentation of replacement vehicle warranty and registration (if applicable).

(7) Proof of Project Financing: The financing package will enable the air district to determine the reimbursement costs that may be

accrued in case the participant defaults on the contracted performance requirements. Proof of project financing can be a document showing the lender and the amount loaned, which at a minimum is a copy of the check given to the dealer equal to the portion of the project that was not Moyer Program funded. Proof of project financing is always required unless the grantee paid cash for the portion of the project that was not Moyer Program funded.

(8) For replacements, dealerships must possess pre-inspection documentation of the existing and replacement vehicles prior to releasing the replacement vehicle to the participant. If the air district conducts the inspections, the dealership must receive approval from the district before releasing the replacement vehicle. Upon request of the air district, ARB may waive inspection requirements.

(9) Proof of sale after the application and all required documentation have been approved by the air district.

(10) Copy of Title of Existing Vehicle. For replacement projects, the title must be signed and dated by the applicant.

(F) A third party (e.g., engine dealer or distributor) may complete an application or part of an application on an owner's behalf only if the vehicle owner signs and agrees to the application. Applications must include a signature section for third parties. The third party signature section must include signature and date lines, and sections for the third party to disclose how much they are being paid, if anything, to complete the application and the source of funds used to pay them. To make the Moyer Program accessible to all potential applicants, including those that cannot afford to hire third party assistance, air districts are encouraged to provide assistance to applicants.

(G) Air districts must ensure the vehicle and engine are scrapped within 60 calendar days of the dismantler's receipt of the vehicle. This must be confirmed through post-inspection by the air district or an air district approved contractor. The destruction of the old vehicle and engine must be properly documented in accordance with the Moyer Program requirements.

(H) Inspections: The following inspections must be performed for each funded engine/vehicle (exceptions are allowed for public fleets and transit agencies as specified in Chapter 3) as shown in Table 4-9:

Table 4-9
Required Inspections for On-Road Projects

Inspection Type	Purpose(s)	Timing
Pre-inspection	• Verify existing vehicle is in operational condition. • Verify existing vehicle application information.	After application is submitted to air district but prior to approving the application.
Post-inspection	• Verify replacement vehicle meets emission standard. • Verify application information.	Before replacement engine/vehicle is delivered, and prior to payment being issued.
Pre-dismantle inspection (Replacements Only)	• Verify existing vehicle is in operational condition and has not been stripped of parts (except those allowed in Section C.4.(J)) per Section C.7.(F). • Verify existing vehicle application information.	• After existing truck is delivered to dealership before payment is issued. • Existing truck is at dealership location and must be delivered to dismantler within 60 days.
Dismantle inspection	• Verify engine destruction (see Section C. 8.(C)(4)). • Verify that frame rails are completely severed. • Obtain copy of REG 42 form filed with DMV.	• After engine and frame rail destruction. • Within 60 days after dismantler receipt. • If dismantler takes photos, they must be provided to the air district within 10 business days of dismantling.

Documentation requirements are specified in Chapter 3, Section W. and X. Air districts may enter into a contract, written agreement, or memorandum of understanding with a contractor to perform project inspections (pre-inspections, post-inspections, pre-dismantle, or dismantle inspections). If an air district chooses to use contractors to perform inspections, air district staff must conduct and document at least one inspection on each project without the use of a contractor. Air districts must ensure all inspection requirements are met and shall retain legal responsibility for full compliance with the inspection provisions of these

Guidelines, regardless of the use of contractors. Air districts that do not conduct 100 percent of required inspections themselves must audit 5 percent of each type of inspection (pre, post, pre-dismantle, and dismantle). Audits should be done randomly and occur throughout the implementation timeline of the air district.

(I) Recovery of Moyer Program Grant Funds: The air district must establish a mechanism to assure the participants fulfill all contractual obligations, including owning and operating the funded vehicle for the project life. The air district will determine noticing requirements and the method to achieve fund recovery. Air districts may consider the following options:

(1) List the air district as co-lien holder on the title of the funded vehicle for the term of the agreement. The participant must submit a completed Uniform Commercial Code-1 Financing Statement Form to the California Secretary of State, with a copy sent to the air district, within 30 days of the project sale. The financing statement must have the air district as the secured party and the vehicle should be listed as collateral.

(2) If the funded vehicle is sold during the project life, the new owner must assume the obligations under the participant's contract with the air district and comply with the terms and conditions of the contract. The air district must approve the change in ownership prior to the sale.

(3) The grant recipient may return funds according to the following prorated formula:

$$Recapture\ Amount\ (\$) =$$

$$Funding\ Amount(\$) - \frac{Elapsed\ Portion\ of\ Project\ Life(Yrs) * Funding\ Amount(\$)}{Project\ Life(Yrs)}$$

(J) Air districts and ARB reserve the right to deny funding to applicants that have previously received funds and did not meet the terms and conditions of the funding agreement.

(K) Projects may be reviewed through a solicitation process or first-come, first-served as described in the air district's Policies and Procedures.

(L) Air districts must perform compliance checks (see section C.1.(D)).

(M) Air districts must provide training, as described in Section C.7.(A)(3) and C.8.(B)(2), and additional training in a timely manner whenever there have been substantive Moyer Program revisions.

7. Dealership/Installer Requirements

(A) Dealerships and installers must warrant that they meet the following minimum qualifications and will continue to meet these qualifications throughout participation in the Program:

(1) Dealership/Installer has had a valid business license issued in California for a minimum of the last two years.

(2) Dealership has had a valid vehicle dealership license with DMV for a minimum of the last two years. The installer is authorized by the manufacturer.

(3) Dealership/Installer maintains a minimum of one employee that has successfully completed the training by the air district regarding terms, conditions and requirements of the Program. If a participating dealership maintains more than one location for truck sales, then each location must have at least one employee trained.

(4) Dealership/Installer agrees to allow the air district or ARB to inspect vehicles or audit program records covered under the Moyer Program Guidelines during normal business hours.

(B) Vehicle dealers must:

(1) Provide basic information to vehicle owners about the Moyer Program.

(2) Help participants complete the application, if necessary. It is important to make sure that all information is filled out correctly and that the participant understands the meaning of the program and the contract. Once complete, the dealer may submit the application package to the air district according to the agreement or MOU, if applicable.

(C) Dealerships and installers must adhere to agreements or MOUs established with the air district, if applicable.

(D) Dealerships and installers must submit all supporting documentation required under the Guidelines and if applicable, air district agreement for each project. Once all dealership/installer requirements have been met, reimbursement will be issued to the dealer/installer according to the agreement or MOU, when applicable.

(E) Dealerships and installers must possess pre-inspection documentation of the existing and replacement engines/vehicles prior to releasing the replacement engine/vehicle to the participant. If the agreement or MOU specifies that the air district or other third party will perform any inspections, the dealership/installer must receive air district approval

before releasing the replacement engine/vehicle. Upon request of the air district, ARB may waive inspection requirements.

(F) For replacements, the dealership must ensure the existing vehicle is in similar condition as found in the pre-inspection. The dealer should reject the condition of the existing vehicle if it is deemed unroadworthy or if parts were stripped from the existing vehicle (except for parts essential to vocation that will be installed on the replacement vehicle). Reimbursement to the dealer or release of funds to the grantee will be withheld until the dealer (or air district) approves of the condition of the existing vehicle and it is delivered to the dealership.

(G) The dealer or installer must deliver the existing engine/vehicle to a qualified dismantler within 60 calendar days of delivering the replacement engine/vehicle to the grantee. The dealer or installer must immediately notify the air district of the location and date of delivery of the existing engine/vehicle to the dismantler. The participating dismantler may also pick up the existing engine/vehicle.

(H) Use of Engine or Vehicle Pending Destruction: The dealer/installer may not use or permit the use of, the engines or vehicles, except use necessary to move it for destruction or storage.

(I) For electric or hybrid vehicles (new or converted), the dealership/installer/manufacturer must provide the air district with a copy of the owner's manual and other materials that will be provided to the purchaser/participant. The owner's manual and other materials must at least include the following information:

(1) A brief description of the vehicle/conversion system, including major components and their theory of operation and proper operating procedures;

(2) Battery maintenance best practices and charging procedures and protocols, if applicable;

(3) A listing of necessary service intervals and service requirements that differ from the base vehicle's or engine's original manufacturer's, if applicable;

(4) A statement that the hybrid converted vehicle is subject to all in-use vehicle inspection and maintenance programs applicable to its size, type, and class;

(5) The name, physical address, e-mail address, phone number, and website, if available, of the manufacturer and authorized installer, as well as a list of the names, addresses, and phone numbers of the major dealers who supply parts for, or service the vehicle;

(6) All information necessary for the proper and safe operation of the vehicle, including information on safe handling of the battery or energy storage system, and emergency procedures to follow in the event of battery leakage or other malfunctions that may affect the safety of the vehicle operator, emergency personnel, or laboratory personnel;

(7) The product warranty statement.

8. Dismantler Requirements

(A) If the existing engine or vehicle is replaced or removed, it must be dismantled. This requirement has been established to ensure that emission reductions are real, preventing the engine from continuing to emit high levels of pollutants. Destruction of the existing vehicle chassis and engine permanently removes the old, high emitting vehicle from service. The existing vehicle and engine specified in the application (or engine only for repower and conversion projects) must be dismantled, and may not be substituted with a different vehicle.

(B) To participate in the Program, dismantlers must:

(1) Enter into an agreement with the air district.

(2) Have at least one active employee who received training by the air district on the requirements of the Moyer Program. If a dismantler has more than one location, then the dismantler must have at least one active employee trained by the air district at each location that will be accepting engines/vehicles for the Moyer Program.

(3) Be licensed by DMV as an dismantler for at least the previous two years.

(4) Have had a valid business license issued in California for a minimum of the last two years.

(5) Possess a current, valid California Environmental Protection Agency Hazardous Materials Generators Permit.

(6) Be in compliance with all local, State, and federal laws and regulations.

(C) The dismantler must do the following for each engine/vehicle:

(1) Dismantle the old vehicle in accordance with Moyer Program Guidelines within 60 calendar days of receipt. Upon dismantler request, the air district may approve an extension.

(2) Destroy and render useless the existing vehicle and/or engine. At a minimum, the destruction must include the following:

a. Both frame rails must be completely severed between the front and rear axles.

b. A hole must be put in the engine block with a diameter of at least three inches at the narrowest point. The hole must be irregularly shaped (i.e. no symmetrical squares or circles). A section of the oil pan flange must be removed as part of the hole or have a line cut through it that connects to the hole.

(3) If the vehicle is to be scrapped, the dismantler must completely sever the frame rails of the old vehicle to ensure that the vehicle will not be used again.

(4) Air district staff or the dismantler must take photographs of the destroyed engine and severed frame rails. Dismantler photographs of the destroyed engine block and severed frame rails must be provided to the air district within ten (10) business days of dismantling the vehicle. The following picture views must be taken:

a. Front, right, and left side of vehicle with hood down including license plate if available (vehicle scrap).

b. VIN tag (vehicle scrap).

c. Engine serial number either stamped on the block or on the tag (engine or vehicle scrap).

d. Left and right side of destroyed engine block either in-frame or out of frame (engine or vehicle scrap).

e. Hole in engine block (engine or vehicle scrap).

f. Completely severed frame rails (vehicle scrap).

g. Odometer Reading (vehicle scrap).

(5) Prepare and submit to DMV either a “Non-Repairable Vehicle Certificate” using an “Application for Salvage Certificate or Non-Repairable Vehicle Certificate” (REG 488C), or a Notice of Acquisition/Report of Vehicle To Be Dismantled (REG 42) ensuring the VIN can never be registered again in California. Within 90 calendar days of the dismantle inspection date, the dismantler must provide verification to the air district that the existing vehicle has been registered with DMV as non-revivable with a type transaction code (TTC) L10 or C26 on the DMV Reconciliation

transaction receipt or other DMV documentation that satisfies this requirement.

(6) Upon request of the air district, ARB may approve an alternative disposition for the old engine/vehicle.

(D) As specified in California Code of Regulations, title 13, section 2706(i)(3)(G), no party shall advertise, sell , lease, or offer for sale or lease, a used verified diesel emission control strategy.

(E) Dismantler Inspection: Once the air district is notified, a dismantler inspection will be scheduled and photos documenting the destruction of the engine will be taken in accordance with the Guidelines. The dismantler shall not move the vehicle off of their property or part out a vehicle until a dismantler inspection by the air district or a designated contractor has been performed and given approval by the air district.

(F) Use of Engine or Vehicle Pending Destruction: The dismantler may not use or permit the use of, the engines or vehicles, except use necessary to move it for destruction or storage.

CHAPTER 5: OFF-ROAD EQUIPMENT

This chapter describes the minimum criteria and requirements for Carl Moyer Memorial Air Quality Standards Attainment Program (Moyer Program) mobile, portable and stationary, off-road compression-ignition (CI or diesel), and large spark-ignition (LSI) projects such as construction, agricultural, and industrial equipment. Air quality management districts or air pollution control districts (air districts) may set more stringent requirements based upon local priorities.

A. Projects Eligible for Funding

The following off-road equipment projects may be eligible for funding.

1. **Repower of Existing Equipment**. The replacement of the existing engine with a newer emission-certified engine instead of rebuilding the existing engine to its original specifications.

2. **Retrofit Purchase**. The installation of an Air Resources Board (ARB) verified emission control system on an existing engine. Examples include, but are not limited to particulate filters and diesel oxidation catalysts.

3. **Equipment Replacement**. The purchase of new or used equipment with an engine certified to the current emission standard or Tier to replace an older, fully functional piece of equipment that is to be scrapped.

4. **Infrastructure**. See the infrastructure chapter (Chapter 10) for details regarding applicant eligibility and project types for infrastructure in support of off-road equipment. This includes infrastructure such as alternative fuel and charging stations for construction, cargo handling, and ground support equipment, as well as agricultural pump electrification.

Please see Sections C and D for determining maximum grant amounts and minimum eligibility requirements for all off-road project categories.

B. Engine Emission Standards

ARB and the United States Environmental Protection Agency (U.S. EPA) have adopted regulations for exhaust emission standards for new off-road CI and LSI engines and equipment. For reference, Tables 5-1 and 5-2 below summarize the hydrocarbon (HC), oxides of nitrogen (NOx), and particulate matter (PM) standards in grams per brake-horsepower-hour (g/bhp-hr) for off-road CI Tier 1, 2, 3, and 4 engines. The actual standards, in grams per kilowatt-hour (g/kW-hr), may be found in the California Code of Regulations (CCR), title 13, sections 2449, et seq. Table 5-3 summarizes the exhaust emission standards for LSI engines. The complete emission standards for LSI engines may be found in the CCR, title 13, sections 2430, et seq.

Table 5-1
ARB and U.S. EPA Tier 1, 2, and 3 Exhaust Emission Standards for New Off-Road Diesel Engines ≥ 25 Horsepower (hp)
grams per brake horsepower-hour (g/bhp-hr)

Maximum Rated Power hp (kW)	Tier	Model Year	NOx	HC	NOx + NMHC	PM
25≤hp<50 (19≤kW<37)	Tier 1	1999-2003[a]	—	—	7.1	0.60
	Tier 2	2004-2007	—	—	5.6	0.45
50≤hp<75 (37≤kW<56)	Tier 1	1998-2003[a]	6.9	—	—	—
	Tier 2	2004-2007	—	—	5.6	0.30
	Tier 3[b]	2008-2011	—	—	3.5	0.30
75≤hp<100 (56≤kW<75)	Tier 1	1998-2003[a]	6.9	—	—	—
	Tier 2	2004-2007	—	—	5.6	0.30
	Tier 3	2008-2011	—	—	3.5	0.30
100≤hp<175 (75≤kW<130)	Tier 1	1997-2002[a]	6.9	—	—	—
	Tier 2	2003-2006	—	—	4.9	0.22
	Tier 3	2007-2011	—	—	3.0	0.22
175≤hp<300 (130≤kW<225)	Tier 1	1996-2002	6.9	1.0	—	0.40
	Tier 2	2003-2005	—	—	4.9	0.15
	Tier 3[c]	2006-2010	—	—	3.0	0.15
300≤hp<600 (225≤kW<450)	Tier 1	1996-2000	6.9	1.0	—	0.40
	Tier 2	2001-2005	—	—	4.8	0.15
	Tier 3[c]	2006-2010	—	—	3.0	0.15
600≤hp≤750 (450≤kW≤560)	Tier 1	1996-2001	6.9	1.0	—	0.40
	Tier 2	2002-2005	—	—	4.8	0.15
	Tier 3[c]	2006-2010	—	—	3.0	0.15
hp>750 (kW>560)	Tier 1	2000-2005	6.9	1.0	—	0.40
	Tier 2	2006-2010	—	—	4.8	0.15

[a] EPA model year. ARB model year for Tier 1 starts at 2000 for 25 hp ≤ to <175 hp.
[b] Engine families in this power category may meet the Tier 3 PM standard instead of the Tier 4 interim PM standard in exchange for introducing the final Tier 4 PM standard in 2012.
[c] Caterpillar, Cummins, Detroit Diesel Corporation, and Volvo Truck Corporation agreed to comply with these standards by 2005.

Table 5-2
ARB and U.S. EPA Tier 4 Exhaust Emission Standards for New Off-Road Diesel Engines ≥ 25 hp (g/bhp-hr)

Maximum Rated Power hp (kW)	Tier	Model Year	NOx	HC	NOx + NMHC	PM
25≤hp<50 (19≤kW<37)	Tier 4 Interim	2008-2012	—	—	5.6	0.22
	Tier 4 Final	2013 and later	—	—	3.5	0.02
50≤hp<75 (37≤kW<56)	Tier 4 Interim[(a)]	2008-2012	—	—	3.5	0.22
	Tier 4 Final	2013 and later	—	—	3.5	0.02
75≤hp<100 (56≤kW<75)	Tier 4 Phase-In	2012-2014	0.30	0.14	—	0.01
	Tier 4 Phase-Out		—	—	3.5	0.01
	Tier 4 Alternate NOx[(b)]		2.50	0.14	—	0.01
	Tier 4 Final	2015 and later	0.30	0.14	—	0.01
100≤hp<175 (75≤kW<130)	Tier 4 Phase-In	2012-2014	0.30	0.14	—	0.01
	Tier 4 Phase-Out		—	—	3.0	0.01
	Tier 4 Alternate NOx[(b)]		2.50	0.14	—	0.01
	Tier 4 Final	2015 and later	0.30	0.14	—	0.01
175≤hp<750 (130≤kW<560)	Tier 4 Phase-In	2011-2013	0.30	0.14	—	0.01
	Tier 4 Phase-Out		—	—	3.0	0.01
	Tier 4 Alternate NOx[(b)]		1.50	0.14	—	0.01
	Tier 4 Final	2014 and later	0.30	0.14	—	0.01
hp>750 (kW>560)	Tier 4 Interim	2011-2014	2.60	0.30	—	0.07
	Tier 4 Final	2015 and later	2.60	0.14	—	0.03

[(a)] Engine families in this power category may meet the Tier 3 PM standard instead of the Tier 4 interim PM standard in exchange for introducing the final Tier 4 PM standard in 2012.
[(b)] The implementation schedule shown is the three-year alternate NOx approach. Other schedules are available.

Table 5-3
Exhaust Emission Standards for
New Off-Road LSI Engines >1.0 liter
(g/bhp-hr)

Model Year	NOx+ Non-Methane Hydrocarbons (NMHC)
2001-2006[(a)]	3.0
2007-2009	2.0
2010 and later	0.6

[(a)] Standards phased in from 2001 – 2004

C. Maximum Eligible Funding Amounts (Determining Grant Amounts)

1. Table 5-4 summarizes the maximum eligible funding for each project type as a percentage. All projects are also subject to the cost-effectiveness limits specified in Appendix C.

Table 5-4
Maximum Percentage Eligible for
Moyer Program Off-Road Projects

Project	Maximum Percentage Eligible
Diesel repower	85**%**
LSI repower	85%
Repower to zero-emission	85%
Mobile equipment replacement	80%
Portable equipment replacement (excludes stationary)	80%
Retrofit	100**%**

The ARB has adopted in-use fleet rules affecting equipment with off-road CI and off-road LSI engines. For equipment subject to these rules, additional limitations may apply according to Sections E through I.

2. Project Life:

(A) Maximum project life

Table 5-5
Maximum Project Life

Type		Project Life
Repower only (no retrofit)		7 years
Farm equipment[1] (all projects)		10 years[a]
Replacement and repower to zero-emission		10 years[b]
Retrofit only		5 years
Replacement	Excavators Skid steer loaders Rough terrain forklifts	3 years
	All other non-farm (existing diesel only)	5 years
	All other non-farm (existing LSI only)	3 years

[a] Air districts are required to offer a ten year project life for farm equipment; however, applicants may request a project life fewer than ten years. Farm equipment is defined in Appendix B and does not include stationary agricultural equipment.

[b] Section C.2.(E) allows a maximum project life of ten years for zero-emission replacements.

(B) The maximum project life does not consider regulatory requirements that may shorten the eligible project life. Regulatory requirements may reduce actual project lives below these maximum values.

(C) Unless otherwise stated in this chapter (see Sections D.2.(I) and E.2.(H)(1)), the minimum project life allowed is three years.

(D) In accordance with SBx2 3 (Health and Safety Code (H&SC) § 44282.5(a)), mobile and portable farm equipment may be eligible for funding up to the compliance date of an applicable in-use regulation and a 10-year project life. In order to be eligible, farm equipment projects must be under a fully executed contract, and must be installed in the equipment and in operation prior to the applicable compliance date.

(E) For zero-emission replacement equipment, Senate Bill 467 (H&SC § 44287.1) allows the replacement of off-road internal combustion equipment with zero-emission off-road equipment to incorporate the maximum life allowed of the equipment being scrapped (three to five years, as applicable per Section C.2.(A)) and the remaining useful life up to ten years of the equipment the applicant would have bought at the time

of normal attrition (five to seven years, as applicable). For zero-emission replacement of off-road equipment, the emission benefits from two separate transactions may be included in the cost-effectiveness calculations:

(1) Emission reductions from existing older equipment, as applicable, to zero-emission equipment.

(2) Emission reductions from a new piece of equipment meeting the emission standards at the time of purchase to zero emission.

2. **Usage**. Cost-effectiveness calculations must be hour-based. Calculation of funding amounts must be based on the average of at least the two most recent years of documented equipment usage. For projects in which the two most recent years of documented usage are not available, the minimum annual usage is required to be specified in the contract (Chapter 3, Section V.6.(B)). Fleet averages cannot be used. All project engines or equipment must have a fully operational hour meter for the project life. If during the project life the hour meter fails for any reason, the hour meter must be repaired or replaced as soon as possible at the owner's expense.

D. Project Criteria

The minimum qualifications for off-road projects are listed below. All projects must also conform to the requirements in Chapter 2: General Criteria and in Chapter 3: Program Administration. Participating air districts retain the authority to impose additional requirements in order to address local concerns.

1. General Criteria:

(A) New and existing CI and LSI engines greater than or equal to 25 horsepower on mobile or portable off-road equipment and stationary agricultural equipment are eligible for funding. LSI engines above 25 horsepower but with a displacement of less than or equal to one liter may be eligible for funding on a case by case basis.

(B) Air districts have discretion to use good engineering judgment to determine project horsepower for an existing or new engine or equipment based on the engine label, manual, engine records, or other verifiable records.

(C) For existing equipment in which the actual engine horsepower cannot be determined based upon the engine label, manual, and engine records, air districts may determine existing engine horsepower by the following formula: Engine horsepower = Power Take Off (PTO) x 120 percent.

(D) Future annual hours of equipment operation for determining emission reductions must be based upon readings from an installed and fully operational hour meter.

(E) The certification emission standard and/or Tier designation for the existing engine (if applicable) and the new engine must be determined from the ARB Executive Order or U.S. EPA Certificate of Conformity (for federally preempted engines) issued for that engine. ARB Executive Orders for off-road engines may be found at http://www.arb.ca.gov/msprog/offroad/cert/cert.php.

(F) For existing equipment with engines manufactured under the flexibility provision, detailed in CCR, title 13, section 2423(d), the baseline emission rates shall be determined by using the previous applicable Tier emission standard for the existing engine model year and horsepower rating. Alternatively, the baseline emission rates may be determined based upon the standard or Tier associated with the actual reference family listed on the emission control information label of the existing equipment. The ARB Executive Order for these engines indicates that the engines are certified under the flexibility provision. Air districts must retain this documentation in the project file.

(G) New engines that are participating in the "Tier 4 Early Introduction Incentive for Engine Manufacturers" program, as detailed in CCR, title 13, section 2423(b)(6), are eligible for funding provided that they are certified to the Tier 4 Final emission standards. The ARB Executive Order for these engines indicates that the engines are certified under this provision. The emission rates for these engines used to determine cost-effectiveness shall be equivalent to the emission factors associated with Tier 3 engines. Air districts must retain this documentation in the project file.

(H) Notwithstanding Section D.1.(J) below, new engines certified to the interim Tier 4 (interim Tier 4, Tier 4 Phase-Out, Tier 4 Phase-in/Alternate NOx) and Tier 4 Final emission standards participating in the averaging, banking, and trading program that are certified to FEL higher than the applicable emission standards are eligible for funding. The appropriate emission factor for calculating emission reductions and cost-effectiveness shall be equivalent to the emission factors associated with the Tier 3 for engines 50 to 750 horsepower and Tier 2 for engines less than 50 horsepower or greater than 750 horsepower.

(I) Notwithstanding section D.1.(J) below, new engines certified to the interim Tier 4 and Tier 4 Final emission standards participating in the averaging, banking, and trading program that are certified to a FEL below the applicable emission standards are eligible for funding. The appropriate emission factor for calculating emission reductions and cost-effectiveness

shall be the emission factor associated with the applicable interim Tier 4 (interim Tier 4, Tier 4 Phase-Out, Tier 4 Phase-in/Alternate NOx) or Tier 4 Final emission standard.

(J) New engines eligible for off-road projects must meet the current applicable standard or Tier. If repowering or replacing with an engine meeting the current applicable standard is technically infeasible, unsafe, or not available when the air district commits to the proposed project, the new engine must meet the most practicable previously applicable emission standard. For purposes of this section, the air district's commitment (as defined in Appendix B) to a proposed project shall be consistent with that stated in their Policies and Procedures Manual. The air district shall determine eligibility of repower and replacement projects using an engine certified to a previous emission standard using the criteria listed below:

(1) At the applicant's request, confirmation of availability of an engine meeting the most recent emission standards or Tier may be limited to the same manufacturer as the existing engine.

(2) If the air district and the applicant do not execute a contract for the project within six months of project commitment, then the air district must recheck for the availability of engines meeting the current standard.

(3) Documentation that engines meeting the current applicable standards are unavailable must be included in the air district's project file. Acceptable documentation that engines meeting the most recent emission standards are unavailable include:

a. Verifiable information from the engine manufacturer, engine distributor, and/or engine dealer regarding the unavailability of engines meeting the current emission standards or Tier.

b. Confirmation (a written declaration by the air district is acceptable) that engines from a specific manufacturer meeting the current emission standards or Tier are not certified (Executive Order is not available on ARB website). Executive Orders for off-road engines may be found at http://www.arb.ca.gov/msprog/offroad/cert/cert.php.

c. For repower projects, a written statement of reason(s) provided by the engine manufacturer verifying that a particular piece of equipment cannot accommodate an engine meeting current standards without major modifications or safety risks. The letter must include information on the equipment being repowered, the engine being replaced, the reason why an engine meeting the currently applicable standard cannot be used (including

applicable supporting documentation), and the proposed replacement engine. Air districts must retain the written statement of reasons in the project files.

d. For repower projects, the engine manufacturer has provided ARB with sufficient information on engine and/or equipment models for which repowers are available, and engine and/or equipment models for which repowers are not available or feasible. Engine manufacturers who are interested in pursuing this option should contact ARB. ARB staff will maintain a list of such engines and/or equipment models and make that list available to air district staff.

(K) Existing zero- or low-emission equipment are required for worker safety in the following industries, and therefore these projects are not eligible for funding: food retail stores, cold storage, and confined space operations (such as freezers).

(L) The horsepower rating for the replacement engine must not be greater than 125 percent of the original manufacturer rated horsepower (baseline horsepower) for the existing engine. In limited situations, such as where equipment in the original horsepower range is not available or the higher horsepower equipment will result in equal or lower annual emissions, the air district may approve a greater than 25 percent increase in horsepower.

(M) Notwithstanding D.1.(L), at an air district's discretion, new engines or equipment may be funded with horsepower greater than 125 percent of existing equipment. However, the eligible funding amount must be based upon the cost of an engine or equipment whose horsepower is no higher than 125 percent of the existing engine horsepower. The applicant must pay the additional costs associated with the higher horsepower engine, and the emission reduction calculation must be based upon the funded (higher horsepower) engine. The air district's project file must include documentation of the cost of the funded (higher horsepower) equipment as well as the method used to determine the basis for the project grant amount (e.g. dealership cost estimate of lower horsepower equipment).

(N) New electric motors and equipment that are rated less than 19 kW are eligible for funding provided it can serve the same function and perform the same work as equipment with a 25 horsepower or greater engine that it is replacing.

(O) No funds will be issued for maintenance or repairs related to the operation of the existing or new equipment. The participant takes sole responsibility for ensuring that the engine and/or equipment is/are in operational condition throughout the agreement period.

(P) Existing engines replaced as part of an off-road project must be destroyed and rendered useless. At a minimum, the destruction of an engine must include:

(1) A hole in the engine block with a diameter of at least three inches at the narrowest point. The hole must be irregularly shaped (i.e. no symmetrical squares or circles) and

(2) A section of the oil pan flange must be removed as part of the hole or have a line cut through it that connects the hole.

(Q) For portable/stationary agricultural projects, State and air district rules impacting agricultural sources must be considered when determining whether projects provide emission reductions surplus to regulatory requirements. Moyer eligibility may be based on the requirements of the local rule if the local rule meets the requirements of Health and Safety Code section 39666(d). An air district requesting to have eligibility based on local rules must have its Air Pollution Control Officer self-certify via email or letter to their ARB Moyer liaison that the local rule is equally as effective as or more stringent than the Airborne Toxic Control Measure for Stationary Compression Ignition Engines (CCR, title 17, section 93115 et. seq.). Note: The self-certification described in this section applies solely to the Moyer Program and does not relieve the air district of their responsibilities under Health and Safety Code section 39666 or any other ARB program or requirement.

2. Repower

(A) New engines manufactured under the “Flexibility Provisions for Equipment Manufacturers” as detailed in CCR, title 13, section 2423(d), are ineligible for funding to repower equipment.

(B) New engines manufactured under the “replacement engine” provisions of CCR, title 13, section 2423(j) and/or the provisions of 40 Code of Federal Regulations (CFR) 1068.240 which are used to repower equipment are eligible for funding.

(C) For repower plus retrofit projects, the cost of data logging the replacement engine is not eligible. Please refer to Section D.3. for additional criteria.

(D) For repower projects with new off-road compression-ignition engines equipped with original engine manufacturer after treatment devices, addition of a retrofit is ineligible due to issues with engine warranty and anti-tampering provisions.

(E) Repower to convert to zero-emission technology is eligible for funding. Except for stationary agricultural equipment, zero-emission repower

projects must include a three-year or 5,000-hour warranty. The warranty must cover zero-emission system parts and labor.

(F) Variable frequency devices (VFD) may be eligible for funding provided the air district reports VFD cost and serial number information in the Clean Air Reporting Log (CARL).

(G) In stationary electric motor projects, the grantee must provide documentation of application or payment to the local utility company for power installation.

(H) An electric motor on an agricultural irrigation pump project that is under contract may be considered for invoice payment once the motor has been delivered to the project site, and the motor has been connected to the electricity grid.

(I) For portable/stationary agricultural projects, except for remotely located or less than 50 hp agricultural engines (as defined in Appendix B), only Tier 3 engines are eligible to be repowered. These must repower to Tier 4 Final engines. Air districts with a local rule may repower uncontrolled, Tier 1, and Tier 2 engines to Tier 4 Final engines as long as there is at least one year of surplus emissions reductions prior to the compliance date of the local rule for the specific tier. The minimum project life in these instances is one year. When repowering a Tier 3 engine, air districts are encouraged to consider the feasibility of repowering with zero-emission technology, such as an electric motor, over a Tier 4 Final engine.

3. Retrofit

(A) Existing off-road CI engines equipped with original engine manufacturer aftertreatment devices are ineligible for funding.

(B) The retrofit must be verified by ARB to the highest level available for the engine being retrofitted.

(C) Eligible project costs include:

(1) Retrofit system (including all essential components)

(2) Installation

(3) Maintenance (for duration of project life)

(4) Hour meter (if none existed on existing equipment)

(D) The data logging cost of a retrofit-only project is not eligible.

(E) Additional information on verified diesel retrofit systems may be found on ARB's website at http://www.arb.ca.gov/diesel/verdev/verdev.htm. Information on verified LSI retrofit systems may be found at: http://www.arb.ca.gov/msprog/offroad/orspark/verdev.htm.

4. Equipment Replacement

(A) Equipment replacement projects are limited to mobile and portable equipment.

(B) Equipment manufactured under the "Flexibility Provisions for Equipment Manufacturers" (Flex equipment), as detailed in CCR, title 13, section 2423(d) is eligible for funding as replacement equipment, provided the equipment meets the requirements of section D.1.(J) above.

(1) Eligible Flex equipment whose reference engine family is certified to an FEL is also subject to the provisions of Section D.1.(H) and (I).

(2) Flex equipment with an engine whose reference engine family meets a standard, Tier, or FEL less stringent than Tier 3 standard (or Tier 2 standard for engines less than 50 horsepower or greater than 750 horsepower), is ineligible for funding.

(C) The replacement of two (or more) pieces of existing equipment with one piece of replacement equipment is eligible for funding. Each piece of existing and replacement equipment must comply with all of the appropriate criteria in this section. The replacement equipment must execute the same job as the existing pieces of equipment. For baseline emissions calculation, the annual emissions of the two pieces of existing equipment are summed. For the replacement equipment emissions calculation, the annual usage of the two pieces of existing equipment is summed for the replacement equipment usage. The horsepower rating for the replacement equipment must not be greater than 125 percent of the original manufacturer rated horsepower (baseline horsepower) for the lowest horsepower of the two existing equipment engines (unless the grantee pays for the horsepower upgrade as specified in Section D.1.(M)).

(D) If air districts use equipment dealers in implementing the equipment replacement program, reimbursement cannot be issued until all necessary documentation is received and approved by the air district. Participants may purchase the replacement equipment from a private party, provided all required documentation is submitted and approved by the air district. This includes warranty requirements and all other equipment replacement requirements.

(E) Existing Equipment Requirements:

(1) Equipment Ownership: the applicant must have owned the existing equipment in California for the previous two years. The applicant must provide documentation of the following specific to the existing equipment (select one):

a. Bill of sale for the old existing equipment (preferred)

b. Tax depreciation logs

c. Property tax records

d. Equipment insurance records

e. Bank appraisals for equipment

f. Maintenance/service records

g. General ledgers

h. Fuel records specific to the existing equipment that identify the equipment owner

i. Other documentation approved by ARB

(2) Operational Requirements: the existing equipment must be in operational condition to qualify for funding. A pre-inspection of the existing equipment must be performed prior to funding to verify the operational status of the equipment. In addition, the applicant must provide documentation to demonstrate that the equipment was operational for the previous year. The following types of documents are acceptable:

a. Revenue and usage records that identify operational, standby, and down hours for the equipment

b. Routine inspections which document the operating condition of the existing equipment (Occupational Safety and Health Administration or workplace required)

c. Employee timesheets linked to specific equipment use

d. Preventative maintenance/service records tied to specific hours of equipment use

e. Repair work orders specific to the equipment

f. Other documents approved by ARB

(3) Pre-Inspection Requirements: Pre-inspection must verify the operational condition of the existing equipment. The pre-inspection must verify, at a minimum, the following items:

a. Tires in usable condition (able to hold air, sufficient tread or tracks, etc.)

b. Steering wheel operational

c. Equipment able to start up and move backwards and forwards

d. Buckets, blades, rollers, etc. are working

e. Undercarriage structurally sound

f. Fuel tank in usable condition

g. No parts stripped

h. Equipment not vandalized

i. Clear photographs of the existing equipment must include the following views listed below. The air district will specify the required digital format.

i. Right side - hood down

ii. Front - hood down

iii. Left side - hood down

iv. Equipment serial number

v. Engine serial number - either tag or stamp on block

vi. Diesel Off-Road Online Reporting System (DOORS) Equipment Identification Number (EIN), if applicable

vii. Rear

(4) Destruction and Salvage Requirements: Equipment replacement requires that the existing equipment be scrapped to permanently remove it from service. This ensures that emission reductions are real and prevents the existing equipment from being moved into another locale to continue emitting high levels of pollutants.

a. Destruction of the equipment may occur either at an air district approved salvage yard or another facility in conjunction with an air district salvage inspection.

b. Both the existing engine and equipment must be destroyed. Refer to Section D.1.(P) for the engine destruction method. The destruction method of the equipment will vary depending on the structure of the equipment:

   i. Equipment with permanent frame rails running the length of the equipment: complete cuts of both frame rails between the front and rear axles.

   ii. Equipment with removable/bolt-on frame rails: structural damage, with cuts or otherwise, that renders the main body of the equipment inoperable and unrepairable.

   iii. Equipment without frame rails: structural damage, with cuts or otherwise, that renders the main body of the equipment inoperable and unrepairable.

   iv. Articulated equipment: damage, cuts or otherwise, to the articulation joints of front and rear halves of the equipment so that neither half can be joined.

   v. Other equivalent methods of destruction are acceptable if approved by the air district.

c. The existing engine and equipment must be destroyed within 60 days of being replaced. Documentation of the destruction must be provided to the air district within 10 days of destruction.

d. Funding is not available for the salvage of any existing equipment.

e. The existing equipment salvage value will be negotiated between either the applicant, the dealership, and/or the salvage yard.

f. A salvage inspection of the existing equipment must be performed by either the air district or a contracted salvage yard.

g. Air districts which perform their own salvage inspections must be notified within 10 days of destruction so that a salvage inspection can occur.

h. Salvage inspection must include clear photographs of the following views:

   i. DOORS EIN (if applicable)

   ii. Equipment serial number

iii. Engine serial number either stamped on the block or on the tag

iv. Destroyed engine block as described in Section D.1.(P).

v. Cut structural components as described in Section D.4.(E)(4)b.

vi. Other views dependent on the method of equipment destruction

i. Salvage inspection of the existing equipment must be completed prior to disbursement of funds.

(F) Replacement Equipment Requirements

(1) The replacement equipment must serve the same function and perform the same work equivalent as the existing equipment (e.g., replacement of an agricultural tractor with another agricultural tractor).

(2) Only items essential to the operation of the equipment and the minimum attachments normally sold with the original equipment, as determined by the air district, are eligible for reimbursement on the replacement equipment. Equipment owners may remove non-emission related body components and place them on the replacement equipment as long as the components do not exist on the replacement equipment and are not part of the paid components for the replacement equipment.

(3) Applicants may purchase the replacement equipment from a private party, provided all required documentation is submitted and approved. This includes warranty requirements and all other equipment replacement requirements.

(4) If an applicant elects to install a retrofit with the replacement equipment, then the retrofit must be installed prior to equipment delivery to the grantee and must stay in operation on the replacement equipment for the project life. The retrofit must meet all the requirements per Section D.3.

(5) Warranty Requirements

a. All new or used replacement equipment must have a minimum one-year or 1600-hour powertrain warranty. The warranty must cover parts and labor. A separate supplemental minimum one-year or 1600-hour power and drivetrain warranty must be

purchased if the equipment does not have one. The supplemental warranty costs are not eligible for funding.

b. It is recommended that the highest grade warranty be purchased in order to avoid expensive repairs in the future.

c. Warranty documentation must be provided to the air district.

(6) Post-Inspection Requirements

a. Post-inspection of the replacement equipment must be completed prior to disbursement of funds.

b. The post-inspection must include clear photographs of the following views:

i. Pictures(s) of full equipment

ii. Equipment serial number

iii. Engine serial number and engine information

iv. Retrofit (if available)

v. Hour meter reading

(G) Air District Requirements

(1) Air districts must establish an off-road equipment replacement plan before funding projects. The plan must include criteria for the following:

a. Development of grantee contracts which must include a generic statement of work

b. Inspections (pre-, post-, salvage). The required digital format for the inspections photographs must be specified.

c. Reimbursement procedures

d. Monitoring and enforcement considerations

e. If applicable, for air districts that contract with dealers and salvage yards, the off-road equipment replacement plan must identify the air district's requirements for dealer and/or salvage yard contracts, and the process for oversight and review of program requirements that are expected of each entity, and the repercussions for non-compliance with the terms of the contract

for each entity. For air districts that contract with dealer(s), liaison training must be provided to the dealership staff.

(2) Air districts may fund equipment replacement projects through a regional program administered by a designated air district. The designated air district could be either an air district located within the regional program or a large air district located outside of the regional program. A regional equipment replacement implementation plan must be established, containing all the required components as required in an individual air district's equipment replacement implementation plan. A regional equipment replacement plan must also contain a detailed description of the funding mechanism among the participating air districts. All air districts participating in the regional program must sign the regional equipment replacement implementation plan and must adhere to all the requirements specified in such regional implementation plan.

(3) Air districts are encouraged, but are not required to establish contracts with dealers and salvage yards for participation in the program.

(4) Air districts must ensure the following are performed:

a. Pre-inspection of the existing equipment. This may be performed by an air district approved dealer.

b. Verification that the replacement equipment proof of sale and if applicable, proof of financing have been received from the dealer or participant.

c. Post-inspection of the replacement equipment. This may be performed by an air district approved dealer.

d. Salvage inspection of the existing equipment. This may be performed by an approved salvage yard.

e. Verification that all post-inspection of replacement equipment and salvage inspection of existing equipment were completed and all documentation is submitted and approved prior to disbursement of funds.

(5) The air district is allowed to make full payment to the dealer at the time the dealer delivers the replacement equipment to the applicant under the following framework:

a. The air district must complete the pre-inspection of the existing equipment and post-inspection of the replacement equipment to

make sure that all equipment complies with program requirements.

b. The air district must sign a contract with the dealer and the salvage yard that contains, at a minimum, the program requirements that are expected of each entity and the repercussions for non-compliance with the terms of the contract for each entity. This shall include, but is not limited to, the requirement that the dealer delivers the existing equipment to a qualified salvage yard within 30 days of the date that the existing equipment was turned in to the dealer by the applicant.

c. The air district must ensure the equipment is scrapped within 60 days of the salvage yard's receipt of the equipment through salvage inspection with the salvage yard to properly document the destruction of the existing equipment in accordance with the Moyer Program equipment replacement program requirements.

(H) Dealer Requirements

(1) Equipment dealers that enter into a contract with an air district must:

a. Provide basic information to potential applicants about the equipment replacement category. Air districts must also provide liaison training to dealership staff.

b. Inform potential applicants of rights and responsibilities as outlined in the air district and ARB guidelines.

c. Help the potential applicants correctly complete the application. It is important that the participant understands the meaning of the program and the subsequent air district contract if approved for funding. The air district will provide all forms and certificates as appendices to the application.

d. Ensure that an application package is complete. The dealer must verify that all the following items are included in the application package:

i. A signed and complete application.

ii. All documentation as required in Sections D.4.(E)(1) and (2).

iii. The following information must also be included in the documentation:

(a) Make

(b) Model

(c) Model year

(d) Equipment serial number

(e) Engine make

(f) Engine serial number

(g) Expected delivery date of existing equipment

iv. Documentation of replacement equipment warranty.

e. Submit the completed application package to the air district.

(2) After the application and all required documentation have been approved by the air district, the dealer must provide the air district with proof of sale and if applicable, proof of financing of the replacement equipment. The financing package will enable the air district to determine the reimbursement costs that may be accrued in case the participant defaults on the contracted performance requirements. Proof of project financing can be a document showing the lender and the amount loaned, which at a minimum is a copy of the check given to the dealer equal to the portion of the project that was not Moyer Program funded. Proof of project financing is always required unless the grantee paid cash for the portion of the project that was not Moyer Program funded.

(3) Prior to releasing the replacement equipment to the participant, the dealer must have documentation of an air district pre-inspection of the existing equipment and the post-inspection of the replacement equipment. Alternatively, if approved by the air district to do pre- and post-inspections, the dealer must verify that photographs of the existing equipment and the replacement equipment, as defined in Sections D.4.(E)(3)i. and (F)(6)b., are clear prior to submitting them to the air district.

(4) Provide documentation certifying that the existing equipment will be received by a contracted salvage yard within 30 days.

(I) Salvage Yard Requirements

(1) Equipment salvage yards must enter into an agreement with the air district to qualify for participation.

(2) Contracted salvage yard(s) must:

a. Destroy the existing equipment and engine within 60 days of receipt of the existing equipment in accordance with the program guidelines.

b. Provide the air district with all photographs required under the air district's salvage inspections requirements per Section D.4.(E)(4)h. below within ten business days of salvaging the existing equipment.

c. For each project, provide the following information:

i. Make

ii. Model

iii. Model year

iv. Serial number

v. Engine make

vi. Engine serial number

vii. Delivery date of the existing equipment

d. Submit a completed certificate of equipment destruction or other similarly approved documentation to the air district.

E. Projects subject to the In-Use Off-Road Diesel-Fueled Fleets Regulation (Off-Road Regulation) (CCR, title 13, section 2449 et. seq.)

1. The existing equipment must be registered in DOORS.

2. Fleets must be in compliance with the regulation in order to be eligible for and receive funding. Fleets subject to the Off-Road Regulation that meet the final compliance requirements of the Off-Road Regulation are eligible for funding, and are exempt from the requirements of Section E.2.(E) through (I).

(A) Applicants must submit information regarding fleet size and compliance status. All documentation submitted must be signed and dated by the applicant and include language certifying that the fleet list provided is accurate and complete. Air districts are not required to validate submitted information and will not be held liable if fleet owners falsify fleet information. The following information shall be submitted at the time of application:

(1) DOORS ID of the fleet.

(2) DOORS EIN of the existing equipment.

(3) Fleet size information (total horsepower) as reported to DOORS

(4) Information to determine compliance with the Off-Road Regulation

a. Large fleets and medium fleets are required to show compliance with the Off-Road Regulation.

b. Prior to 1/1/2019, small fleets are not required to show compliance with the Off-Road Regulation.

(5) For those fleets that have previously received Moyer Program funding, a list of funded equipment with the DOORS EIN of the funded equipment.

(6) Large fleets must certify that they have not applied for Moyer Program funding for their off-road diesel fleet in another fiscal year (July 1-June 30) after January 1, 2017, excluding applications for which no funding was ultimately received.

(B) Applicants must submit to the air district the DOORS EIN of the replacement equipment no later than at post-inspection of replacement equipment.

(C) Applicants are not required to submit information on exempted equipment. Information on exempted off-road equipment can be found in the Off-Road Regulation.

(D) No emission reductions achieved from a funded project can count towards a fleet's regulatory requirements for the duration of the contract term.

(E) Eligibility for a project is based upon the Best Available Control Technology (BACT) requirements of the Off-Road Regulation.

(1) Any equipment funded through the Moyer program, and that is still under contract, must be deducted from the amount of equipment eligible for funding. For instance, a fleet that is eligible for funding to reduce emissions for 50 percent of its horsepower, but which has already received funding in previous years to reduce emissions from 20 percent of its horsepower, is only eligible for funding to reduce emissions from 30 percent of its horsepower.

(2) Equipment funded through the Moyer program must be included in the fleet's total horsepower from which the BACT requirements of the regulation are calculated.

(F) Large Fleets

(1) Eligible projects for large fleets, as defined in the Off-Road Regulation must provide at least three years emission reductions surplus to the regulation with a corresponding minimum project life of at least three years.

(2) Projects must be installed and in operation at least three years before the BACT requirements become effective for the funded equipment.

a. The first compliance date for large fleets, as defined in the Off-Road Regulation, is January 1, 2014. The final compliance date is January 1, 2023. Funding for these fleets is available through December 31, 2019.

b. Large fleets are eligible for funding once after January 1, 2017. After January 1, 2017, for those large fleets eligible for funding a second or subsequent time, only zero-emission projects are eligible.

c. Large fleets may have alternative requirements per Section E.2.(I) below.

(G) Medium Fleets

(1) Eligible projects for medium fleets, as defined in the Off-Road Regulation must provide at least three years emission reductions surplus to the regulation with a corresponding minimum project life of at least three years.

(2) Projects must be installed and in operation at least three years before the BACT requirements become effective for the funded equipment.

(3) The first compliance date for medium fleets, as defined in the Off-Road Regulation is January 1, 2017. The final compliance date is January 1, 2023. Funding for these fleets is available through December 31, 2019.

(H) Small Fleets (includes Captive Attainment Area Fleets)

(1) Eligible projects for small fleets, as defined in the Off-Road Regulation must provide at least two years emission reductions surplus to the regulation, with a corresponding minimum project life of at least two years.

(2) Projects must be installed and in operation at least two years before the BACT requirements become effective for the funded equipment.

(3) The first compliance date for small fleets, as defined in the Off-Road Regulation is January 1, 2019. The final compliance date is January 1, 2028. Funding for these fleets is available through December 31, 2025.

(I) Surplus Off-Road Opt-In for NOx (SOON) Program

(1) Fleets located in air districts that have opted into the SOON program and that are subject to the SOON provisions are eligible for funding in accordance with the Off-Road Regulation (CCR, title 13, section 2449.2) and must meet the applicable criteria in Sections A. through D. in this chapter.

(2) Projects funded under SOON, are not subject to Section E above, except for the requirements of Sections E.1., E.2.(A) through (C), and E.2.(I).

3. For more information on eligibility of off-road diesel equipment, please see the Regulation for In Use Off-Road Diesel-Fueled Fleets Carl Moyer Program Implementation Chart available at http://www.arb.ca.gov/msprog/moyer/guidelines/supplemental-docs.htm.

F. Projects subject to the Regulation for Cargo Handling Equipment at Ports and Intermodal Rail Yards (CHE Regulation) (CCR, title 13, section 2479)

1. Eligible Engines

(A) For repower or replacement projects in which the equipment is subject to the CHE Regulation, only Tier 4 Final engines or cleaner are eligible for funding.

(B) Replacement engines participating in the averaging, banking and trading program that are certified to FEL higher than the applicable emission standards, as designated on the Executive Order, are not eligible for funding.

2. Eligible projects must provide at least three years of emission reductions surplus to the regulation, with a corresponding minimum project life of at least three years. Cargo handling fleets that have met the final compliance requirements of the CHE Regulation are eligible for funding.

G. Projects subject to the Large Spark Ignition Engine Fleet Requirements (LSI Fleet Regulation) (CCR, title 13, section 2775 et. seq.)

1. Eligible funding must provide at least three years of emission reductions surplus to the LSI Fleet Regulation, with a corresponding minimum project life of at least three years.

2. Large and Medium Forklift Fleets and Fleets of Four or More Sweeper/Scrubbers, Ground Support Equipment, and/or Industrial Tow Tractors: In order to be eligible for funding, large and medium forklift fleets and fleets of four or more non-forklift LSI equipment must meet the final fleet average emission level applicable on January 1, 2013.

3. Agricultural Crop Preparation Forklift Fleets Model Year 1990 and Newer: These fleets are required to either retrofit, repower, or replace 100 percent of their fleet by January 1, 2012, or currently meet a 3.0 g/bhp hr fleet average HC + NOx level. Fleets that have met the 3.0 g/bhp-hr fleet average can apply for funding. Additionally, in accordance with SBx2 3 (H&SC § 44282.5(a)), fleets that have retrofitted/repowered 20 percent of their fleet in compliance with the regulation are eligible for funding up to the final compliance date. In order to be eligible, these projects must be under executed contract and must be installed and in operation prior to the applicable compliance date.

4. LSI fleets that have met the final compliance requirements of the LSI Fleet Regulation are eligible for funding. Due to the regulatory requirements for rental and lease equipment subject to the LSI Fleet Regulation, projects that include rented or leased equipment are not eligible.

5. Fleets with equipment not subject to the LSI Fleet Regulation are eligible for funding, including:

(A) Agricultural crop preparation non-forklift equipment and pre-1990 forklifts.

(B) Forklifts used exclusively in fields to harvest and maintain crops.

(C) Non-forklift LSI equipment such as aerial lifts, lawn and garden tractors, commercial turf equipment, mining and construction equipment, and industrial equipment.

(D) Small fleets (one to three forklifts and/or one to three sweepers/scrubbers, industrial tow tractors, or pieces of airport ground support equipment (airport GSE)).

6. Required Off-Road LSI Fleet Information: For forklifts, sweeper/scrubbers, airport GSE, and/or industrial tow tractors, an applicant's fleet size impacts project eligibility. Applicants must submit information regarding fleet size and compliance status. All documentation submitted must be signed and dated by the applicant and include language certifying that the fleet list provided is accurate and complete. Air districts are not required to validate submitted information and will not be held liable if fleet owners falsify fleet information.

(A) Large/Medium/Non-Forklift Fleets: For large, medium, and non-forklift fleets subject to the LSI Fleet Regulation, applicants are required to report compliance records for the entire statewide fleet as described in the regulatory language (CCR, title 13, section 2775.2).

(1) DOORS ID of the fleet.

(2) DOORS EIN of the existing equipment.

(3) Fleet size information (total number of forklifts; total number of non-forklift LSI equipment).

(4) Information to determine compliance with the LSI fleet Regulation. Large and medium fleets are required to show compliance with the applicable final fleet average emission level.

(B) Small Fleets: Small fleets are not required to maintain compliance records, but for the purposes of determining project eligibility, air districts must obtain the following information for the entire statewide fleet:

(1) Equipment identification number (equipment identification number, fleet assigned identification, etc.)

(2) Equipment type (e.g., forklift, GSE, etc.)

7. If applicable, applicants must submit to the air district the DOORS EIN of the replacement equipment not later than at post-inspection of the replacement equipment.

8. Applicants are not required to submit information on exempted equipment (except as noted above for small fleets). Information on exempted LSI equipment can be found in CCR, title 13, sections 2775(b), 2775.1(c) (4), and 2775.1(d-f) of the Final Regulation Order (http://www.arb.ca.gov/regact/lore2006/oalapprovedfro.pdf).

H. Projects subject to the Airborne Toxic Control Measure for Diesel Particulate Matter from Portable Engines Rated at 50 Horsepower and Greater (Portable Engine ATCM) (CCR, title 17, section 93116 et. seq.)

1. In order to be eligible for repower projects, diesel engines regulated under the Portable Engine ATCM must be permitted or registered in an air district or registered in the Portable Equipment Registration Program. If the portable engine is not required to be permitted or registered, documentation must be included in the project file from the air district stating that a permit or registration is not required to operate in the air district.

2. In order to be eligible for funding, fleets must be fully compliant with the regulatory requirements in effect in 2020.

3. For more information on eligibility of engines used in portable equipment, please see the Portable Engine Airborne Toxic Control Measure Implementation Chart available at: http://www.arb.ca.gov/msprog/moyer/guidelines/supplemental-docs.htm.

I. Projects subject to the Regulation to Reduce Emissions of Diesel Particulate Matter, Oxides of Nitrogen and Other Criteria Pollutants from In-Use Heavy-Duty Diesel-Fueled Vehicles (Statewide Truck and Bus Regulation) (CCR, title 13, section 2025)

This regulation impacts the eligibility of all on-road heavy-duty diesel-fueled and alternative diesel-fueled vehicles operated in California with a manufacturer's GVWR greater than 14,000 pounds. Although this regulation primarily affects vehicles with on-road engines, some vehicles with off-road engines are also covered. Any application for Moyer Program funding to replace a vehicle with an off-road engine that is subject to an on-road regulation must comply with the applicable surplus requirements described in Chapter 4. For example, a yard truck with an off-road engine that is subject to the Statewide Truck and Bus Regulation (including yard trucks used primarily in agricultural operations) must meet the applicable on-road surplus requirements described in Chapter 4, Section C.2., and must also comply with all off-road project criteria described in this chapter.

CHAPTER 6: LOCOMOTIVES

This chapter describes the minimum criteria and requirements for Carl Moyer Memorial Air Quality Standards Attainment Program (Moyer Program) locomotive projects. Air quality management districts or air pollution control districts (air districts) may set more stringent requirements based upon local priorities.

A. Projects Eligible for Funding

The Moyer Program provides incentive to upgrade old high-polluting locomotives to new Tier 4 units. Rail equipment, designed for use on tracks, such as on-rail vehicles, railcar movers, sweepers, and wheel cranes which have tires or mounted tracks, that replace switcher locomotives, are also considered locomotives for the purposes of the Moyer Program. Funding opportunities may be limited due to the availability of Goods Movement Emission Reduction Bond Program (Proposition 1B Goods Movement Program) funding, and the South Coast and Statewide Memoranda of Understanding (MOU) with these railroads (See Table 6-1).

Table 6-1
Summary of Locomotive Funding Opportunities

Railroad Class	Subject to ARB Rule or MOU	Moyer Funding Opportunities
Class 1 Freight Railroads (Burlington Northern Santa Fe Railroad and Union Pacific Railroad)	*2005 Statewide Railyard Agreement* and *1998 South Coast MOU*[(a)]	Projects in California's goods movement trade corridors are generally ineligible for Moyer Program funding if Proposition1B funds are available.[(b)] These projects are only eligible for Moyer Program funding on a case-by-case basis.
Class 2 and 3 Freight Railroads and Passenger Railroads	No	Class 2 and 3 and passenger railroad projects are not limited.

[(a)] The South Coast MOU limits funding eligibility for Class 1 freight railroad new purchase or engine remanufacture/repower projects in the South Coast. See: http://www.arb.ca.gov/msprog/offroad/loco_flt.pdf
[(b)] For a map of the trade corridors, see: http://www.arb.ca.gov/bonds/gmbond/docs/gmtradecorridors.jpg

Project Types: Three types of locomotive projects are eligible for Moyer Program funding:

1. Locomotive Replacement
2. Locomotive Engine Repower
3. Head End Power Unit (HEP)

B. Maximum Eligible Funding Amounts

Table 6-2 summarizes the maximum eligible funding for each project type. All projects are also subject to the cost-effectiveness threshold defined in Appendix C.

Table 6-2
Maximum Grant Amount for Moyer Program Locomotive Projects

Railroad Class/Type	All Project Types
Class 1/Class 2	75%
Class 3 and Passenger	85%

C. Emission Standards

The U.S. EPA has adopted regulations for exhaust emission standards for new and remanufactured locomotives. For reference, Tables 6-3 and 6-4 below summarize the hydrocarbon (HC), oxides of nitrogen (NOx) and particulate matter (PM) standards in grams per brake horsepower-hour (g/bhp-hr) for the 1998 Federal Standards and the 2008 Federal Standards.

Table 6-3
U.S. EPA Locomotive Emission Standards (g/bhp-hr)
Based on 1998 Federal Standards

Tier and Engine Model Year	Type	NOx	HC	PM10
Uncontrolled Pre-1973	Line-haul and Passenger	13.5	1.00	0.60
	Switcher	17.4	2.10	0.72
Tier 0 1973 - 2001	Line-haul and Passenger	9.5	1.00	0.60
	Switcher	14.0	2.10	0.72
Tier 1 2002-2004	Line-haul and Passenger	7.4	0.55	0.45
	Switcher	11.0	1.20	0.54
Tier 2 2005 - 2011	Line-haul and Passenger	5.5	0.30	0.20
	Switcher	8.1	0.60	0.24

Table 6-4
U.S. EPA Locomotive Emission Standards (g/bhp-hr)
Based on 2008 Federal Standards

Tier and Engine Model Year	Type	NOx	HC	PM10
Tier 0+ 1973-2001	Line-haul and Passenger	7.4	0.55	0.22
	Switcher	11.8	2.10	0.26
Tier 1+ 2002-2004	Line-haul and Passenger	7.4	0.55	0.22
	Switcher	11.0	1.20	0.26
Tier 2+ 2005-2011	Line-haul and Passenger	5.5	0.30	0.10
	Switcher	8.1	0.60	0.13
Tier 3 2011-2014	Line-haul and Passenger	5.5	0.30	0.10
	Switcher	5.0	0.60	0.10
Tier 4 2015	Line-haul and Passenger	1.3	0.14	0.03
	Switcher	1.3	0.14	0.03

D. Project Criteria

The minimum qualifications for locomotives are listed below. All projects must also conform to the requirements in Chapter 2: General Criteria, and in Chapter 3: Program Administration. Participating air districts retain the authority to impose additional requirements in order to address local concerns. Note that railroad classes are defined in Appendix B.

1. General Locomotive Project Criteria

(A) Baseline emission factors must reflect the tier level required by federal locomotive remanufacture standards (i.e., the baseline emission factors are the required remanufacture standards, which may not be the certification standard of the baseline locomotive).

(B) Class 1 freight locomotive projects meeting the eligibility requirements for the Proposition 1B Goods Movement Program are only eligible for Moyer Program funding on a case-by-case basis. Moyer Program funds cannot be co-funded with Proposition 1B Goods Movement Program funds.

(C) Class 1 freight locomotives subject to the South Coast Memorandum of Understanding (MOU) are only eligible for Moyer Program funding on a case-by-case basis. These locomotive projects must be excluded from the fleet average emission rate calculations which demonstrate compliance with the MOU provisions. The baseline emission rates used to determine emission reductions and cost-effectiveness for these locomotive projects reflect the U.S. EPA Locomotive Tier 2 emission rates for line-haul and switch locomotives.

(D) Military and industrial railroads are considered Class 3 railroads for the purposes of the Moyer Program.

(E) Locomotive project activity must be based upon fuel consumption. If fuel consumption is not available, megawatt hours from the electronically logged data may be used.

(F) Moyer Program funds cannot be used to pay for labor or parts used during routine maintenance.

(G) Air districts may enter into contract and work may begin on a locomotive project prior to U.S. EPA certification and/or Air Resources Board (ARB) verification. In this instance, the air district contract with the grantee must specify that any work performed is done grantee's own risk. Air districts cannot make payment until certification and verification have been received.

(H) Participant must have owned the baseline locomotive for at least one year prior to application submittal, and the locomotive must be operational.

(I) At a minimum the destruction of a locomotive engine must include a hole in the engine block with a diameter of at least eighteen inches at the narrowest point. The hole must be irregularly shaped (i.e. no symmetrical squares or circles).

(J) Unless otherwise stated in this chapter, the minimum project life allowed is three years.

2. Locomotive Replacement

(A) New locomotives with an aggregate engine power rating greater than or equal to 1,006 horsepower (750 kW) must be certified by U.S. EPA and verified by ARB to achieve Tier 4 locomotive emission standards (or cleaner).

(B) New locomotives with an aggregate engine power rating less than 1,006 horsepower are not required to be certified by U.S. EPA to locomotive standards, but are required to be certified U.S EPA off-road (non-road) emission standards. This lower horsepower equipment must

also be verified by ARB to meet or exceed the Tier 4 locomotive standards.

(C) Zero-emission locomotives must have ARB verification.

(D) Due to the design of alternative technology switchers, fuel consumption for the new locomotive may differ from baseline fuel consumption. For contractual purposes only, when specifying the annual usage requirement in the contract the air district may assume a fuel savings of 20 percent from that used in the cost-effectiveness calculation. This fuel savings is already embedded into the cost-effectiveness calculation, and therefore it should not be applied when determining cost-effectiveness for the project.

(E) The baseline locomotive engine(s) must be destroyed. The grantee may choose to retain the baseline locomotive chassis since locomotive components have a long lifespan, ARB recognizes the benefits of reusing and/or recycling baseline locomotives. To prevent the baseline locomotive body from being fitted with a similar high-polluting engine, the grantee must sign an agreement with the air district which will ensure, with due diligence, that the baseline locomotive, if brought back into service, will be repowered to a Tier 4 or cleaner locomotive engine standard.

(F) Project life:

(1) Class 1 locomotive replacement projects in air districts other than the South Coast must have a minimum project life of ten years.

(2) All other locomotive replacement projects have a minimum project life of three years.

(3) The maximum project life for a locomotive replacement project is 15 years.

3. Locomotive Engine Repower

(A) Purchase and installation of an engine meeting Tier 4 locomotive emission standards or cleaner. The engine must be certified by U.S. EPA and verified by ARB to be eligible for Moyer Program funding.

(B) The maximum project life for a locomotive engine repower project is 15 years.

4. Head End Power Unit (HEP)

(A) HEP repower is eligible on a case-by-case basis.

(B) The baseline engine must be certified to the applicable off-road standard at the time of manufacture.

(C) The new engine must be certified to the U.S. EPA Tier 4 final or cleaner off-road (non-road) emission standards.

CHAPTER 7: MARINE VESSELS

This chapter describes the minimum criteria and requirements for Carl Moyer Memorial Air Quality Standards Attainment Program (Moyer Program) marine vessel projects. Air quality management districts or air pollution control districts (air districts) may set more stringent requirements based upon local priorities.

A. Projects Eligible for Funding

The Air Resources Board (ARB) has adopted two regulations that impact funding opportunities for marine vessel projects: 1) Amendments to the Regulations to Reduce Emissions from Diesel Engines on Commercial Harbor Craft Operated Within California Waters and 24 Nautical Miles of the California Baseline (Commercial Harbor Craft regulation or CHC) and 2) Regulations to Reduce Emissions from Diesel Auxiliary Engines on Ocean-Going Vessels While At-Berth at a California Port (Shore Power Regulation). There are limited funding opportunities for marine vessels subject to this regulations.

Table 7-1
Summary of Funding Opportunities

Project Type	Subject to ARB Rule	Moyer Funding Opportunities[(a)]
Vessels subject to Commercial Harbor Craft Regulation Schedules for Meeting Tier 2 or Tier 3 Standards (ex: barge, crew & supply, dredge, excursion, ferry, towboat, tugboat) - engine repower, remanufacture, retrofit or new purchase	Commercial Harbor Craft Regulation[(b)]	Opportunities depend on compliance status
Vessels *not* subject to Commercial Harbor Craft Regulation Schedules for Meeting Tier 2 or Tier 3 Standards (ex: fishing vessel or pilot/work boat) - engine repower, remanufacture, retrofit or new purchase	No	Not limited by regulation
Shore power - vessel retrofit	Shore Power Regulation[(c)]	Limited opportunity

[(a)] A fleet's compliance status with the ARB regulations must be determined. Contact air district Moyer Program staff or consult CHC regulation Moyer Program Implementation Charts at: http://www.arb.ca.gov/msprog/moyer/guidelines/supplemental-docs.htm in addition to these guidelines.
[(b)] Harbor Craft Regulation: http://www.arb.ca.gov/ports/marinevess/harborcraft.htm
[(c)] Shore Power Regulation: http://www.arb.ca.gov/ports/shorepower/shorepower.htm

Project Types:

1. **Engine Repower.** Replacing an old vessel engine with a newer, lower emission engine. Limited opportunities remain for those vessel engines subject to the in-use compliance requirements of the CHC regulation. Repower must be completed at least three years prior to the vessel's in-use compliance date. Based on the vessel's operation, the newer engine's emissions must be surplus to the currently required United States Environmental Protection Agency (U.S. EPA) marine engine emission standard (i.e., Tier 3 or cleaner).

2. **Remanufacture Kit.** Kits are comprised of engine component parts that, when installed, reduce the engine's emissions. Limited Moyer funding opportunities remain for those vessel engines subject to the in-use compliance requirements of the CHC. Remanufacture must be completed at least three years prior to the vessel's in-use compliance date.

3. **Retrofit Device.** The installation of an ARB verified diesel emission control strategy (VDECS). This project type will be considered for funding on a case-by-case basis.

4. **Hybrid System.** The installation of an EPA verified hybrid system. A hybrid system implements various strategies (e.g. engine switching, electric power) to reduce emissions of NOx, ROG, and PM.

5. **Ship-Side Shore Power Projects.** The retrofit of a marine vessel to enable shore power connection. Ship-side shore power projects are not eligible unless the applicant can demonstrate that it will be surplus to the implementation requirements of ARB's Shore Power Regulation. For marine infrastructure projects, including Shore-Side Shore power, see Chapter 10: Infrastructure.

6. **Marine Vessel Exhaust Capture and Control System.** The purchase of an EPA verified marine vessel exhaust capture and control system. EPA verifications of exhaust capture systems include specific percentage reductions of NOx and PM. In lieu of EPA verification an ARB Executive Order will suffice.

Please see Section C (Project Criteria) for detailed minimum eligibility requirements.

B. Maximum Eligible Funding Amounts

Table 7-2 summarizes the maximum funding for each project type as a percentage of eligible costs. All projects are also subject to the cost-effectiveness threshold defined in Appendix C.

Table 7-2
Maximum Percentage of Eligible Costs for
Moyer Program Marine Projects

	Baseline Technology	Project Type	Maximum Percentage
Vessels subject to Commercial Harbor Craft Regulation Schedules for Meeting Tier 2 or Tier 3 Standards (ex: barge, crew & supply, dredge, excursion, ferry, towboat, tugboat)	Tier 0,1[(a)]	Engine repower or remanufacture kit compliant to EPA marine Tier 3	50%
		Engine repower or remanufacture kit compliant to EPA marine Tier 4[(b,c)]	85%
	Tier 2	Engine repower or remanufacture kit compliant to EPA marine Tier 3	80%
		Engine repower or remanufacture kit compliant to EPA marine Tier 4[(b,c)]	85%
Vessels ***not*** subject to Commercial Harbor Craft Regulation Schedules for Meeting Tier 2 or Tier 3 Standards (ex: fishing, pilot, work boat)	Tier 0,1,2	Engine repower or remanufacture kit compliant to EPA marine Tier 3	80%
		Engine repower or remanufacture kit compliant to EPA marine Tier 4[(b,c)]	85%
Any vessel propulsion engine repower with an off-road Tier 3 or cleaner certified engine			Case-by-case basis
EPA Verified Marine Retrofit Device			Case-by-case basis
Installation of an EPA verified Hybrid System			85%
Shore Power- ship side			100% of retrofit cost 50% of transformer cost
Purchase of an EPA verified marine vessel exhaust capture and control system			Case-by-case basis

[(a)] Chapter 1, Section A, Part 2 requires projects to provide three years of surplus reductions prior to any applicable regulatory compliance deadline

[(b)] Due to the absence of emission factors, 2016 and newer model year Tier 4 emission standards (Table D-16) will be used for funding calculations.

[(c)] Engines using a Family Emission Limit (FEL) or Averaging, Banking, and Trading (ABT) to meet the Tier 4 emission standards will be funded at Tier 3 engine levels. Tier 3 emission factors will be used for funding calculations.

C. Project Criteria

The minimum qualifications for marine vessels are listed below. All projects must also conform to the requirements in Chapter 2: General Criteria, and in Chapter 3: Program Administration. Participating air districts retain the authority to impose additional requirements in order to address local concerns.

1. General Marine Project Criteria

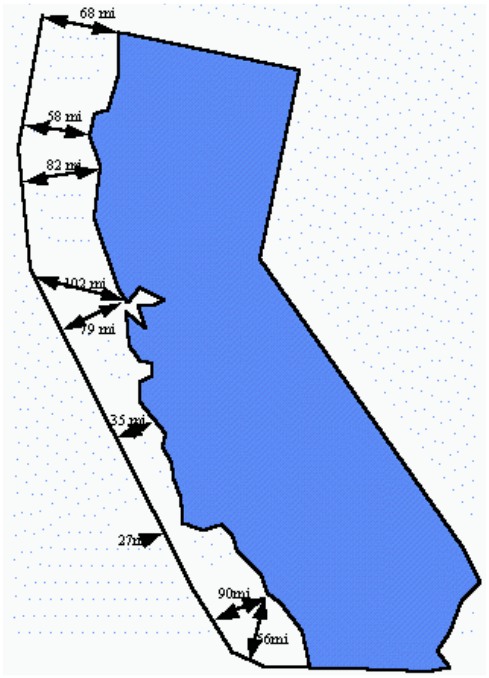
(A) To be eligible for Moyer Program funding, an applicant for harbor craft funding must have a United States Coast Guard Documentation Number, except in cases where such documentation is not required (such as fishing boats constructed outside the United States, vessels of less than five net ton displacement, or vessels owned by non-United States citizens). In such cases, the applicant must include with the application documentation at least one of the following:

(1) A valid California vessel registration (CF) number and a copy of the California Department of Fish and Game license can be provided instead of a Coast Guard Documentation Number.

(2) The vessel's Lloyd's/International Maritime Organization (IMO) number for an oceangoing vessel that does not have any of the above documentation.

(B) Both propulsion and auxiliary engines may be eligible for Moyer Program funding.

Figure 7-1
California Coastal Water Boundaries



(C) Only marine vessel activity in California coastal waters and internal waters may be used to determine project emission reductions. Figure 7-1 depicts the boundary of California coastal waters (defined as that area between the California Coastline and a line starting at the California-Oregon border at the Pacific Ocean, thence to 42.0°N 125.5°W, thence to 41.0°N 125.5°W, thence to 40.0°N 125.5°W, thence to 39.0°N 125.0°W, thence to 38.0°N 124.5°W, thence to 37.0°N 123.5°W, thence to 36.0°N 122.5°W, thence to 35.0°N 121.5°W, thence to 34.0°N 120.5°W, thence to 33.0°N 119.5°W, thence to 32.5°N 118.5°W, and ending at the California-Mexico border at the Pacific Ocean).

(D) Marine projects are not required to meet the minimum California usage requirement in Chapter 2, Section S. Air districts may impose more stringent operational requirements.

(E) Non-captive California fleets and vessels may be considered for funding on a case-by-case basis if their operation in California coastal waters can be properly documented.

(F) Funding is not available for projects where spark-ignition engines are replaced with diesel engines. Repowering a diesel engine to a spark-ignited engine may be considered on a case-by-case basis.

(G) Only marine engines equal to or greater than 25 horsepower are eligible for Moyer Program funding.

(H) Harbor craft engines less than 50 horsepower are exempt from the in-use compliance requirements of the Harbor Craft Regulation. Emission reductions from projects involving these engines are surplus.

(I) Engines on marine vessels with wet exhaust systems are eligible for Moyer Program funding if the project vessel meets all other applicable program requirements. The wet exhaust systems themselves are not eligible for Moyer Program funding. A wet exhaust factor of 0.80 must be applied to the baseline and reduced emission propulsion and auxiliary engine emission calculations for all projects on vessels with wet exhaust systems.

(J) New engines must be installed and operational at least three years prior to the compliance deadline specified by the CHC regulation. Project life for an engine cannot extend beyond that engine's compliance deadline. For compliance deadlines, see implementation charts at: http://www.arb.ca.gov/msprog/moyer/guidelines/supplemental-docs.htm.

(K) Air districts have the option of calculating the project cost-effectiveness on a per vessel basis.

(L) All harbor craft vessels are required to install and maintain a functioning hour meter as required by the CHC Regulation.

(M) Moyer Program funding can be based on engine hours or fuel use. Hours of operation are the preferred basis for project cost-effectiveness calculations and eligibility. Applicants must submit historical usage data as part of the application process. This data must be based on the previous two years of historical usage documentation specific to the vessel being funded. Acceptable forms of documentation may include hour meter readings, maintenance records, fuel logs, purchase receipts or ledger entries. Grant funding that is based on historical fuel usage may not exceed the grant funding amount that would be based on hours of operation; the more conservative calculation must be used.

(N) Owners and operators of engines subject to the CHC Regulation must include a copy of the most recent Initial Report in their project application. The reporting requirements are outlined under California Code of Regulations, title 17, section 93118.5(h)(1).

2. Repower. Repower projects involving the replacement of an older harbor craft engine with a newer, cleaner engine must meet the following criteria:

(A) All new engines and replacement engines purchased for Moyer Program marine vessel repower projects must meet the requirements of the CHC Regulation set forth under California Code of Regulations, title 17, sections 93118.5(e). The regulation includes requirements for newly acquired engines and requirements for replacement engines in vessels subject to the schedules to meet Tier 2 and Tier 3 standards. Use of an off-road certified engine must adhere to the requirements set forth under California Code of Regulations, title 17, sections 93118.5(e)(3) and (e)(4),

especially the marinization requirements set forth in Code of Federal Regulations, title 40, part 1042.605. Project proposals for repower of propulsion engines with off-road engines will be considered on a case-by-case basis.

(B) For all marine engine repower projects, the replacement engine must provide at least a 15 percent NOx reduction relative to the baseline engine. The replacement engine cannot be significantly modified or reconfigured in any way during the project life.

(C) Funding of Tier 4 marine repower projects:

(1) Due to the absence of emission factors, 2016 and newer model year Tier 4 emission standards (Table D-16) will be used for emission reduction calculations.

(2) Tier 4 Engines using a Family Emission Limit (FEL) or Averaging, Banking, and Trading (ABT) to meet the Tier 4 emission standards will be funded at Tier 3 engine levels. Tier 3 emission factors will be used for emission reduction calculations.

(D) The maximum project life for a marine vessel repower project is 16 years. A longer project may receive case-by-case approval if applicants provide justifying documentation. The maximum project life does not consider regulatory requirements and may be shorter.

(E) The total project repower cost may include charges for the following:

(1) The capital cost of the new engine.

(2) Purchase of or modifications to the cooling system; fuel and exhaust system; wiring, panel, and harness system; power take-offs; propulsion control system; gauges and alarms; and radiator and ventilation, if attached to or integral to the functioning of funded engine.

(3) Costs related to the purchase and/or installation of a new transmission may be eligible when it is a necessary part of the engine repower; and an ineligible expense when it is required for maintenance or repair purposes. Ordinarily, a statement from the vendor or applicant that the new reduced emissions engine is not compatible with the existing baseline transmission is sufficient justification for eligibility; please retain a copy of the vendor or applicant’s statement(s) or other documentation in the project file.

(4) Frames needed to be extended or other parts needed to be cut or modified in order to accommodate the new engine, as well as paint

or coating needed to protect those specific areas that were cut or modified.

(5) Tax and transport for eligible parts or costs.

(6) Labor for installation of or modification to parts eligible for funding.

(F) The total project repower cost may not include charges for the following:

(1) Rudders or propellers.

(2) Steering system.

(3) Sea trials and dry docking.

(4) Paint, coatings, or hull work not directly related to the engine repower.

(5) Tax and transport for ineligible parts or costs.

(6) Labor for installation of or modification to parts ineligible for funding.

(7) Any parts or labor typically included as part of the vessel or engine overhaul, maintenance, repair, or upkeep.

(8) These and other items may be eligible for funding on a case-by-case basis if it can be proven that they are not part of the typical vessel overhaul, repair, upkeep or maintenance and are a necessary part of the engine repower.

(G) All engines replaced as part of a marine vessel repower project must be scrapped, consistent with the requirements of Chapter 3: Section BB.

3. Engine Remanufacture Kit. Engine remanufacture kit projects must meet the following criteria:

(A) A remanufacture kit for a specific vessel type may be certified by the U.S. EPA, IMO, or approved by ARB to meet the requirements of the CHC Regulation, but must be surplus to the current in-use requirements of CHC Regulation.

(1) Engine remanufacture kits specific to vessels not subject to the in-use requirements of the CHC Regulation must meet U.S. EPA Tier 3 marine or Tier 3 non-road engine emission standards or cleaner (e.g., Tier 3 or higher).

(2) Engine remanufacture kits specific to vessels subject to the in-use requirements of the CHC Regulation must be surplus to the current requirements of the regulation.

(B) The applicant must provide a copy of the regulatory compliance letter from ARB (similar to an Executive Order) to the air district demonstrating that the remanufacture kit is compliant with the CHC Regulation. Remanufacture kits which reduce NOx only are not eligible for Moyer Program funding.

(C) Remanufacture kit projects have a maximum project life of six years.

(D) If the U.S. EPA Emissions Warranty for the project kit requires fuel injectors to be replaced before the end of the project life, the applicant must replace the injectors with equivalent low-emission injectors. The Moyer Program project cost may include the replacement injectors. The project annual report must include documentation that all required maintenance identified in the U.S. EPA Emissions Warranty (if applicable) is completed on schedule. Maintenance other than replacement of low-emission fuel injectors is not eligible for Moyer Program funding.

4. **Retrofits**. Retrofits include selective catalytic reduction, diesel oxidation catalysts or diesel particulate filters. A retrofit device must be verified by ARB to reduce emissions from the project engine in order to be eligible for funding. This project type will be considered for funding on a case-by-case basis.

5. **Hybrid System**. A Hybrid System project must meet the following criteria:

(A) The hybrid system must be verified by the United States EPA to reduce the total vessel emissions of NOx, ROG, and PM by specific percentages compared to the baseline vessel.

(B) The hybrid system must be verified to reduce NOx by at least 15 percent compared to the baseline vessel.

(C) The vessel must meet the EPA verification parameters (i.e. vocation, duty cycle, horsepower range) for the proposed hybrid system.

(D) The vessel must be compliance with the CHC Regulation engine replacement schedule for meeting Tier 2 or Tier 3 standards.

(E) The vessel must have Tier 3 or cleaner propulsion engines and Tier 2 or cleaner auxiliary engines.

(F) The applicant must be able to provided individual usage history for each engine on the baseline vessel.

(G) Hybrid system installation projects have a maximum project life of five years.

(H) The hybrid system must include a manufacturer’s warranty for the duration of the project life.

(I) Eligible costs for a Hybrid System project include the components and labor costs directly related to the purchase and installation of a hybrid system.

(J) Ineligible costs for a hybrid system include the following:

(1) Paint, coatings, or hull work not directly related to the hybrid system installation.

(2) Tax and transport for ineligible parts or costs.

(3) Sea trials and dry docking.

(4) Labor for installation of or modification to parts ineligible for funding.

(5) Any parts or labor typically included as part of the vessel or engine overhaul, maintenance, repair, or upkeep.

(6) Other items may be eligible for funding on a case-by-case basis if it can be proven that they are not part of the typical vessel overhaul, repair, upkeep or maintenance and are a necessary part of the hybrid system.

(K) All engines replaced as part of Hybrid System project must be scrapped, consistent with the requirements of Chapter 3: Section BB.

6. Ship-Side Shore Power Projects. The retrofit of a marine vessel to enable shore power connection. For shore-side projects see Chapter 10: Infrastructure.

(A) Only a marine vessel owner may apply to receive Moyer Program funding for a ship-side power project.

(B) Vessels subject to the Shore Power Regulation:

(1) Applications for Moyer Program funding of shore power projects must include a copy of the most recent Vessel Plan, Annual Statement of Compliance as identified in Section (g) of the Shore Power Regulation. All subsequent project reports to air districts must include any new or updated Vessel Plans in order to evaluate compliance with the project contract.

(2) The commitment of visits and hours made by the applicant, above those required by the Shore Power Regulation, must be used in the project cost-effectiveness calculation and is required in the contract between the applicant and the air district.

(3) The entire fleet roster and all the California ports of harbor the fleet will be visiting. From the locales submitted, the fleet must indicate

per location, the number of vessel visits and hours per year the fleet will be utilizing shore-side power.

(C) Up to 100 percent of necessary vessel (non-transformer) retrofit costs, specifically required to allow the vessel to plug into shore-side power, are eligible for Moyer Program funding. Up to 50 percent of any necessary transformer costs on board the vessel are eligible for Moyer Program funding.

(D) Docking at ports or terminals funded by the Proposition 1B Goods Movement Program is not prohibited; however, vessel retrofits funded with Moyer Program funds cannot claim emission reductions resulting from ship visits to ports or terminals during the active Proposition 1B Goods Movement Program contract period.

(E) The Moyer Program shall not pay for energy costs (fuel or electricity), shore power routine maintenance, or labor costs for connection and disconnection of the vessel to shore-side power.

(F) All contracts for Moyer Program funding of shore power projects must include a stipulation that receipt of program funding is contingent on the project being post-inspected and operational. The project contract must include a provision that if the shore power is not used for the total hours committed to in the contract, the project participant shall return the pro-rated contract amount (commensurate with the shortfall in usage) to the air district. If the contract activity is not met, air districts may refer to Chapter 3 Section FF.4. to address this underutilization. However, the contract must include language prohibiting the grantee from obtaining a waiver from the contracted usage, specifically Section FF.4.(D).

(G) Shore power projects have a maximum project life of 20 years. A longer project may receive case-by-case approval if applicants provide justifying documentation. The maximum project life does not consider regulatory requirements and may be shorter.

(H) The emissions from vessels using grid power in lieu of auxiliary engines when the vessel is at berth are assumed to be reduced by 90 percent. The emission reductions from a shore-side transformer project are calculated as the total emission reductions from each participating ship. Each ship's emission reductions calculated as: (Ship emission rate * berthing time * power requirements * number of visits * 0.9).

(I) Estimated berthing time shall include the time needed to connect and disconnect the vessel to shore power. Ship emission rates and power requirements are included in Appendix D.

7. **Marine Vessel Exhaust Capture and Control System**. Funding for the purchase of exhaust capture and control systems may be approved on a case-by-case basis.

CHAPTER 8: LIGHT-DUTY VEHICLES

This chapter describes the minimum criteria and requirements for Carl Moyer Memorial Air Quality Standards Attainment Program (Moyer Program) light-duty vehicle projects.

A. Projects Eligible for Funding

Voluntary Accelerated Vehicle Retirement (VAVR) projects are eligible for Moyer Program funding. VAVR projects scrap older, more-polluting vehicles earlier than their expected lifetime that are still operational and have useful remaining life. Two types of VAVR projects are allowed: conventional and high emitting. Retirement of a high emitting vehicle results in emission reductions greater than those generated by conventional projects. To be eligible for a high emitting VAVR project, a vehicle's Smog Check results must exceed the pass/fail emission standards for the vehicle's model year and class.

The Bureau of Automotive Repair (BAR) concurrently administers two different vehicle retirement programs similar to the Moyer Program, the Enhanced Fleet Modernization Program's (EFMP) Retirement-Only component and their own Consumer Assistance Program (CAP). Although the Moyer Program, EFMP Retirement-Only Program, and CAP are administered and operated in a consistent manner, each program has different eligibility requirements, funding sources, and accepts vehicles at different times within the Smog Check cycle. The Moyer Program accepts vehicles that have passed their most recent Smog Check, while CAP accepts vehicles that have failed their most recent Smog Check. EFMP Retirement-Only however, accepts vehicles that have either passed or failed their most recent Smog Check, but is limited to income eligible applicants only.

B. Maximum Eligible Funding Amounts

VAVR projects are subject to the Moyer Program cost-effectiveness limit and must meet all other relevant criteria in Section D of this chapter. Incentives paid for eligible VAVR projects are limited to a maximum of $1,500 per vehicle. Air quality management districts or air pollution control districts (air districts) have the authority to set more stringent project requirements.

C. Regulatory Background

Moyer Program VAVR projects are subject to the requirements of the VAVR Regulation, California Code of Regulations (CCR), title 13, section 2601 et seq. Air districts may choose to act as the enterprise operator in lieu of contracting out this work to a third party. However, costs incurred by the air district to perform the duties of an enterprise operator shall be considered administrative costs.

VAVR projects funded through AB 923 are authorized by Health and Safety Code section 44229(b)(4) which states that these projects must be in compliance with

guidelines adopted by the Air Resources Board (ARB). This chapter constitutes ARB's adopted guidelines for VAVR projects.

D. Project Criteria

The following criteria provide the minimum requirements for Moyer Program VAVR projects. All projects must also conform to Chapter 2: General Criteria, as well as the project application, contract, reporting, and other requirements as described in Chapter 3: Program Administration. Participating air districts retain the authority to impose additional or more restrictive requirements to address local concerns.

Vehicle Eligibility Requirements:

1. Participation shall be entirely voluntary for vehicle owners.

2. A vehicle volunteered for retirement must be a diesel or gasoline powered passenger car or light-duty truck up to 10,000 pounds gross vehicle weight.

3. A vehicle volunteered for retirement must be currently registered with the Department of Motor Vehicles (DMV) as an operating vehicle and must have been registered for at least 24 consecutive months, to an address within the air district in which the VAVR enterprise is operated, prior to the date of the sale to a VAVR enterprise. Smog Checks must be performed as required by DMV in order for the vehicle to be considered registered.

(A) A vehicle may also be eligible if the owner of the vehicle placed the vehicle in planned non-operational status, per Vehicle Code section 4604 et seq., for up to 60 days during the previous 24 month registration period and occurring at least 90 days immediately prior to its sale to the VAVR enterprise.

(B) A vehicle may also be eligible if the registration has lapsed for a period not to exceed 181 days during the previous 24 months and all appropriate registration fees and late penalties have been paid to DMV, provided that the vehicle is registered for at least 90 days immediately prior to its sale to a VAVR enterprise.

4. A vehicle volunteered for retirement shall be driven to the VAVR enterprise purchase site to be retired under its own power.

5. A vehicle volunteered for retirement whose emission control systems have been tampered with as defined in CCR, title 16, section 3340.41.5 is not eligible until such tampering has been completely corrected.

6. A vehicle volunteered for retirement shall not be operating under a Smog Check repair cost waiver or economic hardship extension.

7. If a vehicle volunteered for retirement is within 60 days of its next required Smog Check, the vehicle shall pass a Smog Check without receiving a repair cost waiver or economic hardship extension prior to acceptance by a VAVR enterprise.

8. If a vehicle volunteered for retirement is within 61-90 days of its next required Smog Check, the air district shall verify that the vehicle has not failed a Smog Check during this time frame.

9. A vehicle volunteered for retirement shall pass functional and equipment eligibility inspections as specified in the VAVR Regulation, CCR, title 13, section 2603(b).

10. For high emitting VAVR projects, a vehicle volunteered for retirement must receive a confirmatory Smog Check to establish its baseline emissions, and the emissions must exceed the pass/fail emission standards for the model year and vehicle class as defined in CCR, title 16, section 3340.

    (A) Only vehicles identified as potential high emitters through a technology operated in accordance with the VAVR Regulation, CCR, title 13, section 2610 and approved by ARB are eligible to receive extra emission reductions credit for VAVR projects.

    (B) If a vehicle's emissions are within the pass/fail standards, the vehicle is not a high emitter and does not quality for high emitter projects but may be retired for default emission reductions through a conventional VAVR project.

    (C) For pre-1974 model years, the pass/fail emission standards for the 1974 model year may be used to qualify vehicles for the project.

    (D) Smog Checks must be full tests and not "fast pass" tests. The test must be conducted only by BAR-licensed technicians according to BAR protocols and completed as close to the retirement date as reasonably possible.

    (E) Diesel powered vehicles are not eligible for high emitting VAVR projects.

E. Emissions Measurement Methods

1. Smog Checks for model year 1999 and older gasoline powered vehicles are performed via a conventional Acceleration Simulation Mode (ASM) test. For certain vehicles, such as four-wheel and all-wheel drive vehicles, the Smog Check cannot be performed via an ASM test for safety or other mechanical reasons. In those limited cases, the Two Speed Idle (TSI) test may be used. TSI tests must be performed in strict compliance with BAR protocols.

    (A) Consistent with the model's limitations, TSI test results and the BAR protocol may only be used to predict ROG emissions, as TSI tests do not

directly measure either NOx or PM. For high emitting vehicles that are retired, default evaporative ROG, NOx, and PM emission reductions may be claimed.

2. Smog Checks for model year 2000 and newer gasoline powered vehicles and 1998 and newer diesel powered vehicles are performed via an On-Board Diagnostic Inspection (OIS) test. The OIS test must be performed in strict compliance with BAR protocols.

(A) Consistent with the model's limitations, OIS test results and the BAR protocol may only be used to predict ROG, NOx, and PM emissions, as the OIS test does not directly measure tailpipe emissions.

F. Air District Project Plan Requirements

1. An air district shall submit a detailed VAVR program project plan to ARB for approval and must receive written approval from ARB's Executive Officer (EO) prior to implementing a VAVR program. The program must follow the approved plan, and any substantive changes must be pre-approved by ARB in writing.

2. The air district project plan shall include, at a minimum, the following:

(A) The name, title, and telephone number of the air district program contact.

(B) An evaluation of environmental justice considerations including, but not limited to, outreach addressing community needs.

(C) An estimate of the number of vehicles to be retired, and an estimate of the cost-effectiveness with all assumptions and calculations used.

(D) Copies of contracts with enterprise operators, consultants, and any other third party contractor(s) participating in the project.

(E) A description of and timetable for monitoring and auditing enterprise operators, consultants, and other third party contractor(s).

(F) A copy of the statement of certification that an enterprise operator(s) has demonstrated compliance with all applicable provisions of the VAVR Regulation.

(G) The protocol for verifying vehicle eligibility including confirmation of compliance with any Smog Check requirements and for informing the public of the availability of vehicles eligible for retirement.

(H) A sample of the records that will be required of the enterprise operator(s).

(I) A description of any project criteria elements stricter than the ARB minimum requirements.

3. For high emitter projects, the air district project plan shall also include, at a minimum, the following:

(A) A detailed operating description of the technology and software used to identify high emitting vehicles including, but not limited to, set up, typical operation, location and location criteria, calibration, and maintenance.

(B) A copy of the standard operating procedures for that technology including software maintenance and the criteria to be used to identify a high emitting vehicle with documentation that operating personnel are trained and qualified.

(C) A detailed description of the methodology used to calculate extra emission reductions, including changes to any ARB-recommended method.

(D) If an air district intends to include an evaporative emissions testing element, the plan must specify the test equipment and include a copy of the test protocol.

(E) If an air district intends to include a PM measuring element, the plan must specify the test equipment and include verification that the methodology for measuring PM is scientifically valid, documentation that the results are reproducible, and a complete copy of the methodology.

(F) An itemized breakdown of estimated project costs including, but not limited to, funds allocated to identifying high emitters, the number of vehicles to be retired, data analysis, outreach to and solicitation of vehicle owners.

G. Recordkeeping and Reporting

1. For each VAVR project, the air district shall retain the following records for inclusion in the annual report to ARB.

(A) Vehicle Identification Number and license plate digits

(B) Vehicle odometer reading

(C) Vehicle make and model

(D) Name, address, and phone number of legal vehicle owner(s)

(E) Name and business address of the enterprise operator

(F) Emission reductions claimed

(G) Total air district cost to retire each vehicle

(H) Date of vehicle purchase and retirement by the enterprise operator

(I) Data identifying vehicles as potential high emitters along with confirmatory Smog Check date and results (High Emitter VAVR)

2. For each VAVR project, the enterprise operator shall maintain the following records. These records are not required for the annual report but must be made available to ARB for review.

(A) Reproduction of California Certificate of Title and registration, as signed-off by the seller at time of final sale to the enterprise operator.

(B) Reproduction of the applicable certificate of functional and equipment eligibility.

(C) Reproduction of the applicable Notice to Dismantler (DMV Registration 42 form).

(D) Reproduction of written documentation from DMV verifying that a vehicle meets the vehicle registration requirements of ARB's VAVR Regulation.

(E) Copies of documentation demonstrating that the retired vehicle did not fail a Smog Check within 90 days prior to its sale to the enterprise operator.

3. Air districts and enterprise operators shall retain these records for the three year life of the project plus an additional two years.

H. Minimum Project Application Requirements

Air districts must ensure project applications include the specific information needed to determine program eligibility and populate the Clean Air Reporting Log (CARL), including the information needed to track the project and calculate project cost-effectiveness.

I. Offering Vehicles/Parts to the Public

1. Enterprise operators must inform the air district of the vehicles ready for dismantling, and the air district must provide an easily accessible and detailed description of the vehicles to interested parties including collectors and enthusiasts as defined in CCR, title 13, section 2605(a)(1).

2. The enterprise operator must wait a minimum of ten days after informing the air district of vehicles ready for dismantling before submitting a Notice to Dismantle to DMV, and if interested parties contact the enterprise operator, the enterprise operator must hold the vehicle for a minimum of seven additional days as defined in CCR, title 13, section 2605(a).

3. Upon completion of the ten day waiting period (and additional seven day extension as applicable), the emission-related and drive train parts must be removed from the retired vehicle and destroyed prior to offering the remaining

non-emission-related and non-drive train parts for resale, as defined in CCR, title 13, section 2606(b).

4. If a vehicle, or a vehicles emission-related or drive train parts, are resold instead of retired, no emission reductions will be generated; and no Moyer Program funds may be used for retiring the vehicle. However, non-emission-related and non-drive train parts from the vehicle may be sold at the discretion of the enterprise operator.

J. Emission Benefits

Emission reductions from conventional VAVR projects are calculated using the VAVR Regulation methodology as described in CCR, title 13, section 2608(g). They are equal to the retired vehicle's emission rates minus those of the replacement vehicle with the difference multiplied by the average vehicle miles traveled by light-duty vehicles in the year of vehicle retirement and then multiplied by the three year project life. The retired vehicle's emission rates are equal to those for gasoline powered, light-duty vehicles for the model year of the retired vehicle in the year of vehicle retirement. Replacement vehicle emissions are the fleet average emissions for all gasoline powered light-duty vehicles for model years 1990 through the year of vehicle retirement. Emission rates and average vehicle miles traveled are generated by ARB's motor vehicle emissions model. ROG, NOx, and PM emission reductions over the three year project life by vehicle model year are located in Tables 8-1 through 8-5 below. These tables will be updated on an as needed basis through a mail-out to reflect revisions to the motor vehicle emissions model or to include additional years.

Table 8-1
Retired Vehicle Emission Reductions, CY 2016 (lbs/3yr)

MY	ROG	NOx	PM10
	Total	Exhaust	Exhaust
pre 1973	376.3	141.8	2.21
1973	382.2	146.1	2.28
1974	340.8	147.3	2.35
1975	288.9	146.3	2.37
1976	271.2	182.9	2.43
1977	254.4	194.7	2.40
1978	166.9	107.5	2.41
1979	161.5	102.8	2.44
1980	150.9	106.1	2.38
1981	136.3	83.7	0.94
1982	149.1	84.3	0.95
1983	165.1	85.0	0.92
1984	164.9	90.5	0.94
1985	155.3	88.5	0.96
1986	166.4	89.4	0.98
1987	153.9	86.9	1.01
1988	146.8	85.0	1.04
1989	133.6	76.3	1.05
1990	123.1	66.0	1.04
1991	100.4	68.2	0.55
1992	99.2	71.7	0.57
1993	92.2	69.6	0.59
1994	84.0	63.9	0.60
1995	71.6	51.4	0.60
1996	56.6	38.4	0.13
1997	46.3	36.5	0.14
1998	23.5	30.5	0.14
1999	19.6	27.8	0.14
2000	14.5	21.5	0.14
2001	12.4	19.9	0.14
2002	10.9	19.8	0.14
2003	8.3	19.1	0.15

Source: EMFAC2014 V1.0.7

Table 8-2
Retired Vehicle Emission Reductions, CY 2017 (lbs/3yr)

MY	ROG	NOx	PM10
	Total	Exhaust	Exhaust
pre 1974	377.5	143.3	2.24
1974	338.2	144.9	2.30
1975	286.6	144.6	2.32
1976	269.5	182.1	2.38
1977	252.3	192.2	2.36
1978	165.3	105.4	2.36
1979	160.3	101.2	2.39
1980	149.6	103.9	2.34
1981	135.1	82.0	0.92
1982	148.3	82.6	0.93
1983	165.8	83.5	0.90
1984	165.3	88.9	0.92
1985	155.8	87.1	0.93
1986	167.6	88.1	0.96
1987	154.8	85.0	0.99
1988	149.0	84.3	1.02
1989	137.0	75.7	1.02
1990	127.4	66.4	1.02
1991	103.1	68.7	0.54
1992	102.3	72.3	0.56
1993	95.9	70.4	0.57
1994	88.2	64.8	0.59
1995	75.7	52.7	0.59
1996	60.4	39.7	0.13
1997	49.7	37.8	0.13
1998	25.6	31.7	0.13
1999	21.7	29.0	0.13
2000	16.7	22.8	0.13
2001	14.7	21.4	0.14
2002	13.1	21.1	0.14
2003	10.6	20.5	0.14

Source: EMFAC2014 V1.0.7

Table 8-3
Retired Vehicle Emission Reductions, CY 2018 (lbs/3yr)

MY	ROG	NOx	PM10
	Total	Exhaust	Exhaust
pre 1975	333.7	140.9	2.24
1975	283.0	141.3	2.25
1976	265.2	177.2	2.31
1977	250.7	189.7	2.30
1978	163.6	102.4	2.30
1979	158.7	98.3	2.33
1980	148.3	101.1	2.28
1981	133.9	79.5	0.89
1982	147.4	80.3	0.90
1983	166.0	81.1	0.87
1984	166.2	86.7	0.90
1985	156.6	84.8	0.91
1986	169.2	86.1	0.93
1987	156.0	83.2	0.95
1988	150.4	82.0	0.98
1989	139.8	74.6	0.99
1990	130.6	65.5	0.98
1991	105.3	68.6	0.52
1992	105.2	72.3	0.54
1993	99.3	70.5	0.55
1994	92.4	65.5	0.57
1995	80.0	53.3	0.57
1996	64.3	40.5	0.12
1997	53.2	39.0	0.13
1998	28.0	32.8	0.13
1999	24.1	30.2	0.13
2000	19.0	24.0	0.13
2001	17.1	22.6	0.13
2002	15.6	22.5	0.13
2003	13.0	21.8	0.14

Source: EMFAC2014 V1.0.7

Table 8-4
Retired Vehicle Emission Reductions, CY 2019 (lbs/3yr)

MY	ROG	NOx	PM10
	Total	Exhaust	Exhaust
pre 1976	279.3	137.8	2.19
1976	262.3	174.9	2.24
1977	246.6	184.8	2.23
1978	161.5	99.6	2.23
1979	157.1	95.7	2.26
1980	146.5	98.1	2.21
1981	132.8	77.4	0.86
1982	146.5	78.0	0.88
1983	166.0	78.7	0.84
1984	166.5	84.2	0.87
1985	157.8	82.6	0.88
1986	171.1	83.9	0.90
1987	157.3	81.3	0.92
1988	152.0	80.2	0.95
1989	141.4	72.4	0.96
1990	133.1	64.6	0.95
1991	106.6	67.6	0.50
1992	107.4	72.1	0.52
1993	102.3	70.5	0.53
1994	96.1	65.8	0.55
1995	84.1	54.0	0.55
1996	68.1	40.7	0.12
1997	56.6	39.7	0.12
1998	30.2	34.0	0.12
1999	26.5	31.4	0.12
2000	21.3	25.1	0.12
2001	19.3	23.6	0.12
2002	17.9	23.5	0.13
2003	15.4	23.0	0.13

Source: EMFAC2014 V1.0.7

Table 8-5
Retired Vehicle Emission Reductions, CY 2020 (lbs/3yr)

MY	ROG	NOx	PM10
	Total	Exhaust	Exhaust
pre 1977	257.3	169.2	2.18
1977	244.9	182.3	2.17
1978	159.5	96.4	2.17
1979	155.3	93.1	2.20
1980	145.0	95.2	2.15
1981	131.3	74.8	0.84
1982	145.6	75.9	0.85
1983	165.7	76.2	0.82
1984	166.6	81.8	0.84
1985	158.6	80.2	0.85
1986	173.7	81.7	0.87
1987	158.9	79.2	0.89
1988	153.7	78.5	0.92
1989	143.3	70.9	0.93
1990	134.3	62.5	0.92
1991	107.5	66.5	0.49
1992	108.7	71.0	0.50
1993	104.7	70.3	0.52
1994	99.4	66.1	0.53
1995	87.6	54.4	0.53
1996	71.6	41.0	0.12
1997	59.8	40.0	0.12
1998	32.1	34.6	0.12
1999	28.7	32.6	0.12
2000	23.6	26.3	0.12
2001	21.5	24.6	0.12
2002	20.0	24.3	0.12
2003	17.5	24.0	0.13

Source: EMFAC2014 V1.0.7

1. Emission reductions from retired diesel powered vehicles are also calculated using the VAVR Regulation methodology. Because of limited data and minor differences in emission rates from one year to another, average emission reductions are shown for only two model year ranges in the four calendar year intervals shown. Replacement vehicle emission rates are the same as those used for gasoline powered vehicles. Average ROG, NOx, and PM emission reductions over the three year project life by model year range are located in Tables 8-6 and 8-7. There are no evaporative emission reductions for the retirement of a diesel powered vehicle.

Table 8-6
Retired Diesel Powered Vehicle Emission Reductions

Model Year Range	Pollutant	CY 2014-2017 (lbs/3 yrs)
Pre-1984	ROG	11.6
	NOx	53.4
	PM	11.5
1984-1992	ROG	10.8
	NOx	42.8
	PM	8.4

Source: EMFAC2014 V1.0.7

Table 8-7
Retired Diesel Powered Vehicle Emission Reductions

Model Year Range	Pollutant	CY 2018-2021 (lbs/3 yrs)
Pre-1984	ROG	10.8
	NOx	48.9
	PM	10.1
1984-1992	ROG	10.3
	NOx	39.6
	PM	7.4

Source: EMFAC2014 V1.0.7

2. Please refer to Appendix C for a discussion of the methodology for estimating emission reductions and how to calculate VAVR project cost-effectiveness.

3. Currently, none of the air district VAVR programs have components for high emitter projects. ARB will provide the methodology for any new plans which include special cases, such as high emitter projects, through a mail-out as needed.

CHAPTER 9: LAWN AND GARDEN EQUIPMENT REPLACEMENT

This chapter describes the minimum criteria and requirements for the Carl Moyer Memorial Air Quality Standards Attainment Program (Moyer Program) Lawn and Garden Equipment (L&GE) replacement projects. L&GE replacement provides a streamlined approach to reduce emissions by replacing existing gasoline lawn mowers with cordless, zero-emission electric lawn mowers. Zero-emission lawn mowers are not required by regulation, so the emission benefits are surplus. The Moyer Program provides funding for vouchers to offset part of the cost of the replacement electric lawn mower.

A. Projects Eligible for Funding

New Replacement Cordless, Zero-Emission Electric Lawn Mower Purchase: The purchase of a new cordless, zero-emission electric lawn mower to replace the existing gasoline lawn mower that is to be scrapped is eligible for funding under this program.

No emission reductions generated by the Moyer Program shall be used as marketable emission reduction credits, or to offset any emission reduction obligation of any person or entity. Therefore, an electric lawn mower model that generates credits by participating in the Air Resources Board's (ARB) zero-emission equipment credit averaging, banking, and trading program is not eligible for funding.

B. Maximum Eligible Funding Amounts

The maximum total project funding amount associated with reducing the eligible costs of a L&GE replacement project has been predetermined as $145 per lawn mower.

C. Project Criteria

The criteria listed below are the minimum requirements for L&GE replacement project participants: air quality management districts or air pollution control districts (air districts); cordless zero-emission electric lawn mower manufacturers and merchants; hazardous waste material disposal companies and recycling companies. All projects must also conform to the requirements in Chapter 2: General Criteria and in Chapter 3: Program Administration, except for the following Sections: S. Project Application Requirements, W. Project Pre-Inspection, X. Project Post-Inspection, Y. Project Invoice and Payment, Z. Grantee Annual Reporting, AA. Air District Audit of Projects, BB. Nonperforming Projects; and as noted elsewhere below.

1. **General Lawn and Garden Equipment Replacement Criteria**. As allowed under Chapter 2, Sections I, N, O, P, and Q, an air district may contribute additional non-Moyer Program incentive funds towards the purchase of the individual lawn mower. However, Moyer Program and AB 923 funds combined cannot exceed $145. Bulk-purchasing discounts from the electric lawn mower manufacturer or merchant are also allowed.

2. **Participant Requirements.** All participants must meet the following requirements to be eligible for funding**:**

   (A) *Application Form*: To be approved for L&GE replacement funds, the applicant must meet L&GE replacement program requirements and submit an application. Once an application is approved by the air district, the air district will return the application form to the applicant. The applicant must turn in the approved application form with applicant's signature at the location designated by the air district.

   (B) *Applicant must certify in the application*:

      (1) California Residence: Participants must reside in California. Air districts may add the requirement that participants reside within the air district.

      (2) Own and Operate: The participant must currently own and operate the existing gasoline lawn mower in California.

      (3) Replacement Cordless, Zero-Emission Electric Lawn Mower Operation in California: The participant must intend to own and operate the new replacement cordless, zero-emission electric lawn mower in California for a minimum of 36 months from the date of purchase.

3. **Existing Lawn Mower Requirements.** Each existing lawn mower must meet the following conditions before the L&GE replacement application can be approved and awarded a voucher.

   (A) *Operational Gasoline Lawn Mowers*: The existing lawn mower must be in operational condition. The lawn mower must operate on gasoline, be able to start, move, and have all operational parts. Applicant certifies operability on the application form.

   (B) *Delivery of the Existing Lawn Mower to the Air District or Air District-specified Facility*: The participant must deliver the existing lawn mower to the air district or air district-specified facility. The air district or air district-specified facility must reject the existing lawn mower if it is deemed inoperative.

4. **Replacement Lawn Mower Requirements.** All replacement lawn mowers must meet the following requirements before a voucher is awarded to the participant:

   (A) *New, Cordless, Zero-Emission Electric Lawn Mower*: The replacement lawn mower must be a new, cordless, zero-emission electric lawn mower.

(B) *Not Used for Credit Generation*: Only an electric lawn mower model that does not generate credit or participate in ARB's zero-emission equipment credit averaging, banking and trading program is eligible for funding.

(C) *Purchase*: The replacement lawn mowers must be purchased from a participating air district, or a third party, participating manufacturer or participating merchant, as chosen by the implementing air district.

5. Air District Requirements. An air district implementing the program must meet the following requirements:

(A) *Add an addendum to the air district's Moyer Program Policies and Procedures*: An air district must create an addendum to its current Moyer Program Policies and Procedures (P&P's) describing their program within two (2) months after they begin implementation of the L&GE replacement program. Air districts are not required to submit this addendum to ARB but it must be available to ARB upon request.

(B) *Agreements*:

(1) An air district must have written agreements with both of the following parties:

a. A hazardous waste materials disposal company.

b. A recycling company.

The agreements can be included as part of the air district's agreements with the same entities for other Moyer Programs. The recycling company and the hazardous waste material company can be the same company.

(2) If an air district is working with either or both of the following parties,

a. A cordless, zero-emission electric lawn mower manufacturer, or

b. A cordless, zero-emission electric lawn mower merchant,

the air district must have a written agreement with that party. The agreement must include the requirements of subsection 6 (Participating Manufacturer Requirements) or 7 (Participating Merchant Requirements) of this chapter, as applicable, and Chapter 3: Program Administration, Section V. Minimum Contract Requirements, except for the following subsections: 6. Project Specifications, 7. Maintenance, 9. Reporting, and 11. Repercussions of Nonperformance - equipment operation requirement.

(C) *Third Party*: An air district may enter into an agreement with a third party to manage some of the air district's program requirements. The third party

must agree to comply with all L&GE replacement program requirements. The air district must train the third party on L&GE replacement program requirements and include an example of the agreement in its P&P's.

(D) *Application*: Applications, at a minimum, must have the following information:

(1) Information about the Applicant:

a. Name.

b. Mailing Address (including city, state, zip code).

c. Physical Address (if different from mailing address).

d. Phone Number.

e. Date of Application.

(2) Information about the Applicant's Existing Gasoline Lawn Mower:

a. Manufacturer (if known).

b. Model Year (if known).

c. Engine family (if known).

(3) Section for the applicant to certify the following information is accurate and true:

a. Existing gasoline lawn mower is operational.

b. Applicant resides in California.

c. Applicant currently owns and operates the gasoline lawn mower in California.

d. From the date of purchase, applicant intends to own and operate the new, cordless zero-emission electric lawn mower in California for a minimum of 36 months.

e. The information provided in the application is true and correct and meets the minimum requirements of the L&GE replacement program.

f. "I understand that an incomplete or illegible application may be immediately rejected, and I will be notified."

g. “I understand as an applicant that incentive programs have limited funds and shall terminate upon depletion of program funding.”

(4) A box for the applicant to check to certify the information included in (3) is correct and signify the applicant’s agreement with the above statements.

(E) *Application Approval*: The application approval process consists of the following steps:

(1) Applicant submits application to the air district.

(2) Air district or designated third party reviews and approves application (if appropriate), and returns it to applicant. Application review and approval may be conducted on-site at a lawnmower exchange event.

(3) Applicant turns in approved application with applicant’s signature per subsection C. 2.(A).

(F) *Rejected Application*: If a submitted application is incomplete, ineligible, or illegible, the air district must reject the application immediately and notify the applicant within five days of receipt. Air districts may follow up with an applicant in order to complete an incomplete or illegible application.

(G) *Disbursement Request Requirements*: An air district may request Moyer Program funds as these funds become available. In order for an air district to be approved for a disbursement request, the air district must follow Chapter 3: Program Administration, Section E requirements, and also provide the following to ARB:

(1) Verification of board approval to implement the L&GE replacement program for the requested disbursement amount or more; and

(2) If applicable per Section 5(B)(2) a copy of at least one cordless zero-emission electric lawn mower manufacturer or merchant agreement; and

(3) A copy of at least one active hazardous waste materials disposal company agreement; and

(4) A copy of at least one active recycling company agreement; and

(5) A history (up to five years, if applicable) of previous years of the air district’s lawn and garden equipment exchange programs, including the following information:

a. Yearly amount funded.

b. Yearly number of mowers funded.

c. Yearly program administration costs.

d. Cordless, zero-emission electric lawn mower cost breakdown:

i. Amount air district paid to manufacturer.

ii. Amount air district pays from air district's local funds.

iii. Amount of any additional funds.

iv. Amount participant pays.

(H) *Operational Condition of Existing Lawn Mower*: Air district or air district-specified facility must ensure that each existing lawn mower is in apparently operational condition. The air district or air district-specified facility must reject the existing lawn mower if it is deemed inoperative.

(I) *Project Payment*: Air districts must include in their P&P's a detailed description of the process through which the air district provides payment to the cordless, zero-emission electric lawn mower manufacturer, merchant and/or applicant.

(J) *Merchant Reimbursement Package*: Prior to receiving reimbursement, an air district-specified third party, participating manufacturer or participating merchant must submit a reimbursement package to the air district. The following documents should be included in the reimbursement package:

(1) Invoice signed by the applicant that shows the final purchase price less the voucher award. In the case of an online merchant, the invoice does not have to be signed by the applicant.

(2) If a recycling code is used in addition to a voucher in order to purchase the lawn mower, the recycling code.

(3) The name and address of the participant.

(K) *Lawn Mower Destruction Documentation*: All existing gasoline lawn mowers must be destroyed. Air districts must collect from their participating Recycling Companies signed receipts that show the number of lawn mowers destroyed.

(L) *Audit and Monitoring*: Air districts must allow ARB to monitor their L&GE replacement program which may include audits of the air district's implementation of the program.

(M) *Meeting Environmental Justice (EJ) Requirements*: Air districts with environmental justice requirements shall not apply these requirements to the L&GE replacement application review until after each year of implementation. The air district must then review each project to determine if it helps to meet the air district's EJ requirements. If EJ requirements have not been met, then other Moyer Program funded projects will need to be used to fulfill this EJ requirement.

(N) Reporting in CARL: For liquidation reporting requirements the following information must be entered into the CARL database:

(1) Total number of lawn mowers exchanged.

(2) Date of the exchange of the final lawn mower.

(3) Total amount of Moyer Program funds liquidated.

(4) Date of liquidation of the final project.

(5) The Moyer Program funding year.

(O) *Records Retention*: Air districts must retain all records of approved projects for a minimum of three years from the date of issuing the voucher. For rejected projects, air districts must maintain a copy of the application, the rejection letter, and method of notification for three years from the date the application was received.

6. Participating Manufacturer Requirements. Participating manufacturers' agreements must include the following information:

(A) *Covered Lawn Mowers*: Information about the cordless zero-emission electric lawn mowers covered by the agreement:

(1) Lawn mower model name.

(2) Lawn mower year of production.

(3) Lawn mower cutting radius.

(4) Lawn mower battery description (voltage).

(5) Total number of cordless, electric lawn mowers covered by the agreement.

(6) The cost of each cordless, electric lawn mower.

(7) The total contract amount, or total contract amount not to exceed.

(8) The date by which the work shall be completed.

(9) Lawn mower warranty description.

(B) *Manufacturer Qualifications*: A statement that the manufacturer meets the following minimum qualifications for participation in the L&GE replacement program, and shall continue to meet these qualifications throughout its participation in the L&GE replacement program.

(1) Manufacturer has had a valid business license for a minimum of the last two years.

(2) Manufacturer agrees to allow the air district or ARB to inspect cordless, zero-emission electric lawn mowers or audit program records covered under this agreement during normal business hours.

(C) *Aftermarket Service*: A statement that the manufacturer shall provide aftermarket service to customers for defects in materials or workmanship as defined by the Terms and Conditions listed in the product warranty.

(D) *Recalls*: A statement that as soon as reasonably possible, manufacturer shall notify the air district and individually notify any and all purchasers of equipment through this program of any recall of the lawn mower or any of its constituent parts ordered by manufacturer or by a government agency.

(E) *Air District Does Not Warrant or Endorse Lawn Mowers*: A statement that the air district does not warrant or endorse the manufacturer's lawn mowers for any purpose, including materials, workmanship, merchantability or fitness for use. Nothing in the air district/manufacturer contract shall be construed as a warranty or endorsement.

(F) *Averaging, Banking, and Trading Program Exclusion*: A statement that no emission reductions generated by the Moyer Program shall be used as marketable emission reduction credits, or to offset any emission reduction obligation of any person or entity. Therefore, electric lawn mower models included in the agreement are not generating credits by participating in ARB's zero-emission equipment credit averaging, banking, and trading program or any similar program.

(G) *Return of Funds*: A statement that, should the manufacturer fail to show that they are implementing the program consistent with the L&GE replacement program requirements, the manufacturer or merchant shall return to the air district funds in proportion to any loss of emission reductions compared with the projected reductions of the agreement.

7. **Participating Merchant Requirements**. Participating merchants' agreements must include the following:

(A) *Covered Lawn Mowers*: Information about the cordless, zero-emission electric lawn mowers covered by the agreement:

(1) Lawn mower model name.

(2) Lawn mower year of production.

(3) Lawn mower cutting radius.

(4) Lawn mower battery description (voltage).

(5) Estimate of total number of cordless electric lawn mower units covered by the agreement.

(6) The cost of each cordless, electric lawn mower.

(7) The total contract amount, or total contract amount not to exceed.

(8) The date by which the agreement ends.

(9) Lawn mower warranty description.

(B) *Merchant Qualifications*: A statement that the merchant meets the following minimum qualifications for participation in the L&GE replacement program, and shall continue to meet these qualifications throughout its participation in the L&GE replacement program.

(1) Merchant has had a valid business license issued in California for a minimum of the last two years.

(2) Merchant agrees to allow the air district or ARB to inspect cordless, zero-emission electric lawn mowers or audit program records covered under this Agreement during normal business hours.

(C) *Invoice*: A statement that the merchant shall show on the replacement lawn mower invoice the voucher amount. The receipt of voucher funds does not lower the base price of the lawn mower nor does it reduce the tax basis of the lawn mower, but is an incentive to the lawn mower owner that will result in a lower price paid by the participant.

(D) *Average, Banking and Trading Program Exclusion*: A statement that no emission reductions generated by the Moyer Program shall be used as marketable emission reduction credits, or to offset any emission reduction obligation of any person or entity. Therefore, electric lawn mower models included in the agreement are not generating credits by participating in ARB's zero-emission equipment credit averaging, banking and trading program or any similar program.

(E) *Return of Funds*: A statement that, should the merchant fail to show that they are implementing the program consistent with L&GE replacement program requirements, the manufacturer or merchant shall return to the air district funds in proportion to any loss of emission reductions compared with the projected reductions of the agreement.

8. **Participating Recycling Company Requirements**. Participating recycling companies' agreements must include the following:

(A) *Destruction of Lawn Mowers*: A statement that the recycling company shall destroy the lawn mower and engine within 60 days of receipt such that the lawn mower is no longer operable or repairable.

(B) *Receipt of Lawn Mower Destruction*: A statement that the recycling company shall notify the air district that a lawn mower is destroyed by sending the air district a signed receipt indicating the number of lawn mowers destroyed.

D. Emission Benefits

L&GE replacement provides emission benefits by providing lawn mower owners the incentivized option of purchasing a zero-emission lawn mower instead of a higher polluting gasoline lawn mower. Zero-emission lawn mowers are not required by regulation, so the emission benefits are surplus. Emission reductions are the difference in emissions from a new gasoline lawn mower engine and the emissions of a zero-emission lawn mower for the operational lifetime of the zero-emission lawn mower. The average operational lifetime of a replacement zero-emission lawn mower is estimated to be approximately 10 years. L&GE replacement project emission reductions are shown in Table 9-1.

Table 9-1
Gasoline Lawn Mower Emission Reductions (lbs/yr)

Model Year	ROG			NOx	PM10
	Exhaust	Evap	Total	Exhaust	Exhaust
2010	0.290	0.847	1.137	0.071	0.048

CHAPTER 10: INFRASTRUCTURE

Senate Bill 513 (Beall, Chapter 610, Statutes of 2015) provides the Air Resources Board's (ARB) Carl Moyer Memorial Air Quality Standards Attainment Program (Moyer Program) the ability to incorporate infrastructure projects into its program. It authorizes the funding of projects that enable the deployment of alternative, advanced, and cleaner technologies to support the State's air quality goals. Specifically, Health and Safety Code section 44281(c) gives ARB the ability to provide funding toward the installation of fueling or energy infrastructure to fuel or power covered sources. Statute does not require infrastructure projects to meet a cost-effectiveness threshold.

This chapter provides project criteria for selecting and funding infrastructure projects that enable emission reductions in meeting State and local air quality goals. All infrastructure projects must be used to fuel or power a covered source as defined by Health and Safety Code section 44275(a)(7). These covered sources include but are not limited to on-road, off-road, agricultural and marine vessel emission sources.

A. Funding

Air quality management districts or air pollution control districts (air districts) determine project priority and select projects funded within their region.

Table 10-1
Maximum Percentage of Eligible Cost for Moyer Program Infrastructure Projects

Maximum Percentage of Eligible Cost	Infrastructure Projects
50%	All Projects
60%	Publicly Accessible Projects
65%	Projects with Solar/Wind Power Systems[(a)]
75%	Publicly Accessible Projects with Solar/Wind Power Systems[(a)]
100%	Public School Buses - Battery Charging and Alternative Fueling

[(a)] At least 50 percent of the energy provided to covered sources by the project must be generated from solar or wind.

B. Eligible Projects

Eligible projects are those that provide fuel or power to a covered source, and include, but are not limited to, the following:

1. **Battery Charging Station**. New, conversion of existing, and expansion to existing non-residential battery charging stations. (e.g. workplace charging, direct current fast chargers along freeway roadway corridors, long-term charging

at destination areas such as airports and shopping centers, and charging at distribution centers and warehouses).

2. **Alternative Fueling Station**. New, conversion of existing, and expansion to existing hydrogen and natural gas fueling stations.

3. **Stationary Agricultural Pump**. Pump electrification.

4. **Shore Power**. Shore-side electrification.

5. Additional projects may be considered on a case-by-case basis, such as residential battery charging stations for low-income and multi-unit dwellings, as well as infrastructure for transport refrigeration units and truckstop electrification. Please contact ARB Moyer staff for further guidance on these case-by-case projects.

C. Eligible Applicants

Public and private entities are eligible to apply unless otherwise stated. Public entities include but are not limited to State, metropolitan, county, city, multi-county special district (e.g. water district), school district, university, and federal agencies and organizations. Private entities include but are not limited to private organizations and corporations. Out of State applicants are eligible to apply provided that the infrastructure is situated in California.

D. Eligible Costs

Eligible costs are limited to the purchase and installation of the equipment for power delivery or fueling directly related to the infrastructure project. The eligible costs listed below must utilize commercially available technologies.

1. **Eligible project costs include:**

   (A) Cost of design and engineering, (i.e., labor, site preparation, Americans with Disabilities Act accessibility, signage).

   (B) Cost of equipment (e.g., charging/fueling units, electrical parts, energy storage equipment, materials).

   (C) Cost of installation directly related to the construction of the station.

   (D) Meter/data loggers.

   (E) On-site power generation system that fuels or powers covered sources (i.e., solar and wind power generation equipment).

2. **Air districts have the option to fund the following discretionary costs:**

   (A) Federal, sales, and other taxes.

(B) Shipping and delivery costs.

(C) Fees incurred pre-contract execution (i.e., permits, design, engineering, site preparation), license fees, environmental fees, commissioning fees (safety testing), and onsite required safety equipment.

(D) Consulting fees associated with the preparation of Environmental Assessment, Environmental Impact Statement, Environmental Impact Report, or other California Environmental Quality Act (CEQA) documents, etc.

E. Ineligible Costs

Ineligible costs include but are not limited to:

1. Existing station upgrade.

2. Fuel and energy costs.

3. Non-essential equipment hardware.

4. Operation cost (e.g., operational fees, maintenance, repairs, improvements, spare parts).

5. Extended warranty.

6. Insurance.

7. Data collection and reporting.

8. Grantee administrative costs.

9. Travel/lodging.

10. Employee training and salaries.

11. Legal fees.

12. Real estate property purchases/leases.

13. Performance bond costs.

14. Construction management.

15. Storm water plan costs.

16. Security costs.

17. Testing and soil sampling.

18. Hazardous materials, including permitting, handling and disposal.

F. Project Eligibility Criteria

The minimum qualifications for infrastructure projects are listed below. All projects must also conform to the requirements in Chapter 2: General Criteria, and in Chapter 3: Program Administration. Participating air districts retain the authority to impose additional requirements to address local concerns.

1. General Criteria

(A) The project must be installed and located in California.

(B) The project must comply with all applicable federal, State, local laws and requirements including environmental laws, and State building, environmental and fire codes. For instance, air districts may need to perform CEQA review and obtain approval prior to funding a project.

(C) A publicly accessible infrastructure project must be solicited and selected through a competitive bidding process that has been approved by the air district board.

(D) Work must be performed by a licensed contractor.

(E) For projects that contain Moyer Program funding for both infrastructure and engine replacement or repower within the same contract, only the cost of the engine replacement or repower will be considered when performing a cost-effectiveness calculation.

(F) Publicly accessible station must at a minimum be accessible to the public daily during regular business hours.

(G) Equipment and parts must be new. Remanufactured or refurbished equipment and parts are not eligible.

(H) Except for stationary agricultural pump projects, a completed Uniform Commercial Code-1 Financing Statement Form must be submitted by the air district to the California Secretary of State for infrastructure projects with a grant funding amount of $50K or greater. The financing statement must list the air district as the secured party.

2. Battery Charging Station

(A) Chargers must be a level 2 and higher to support non-residential stations.

(B) Publicly accessible light-duty charging stations must use a valid and universally accepted charge connector protocol (e.g. Society of Automotive Engineers (SAE), CHAdeMO).

(C) Charger must be certified by a Nationally Recognized Testing Laboratory (e.g., Underwriter's Laboratories, Intertek) located at https://www.osha.gov/dts/otpca/nrtl/nrtllist.html.

(D) Equipment must have at least a one year warranty.

3. **Stationary Agricultural Pump**. To be eligible for funding, infrastructure must directly power a zero-emission stationary agricultural pump funded by the air district with Moyer Program funds, including match (see Chapter 5 for specific criteria related to funding agricultural pumps).

4. **Shore Power**

(A) Funding is available to install shore-side electrical grid-based power at a berth that receives visits solely by vessels not subject to the control requirements of ARB's Shore Power Regulation (Title 17, California Code Regs., section 93118.3.).

(B) Shore-side projects meeting the eligibility criteria of the Goods Movement Program are eligible for Moyer Program funding only on a case-by-case basis. Moyer Program project funds cannot be co-funded with Proposition 1B Goods Movement Program funds.

5. **Alternative Fueling Station**. Equipment must have at least a three year warranty.

G. Applicant Requirements

1. General Criteria

(A) The applicant must be able to demonstrate to the air district that the applicant can obtain all required land use permits from agencies needed to install and operate the station.

(B) For a publicly accessible station, the applicant must provide a description of the geographic location, including an aerial map (i.e. satellite view from an internet based map or city/county map) and specific street address of the proposed station.

(C) Applicants must demonstrate that they either own the land on which the project will be located, or control it through a long-term lease, easement or other legal arrangement, for the duration of the project life. For a proposed project where the land is not owned by the applicant, an executed lease agreement or letters of commitment lasting for the duration of the project life must be signed by property owners/authorized representatives and must be submitted with the application.

(D) Applicants must be able to provide documentation that power or fuel is being provided to the site (e.g. application, payment to the local utility company for power installation, or contract).

2. Shore Power

(A) Applicants who own/operate at a terminal must submit a copy of the Initial Terminal Plan per Section (g) of ARB's Shore Power Regulation (Title 17, California Code Regs, section 93118.3). All subsequent project reports to air districts must include a copy of the terminal plan in order to evaluate compliance with the project contract.

(B) Only a port authority, terminal operator, or marine vessel owner may apply to receive Moyer Program funding for a shore power project.

H. Project Life

1. All projects must have a minimum project life of three years.

2. Maximum project life is 15 years, except stationary agricultural pump electrification projects which have a maximum project life of ten years.

I. Contract Requirements

1. General Criteria

(A) Contracts must include anticipated usage in terms of projected throughput and/or number of vehicles that will be using the station for the term of the contract.

(B) Contracts must require that the equipment be in operating condition throughout the contract term.

(C) Contracts must specify that publicly accessible infrastructure projects must maintain a 95 percent successful charging rate with 24/7 customer service available on site, via toll free telephone number. Contracts must also specify that if equipment is not functional, the grantee is responsible for ensuring that repairs are made and station is up and running within 48 hours. The grantee must notify air districts of any downtime beyond the 48 hours and work with air districts to ensure publicly accessible stations are operational.

(D) For non-publicly accessible infrastructure projects, contracts must specify that if equipment is not functional, the grantee has 15 business days to report the problem to the air district and begin working with the air district promptly to ensure infrastructure equipment is operational.

(E) Contracts must specify that, if during the project life the fuel/energy meter fails for any reason, the fuel/energy meter must be repaired or replaced as soon as possible and is considered a maintenance expense, therefore not an eligible cost.

(F) Contracts must specify the maximum grant amount.

(G) Contracts must identify milestone dates including project completion, invoice, and annual reporting dates.

2. Battery Charging Station

(A) Contracts must include the number of ports and charging units.

(B) Grantee must report all battery charging station installations to the Department of Energy Alternative Fuel Data Center located at http://www.afdc.energy.gov/locator/stations/.

3. Alternative Fueling Station. For hydrogen fueling stations, grantee must register and report to the Station Online Status System (SOSS) maintained by the California Fuel Cell Partnership (www.cafcp.org). In addition, grantee must abide by the requirements of the reporting system.

J. Post-Inspection

1. General Criteria

(A) Air districts must verify and document that each infrastructure project is operational. Inspections must include verification of operation by connecting a vehicle or equipment to the charging or fueling station, or in the case of an agricultural pump or shore power project, by connecting to the electrical grid. For projects that incorporate solar or wind power, the inspection must verify that infrastructure has been installed and connected to the power generation equipment (i.e. solar panels or wind turbines). Air districts may be exempted from this requirement if the grantee does not own a vehicle/equipment, and no vehicle/equipment can reasonably be obtained for the inspection. Air districts must document such instances and obtain other types of verification that the infrastructure is capable of dispensing fuel/electricity, or in the case of an agricultural pump or shore power project, capable of being powered by the electrical grid.

(B) Air district must take photos of the equipment and keep photos in the project file. At the minimum, the photos must include equipment manufacturers, model number, and serial number.

2. Battery Charging Station. Air district must document the following: Name of manufacturer, serial number and date of manufacture, amperage/voltage, and equipment recharge rate.

K. Invoice and Payment

A project may be considered for final payment once the necessary infrastructure has been installed and connected to the power generation equipment (i.e., solar panels, wind turbine) and/or electricity grid and has been demonstrated to the air district that it is fully operational during a post-inspection.

L. Data Collection and Annual Reporting

1. **Solar or Wind Power Generating Equipment**. For infrastructure projects that incorporate solar or wind power generating equipment, the grantee must annually provide to the air district the amount of electricity generated (e.g. kilowatt-hour) from the solar or wind power generating equipment for the duration of the project life.

2. **Battery Charging Station**. Grantee must annually provide to the air district the following data for the entire project life:

   (A) Qualitative description of public and private uses.

   (B) Annual usage per charger (e.g., kilowatt-hour) and the number of plug-in events.

   (C) Any unscheduled downtime, including duration of downtime and causes of downtime.

3. **Stationary Agricultural Pump**. Grantee must annually provide to the air district the following data for the entire project life:

   (A) Annual usage (e.g., kilowatt-hour) using an energy meter.

   (B) Episodes of electrical service interruption by the local utility company.

4. **Shore Power**. Grantee must annually provide to the air district the following data per berth for the entire project life:

   (A) Total ship visits utilizing berth and ship visits utilizing program funded equipment.

   (B) Annual usage (e.g., kilowatt-hour).

   (C) Episodes of electrical service interruption by the local utility company.

5. **Alternative Fueling Station**. Grantee must annually provide to the air district the following data for the entire project life:

   (A) Annual usage (e.g., kilograms, standard cubic feet).

(B) Any unscheduled downtime, including duration of downtime and causes of downtime.

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APPENDICES

Appendix A: Acronyms

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APPENDIX A

ACRONYMS

APPENDIX A: ACRONYMS

AAP	Agricultural Assistance Program
AB	Assembly Bill
ABT	Average Banking and Trading
AC	Alternating Current
ACS	Applicant Cost Share
ADA	Americans With Disabilities
Ah	Amp-hour
APCD	Air Pollution Control District
APCO	Air Pollution Control Officer
APU	Auxiliary Power Unit
AQMD	Air Quality Management District
ARB	Air Resources Board
ASM	Acceleration Simulation Mode
ATCM	Airborne Toxic Control Measure
BACT	Best Available Control Technology
BAR	Bureau of Automotive Repair
bhp	Brake Horsepower
bhp-hr/gal	Brake horsepower-hour per gallon
bhp-hr/yr	Brake horsepower-hour per year
BIT	Biennial Inspection of Terminals
C/E	Cost-Effectiveness
Cal/EPA	California Environmental Protection Agency
CAP	Consumer Assistance Program
CAPCOA	California Air Pollution Control Officers Association
CARL	Clean Air Reporting Log
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
CF	Vessel Registration Number
CFO	Chief Financial Officer
CHC	Commercial Harbor Craft
CHE	Cargo Handling Equipment
CHP	California Highway Patrol
CI	Compression Ignition
CMP	Carl Moyer Memorial Air Quality Standards Attainment Program
CNG	Compressed Natural Gas
CO	Carbon Monoxide
CRF	Capital Recovery Factor
DBA	Doing Business As
DMV	Department of Motor Vehicles
DOE	Department of Energy
DOF	Department of Finance

DOORS	Diesel Off-Road Online Reporting System
DOT	Department of Transportation
DPF	Diesel Particulate Filter
E/S	Electric Standby
EF	Emission Factor
EFMP	Enhanced Fleet Modernization Program
EGR	Exhaust Gas Recirculation
EJ	Environmental Justice
EMFAC	ARB's On-Road Motor Vehicle Emission Inventory Model
EMY	Engine Model Year
EO	Executive Order
EQIP	Environmental Quality Incentives Program
ERCs	Emission Reduction Credits
ES	Emission Standards
ESN	Engine Serial Number
EIN	Equipment Identification Number
EVSE	Electric Vehicle Supply Equipment
FEL	Family Emission Limit
FTA	Federal Transit Administration
FTF	Flow-Through Filter
FY	Fiscal Year
GAAP	Generally Accepted Accounting Principles
g	Gram
g/bhp-hr	Gram per brake horsepower-hour
gal	Gallon
gal/yr	Gallons per year
GHG	Greenhouse Gas
GMERP	Goods Movement Emission Reduction Program
GPS	Geographic Positioning System
GSE	Ground Support Equipment
GVW	Declared Gross Vehicle Weight
GVWR	Gross Vehicle Weight Rating
HC	Hydrocarbons
HD	Heavy-Duty
HDDE	Heavy-Duty Diesel Engine
HDT	Heavy-Duty Truck
HDV	Heavy-Duty Vehicle
HEP	Head End Power Unit
HHD	Heavy Heavy-Duty
HHDV	Heavy Heavy-Duty Vehicle
hp	Horsepower

hr	Hour
H&SC	Health and Safety Code
HVAC	Heating, Ventilation and Air Conditioning
ICE	Internal Combustion Engine
ILD	Idle Limiting Device
IMO	International Maritime Organization
IOU	Investor Owned Utility
IPI	Incentive Program Implementation Team
IRP	International Registration Plan
IRS	Internal Revenue Service
ITR	Innovative Technology Regulation
JPA	Joint Power Authority
kW	Kilowatt
lbs.	Pounds
lbs/bhp-hr	Pounds per brake horsepower-hour
lb/gal	Pound per gallon
lb/hp-hr	Pound per horsepower-hour
L&GE	Lawn and Garden Equipment
LDV	Light-Duty Vehicle
LESBP	Lower-Emission School Bus Program
LETRU	Low Emission Transport Refrigeration Unit
LEV	Low Emission Vehicle
LHD	Light Heavy-Duty
LNG	Liquefied Natural Gas
LPG	Liquefied Petroleum Gas – commonly called Propane
LSI	Large Spark Ignition
MEC	Moyer Eligible Cost
MGO	Marine Gas Oil
MHD	Medium Heavy-Duty
MHDV	Medium Heavy-Duty Vehicle
mi	Mile
MIC	Moyer Ineligible Cost
MOU	Memorandum of Understanding
MPC	Moyer Paid Cost
MV Fee	Motor Vehicle Registration Fee
MY	Model Year
NMHC	Non-Methane Hydrocarbons
NFPA	National Fire Protection Association
NOx	Oxides of Nitrogen

OBD II	On-Road Diagnostics, Phase II
OEM	Original Equipment Manufacturer
OIS	On-Board Diagnostic Inspection System
ORVIP	Off-Road Voucher Incentive Program
PG&E	Pacific Gas and Electric
P&P	Policies and Procedures
PM	Particulate Matter
PM10	Particulate Matter less than 10 microns in diameter
PSIP	Periodic Smoke Inspection Program
PTO	Power Take-Off
RAP	Rural District Assistance Program
REC	Remaining Eligible Cost
RFP	Request for Proposals
ROG	Reactive Organic Gas
SAE	Society of Automotive Engineers
SB	Senate Bill
SCAB	South Coast Air Basin
SCAQMD	South Coast Air Quality Management District
SCE	Southern California Edison
SCR	Selective Catalytic Reduction
SI	Spark Ignition
SRF	Special Revenue Fund
SIP	State Implementation Plan
SMAQMD	Sacramento Metropolitan Air Quality Management District
SOON	Surplus Off-Road Opt-in for NOx Program
STD	Standard
SWCV	Solid Waste Collection Vehicle
TPC	Total Project Cost
TRU	Transport Refrigeration Unit
TRUCRS	Truck Regulations Upload and Compliance Reporting System
TSI	Two Speed Idle
ULETRU	Ultra Low Emission Transport Refrigeration Unit
ULEV	Ultra Low Emission Vehicle
U.S. EPA	United States Environmental Protection Agency
V	Volt
VAVR	Voluntary Accelerated Vehicle Retirement
VDECS	Verified Diesel Emission Control Strategy
VFD	Variable Frequency Device
VIN	Vehicle Identification Number
VIP	Voucher Incentive Program

VOC	Volatile Organic Compound
YR	Year

APPENDIX B

DEFINITIONS

APPENDIX B: DEFINITIONS

Acceleration Simulation Mode: A type of vehicle emissions test conducted with the test vehicle on a chassis dynamometer to simulate on-road acceleration operating conditions.

Administrative Funds: State funds allocated to program support and outreach costs directly associated with implementing the Moyer Program.

Agricultural Assistance Program: A program established by section 39011.5 of the Health and Safety Code (H&SC) providing funds for new purchase, retrofit, repower, or add-on for previously unregulated agricultural equipment.

Air district or District: An air pollution control district or an air quality management district.

Air Pollution Control Officer: The air pollution control officer, executive director, executive officer or designee as determined by each air district.

Airport Ground Support Equipment: Any engine- or motor-powered equipment used for service and support of aircraft operations. Airport ground support equipment (GSE) performs a variety of functions, including but not limited to: aircraft maintenance, pushing or towing aircraft, transporting cargo to and from aircraft, loading cargo, and baggage handling. GSE vehicles include equipment types such as baggage tugs, belt loaders, and cargo loaders.

Applicant Cost Share (ACS): The 15 percent or more of Moyer Eligible Cost (MEC) that is paid by the applicant, except when waived for public entity applicants.

Auxiliary Engine: An engine that is not the propulsion engine but for which the fuel, cooling, and/or exhaust systems are an integral part of the equipment or vehicle.

Auxiliary Power Unit: Any device that provides electrical, mechanical, or thermal energy to the primary diesel engine, truck cab, or sleeper berth as an alternative to idling the primary diesel engine.

Barge: A vessel having a flat-bottomed rectangular hull with sloping ends and built with or without a propulsion engine.

Baseline Technology: Engine technology applied under normal business practices, such as the existing engine in a vehicle or equipment for replacements, repowers, and retrofits.

California's Goods Movement Trade Corridor: The entirety of the South Coast Air Basin, San Joaquin Valley Air Basin, Sacramento Federal Ozone Nonattainment Area, San Francisco Bay Area Air Basin, San Diego County Air District, Imperial County Air District, and Port Hueneme.

Captive Attainment Area Fleet: A fleet or an identified subpart of the fleet (fleet portion, consistent with, California Code of Regulations, title 13, section 2449(d)) in which all of the vehicles in the fleet or fleet portion operate exclusively within the following counties: Alpine, Colusa, Del Norte, Glenn, Humboldt, Lake, Lassen, Mendocino, Modoc, Monterey, Plumas, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz, Shasta, Sierra, Siskiyou, Trinity, Tehama, and Yuba. A fleet or identified fleet portion that operates one or more vehicles outside the counties listed above is not a captive attainment area fleet.

Case-by-Case Determination: A process in which local air districts may request Moyer Program staff to review and approve a project that varies from the specific requirements of these Guidelines only if such approval will not adversely affect the achievement of real, surplus, quantifiable, enforceable and cost-effective emission reductions. See Chapter 3: Program Administration, Section U for additional information.

Certification: A finding by the Air Resources Board (ARB) or the U.S. EPA that a mobile source or emissions control device has satisfied applicable criteria for specified air contaminants.

Charter Fishing Vessel: A vessel for hire by the general public, dedicated to the search for and collection of fish for the purpose of general consumption.

Class 1 Freight Railroad**:** As defined by the Surface Transportation Board (see www.stb.dot.gov<http://www.stb.dot.gov/>). As of January 2017, Union Pacific Railroad (UP), Burlington Northern and Santa Fe Railroad (BNSF), and their subsidiaries are the only Class 1 freight railroads operating in California.

Class 2 Freight Railroad**:** As defined by the Surface Transportation Board (see www.stb.dot.gov<http://www.stb.dot.gov/>). As of January 2017, Arizona and California Railroad, Central Oregon and Pacific Railroad are the only Class 2 freight railroads operating in California.

Class 3 Freight Railroad: As defined by the Surface Transportation Board (see www.stb.dot.gov<http://www.stb.dot.gov/>). Short-line railroads and military and industrial railroads are generally considered Class 3 freight railroads for the purposes of eligibility.

Clean Air Reporting Log (CARL): An on-line database tool maintained by ARB and used by air districts to track and report projects and funds under the Moyer Program.

Commercial Fishing Vessel: A vessel dedicated to the search for and collection of fish to be sold at market or directly to a purchaser.

Commitment: Under Chapter 5, a program milestone in which Moyer Program funds have been designated or applied towards an eligible project approved by the air district board, district air pollution control officer, or other delegated authority.

Competitive Bidding Process: For Moyer Program purposes, the process by which an air district competitively selects publicly accessible infrastructure projects. The process, including selection criteria, must be outlined in the air district solicitation and approved by the air district board.

Conversion of Existing Station: Infrastructure projects in which an existing non-alternative fueling station (i.e. diesel) is converted to an alternative fueling station for hydrogen or natural gas.

Cost-effectiveness: A measure of the dollars provided to a project for each ton of covered emission reduction (H&SC § 44275(a)(4)).

Cost-effectiveness Limit: The maximum amount of funds the Moyer Program will pay per weighted ton of emission reductions, using the methodology in Appendix C.

Covered Emissions: Emissions of oxides of nitrogen, particular matter, and reactive organic gases from any covered source.

Covered Source: On-road vehicles, off-road non-recreational equipment and vehicles, locomotives, marine vessels, agricultural sources of air pollution as defined in Section 39011.5, and, as determined by the State Board, other categories necessary for the State and air districts to meet air quality goals (H&SC § 44275(a)(7)).

Crawler Tractor: A tracked off-road tractor equipped with a substantial metal plate, or blade, as opposed to a bucket on a loader. This equipment is commonly referred to as a track mounted bulldozer and is used to push large quantities of soil, sand, rubble, etc., during construction and mining work. The dozing power of the crawler tractor exceeds that of the rubber tired dozer. A ripper, which is a claw-like device, may be attached to the back of a larger dozer.

Crew and Supply Vessel: A self-propelled vessel used for carrying personnel and/or supplies to and from off-shore and in-harbor locations (including, but not limited to, off- shore work platforms, construction sites, and other vessels).

Deterioration: The increased exhaust emissions over time taking into account wear and tear on engines and emissions control devices.

Deterioration Life: A factor calculated from the period of time the engine has deteriorated, plus half the project life, used to estimate deterioration over the entire project life. DL= project starting year - engine model year + (project life / 2).

Deterioration Product: The result of multiplying the deterioration rate, equipment activity, and the deterioration life for a technology.

Deterioration Rate (DR): Rates that estimate increased emissions of NOx, ROG and PM from engine wear and tear and other variables that increase engine emissions over time. On-road deterioration rates are established by weight class and engine model year, based on values in ARB's on-road emission inventory model (EMFAC2014). Off

road deterioration rates are established by horsepower and either Tier or model year, based on values in ARB category specific inventory models.

DC fast charger: A unit for 200 - 480V Direct-Current (DC) charging up to 200 amps, using an off-board charger that connects directly to the vehicle's battery. Also called DC Level 1 and DC Level 2.

Dredge: A vessel designed to remove debris or earth from the bottom of waterways. Dredges may be built with or without a propulsion engine.

Electric Vehicle Supply Equipment (EVSE): An electrical energy transfer device that conducts and regulates power from the electrical portal connection to the electrical vehicle inlet.

Emission Control System: Any device, system, or element of design that controls or reduces the emissions of regulated pollutants from a vehicle.

Emission Factor (EF): A category specific estimate of emissions per unit of activity. On-road emission factors are based on ARB mobile source emission inventory model (EMFAC2014) values. Off-road emission factors are based on values applied in ARB category specific inventory models.

Enterprise Operator: A person who conducts a voluntary accelerated vehicle retirement enterprise according to the Voluntary Accelerated Vehicle Retirement Regulation (California Code of Regulations, title 13, § 2601 et seq.), purchases vehicles, arranges for a vehicle's permanent removal from operation, and receives any emission reduction credit generated.

Excavator: An engineering vehicle consisting of an upper carriage with hydraulically rotating upper deck (revolving 360º) and attachment, directly mounted to either a wheeled or crawler undercarriage. The front end of the excavator attachment consists either of a bucket, grapple, scrap shear, or another implement.

Excursion Vessel: A self-propelled vessel that transports passengers for purposes including, but not limited to: dinner cruises; harbor, lake, or river tours; scuba diving expeditions; and whale watching tours. Excursion vessels do not include crew and supply vessels, ferries, and recreational vessels.

Executed Contract: A legally binding contract signed by the local air district Air Pollution Control Officer, or other air district designated representative, and the grantee to fund an eligible engine, equipment, or vehicle project that will reduce covered emissions. An executed contract is a program milestone in which parties agree to meet the obligations within the contract by a specified date.

Existing Lawn Mower: A gasoline-fueled, operational lawn mower owned and operated in California by the applicant.

Existing Station Upgrade: Improvements to a battery charging or alternative fueling station without increasing the output capacity.

Expansion to Existing Station: Infrastructure projects that increase the amount of fuel/energy throughput or capacity to fuel/charge equipment/vehicles at current alternative fueling and battery charging stations.

Expend: To make a full or partial payment of Moyer Program funds toward a project invoice for an eligible Moyer Program project.

Farm Equipment: As applied to off-road engines, includes equipment used in agricultural operations as defined in the Regulation for In-Use Off-Road Diesel-Fueled Fleets (California Code of Regulations, title 13, § 2449(c)(1)). As applied to portable and stationary engines, includes the agricultural sources defined in Health and Safety Code section 39011.5.

Federal Funds: Awards of financial assistance to an individual or organization from the U.S. government to carry out a government-authorized purpose, and not provided as personal benefits or assistance from the government.

Family Emission Limit (FEL): An emission level declared by the manufacturer to serve in place of an otherwise applicable emission standard under a federal or State averaging, banking, and trading program.

Ferry: Any self-propelled vessel or boat or owned, controlled, operated, or managed for public use in transportation of carrying passengers, property or vehicles on scheduled services.

Fleet Average Emission Level: The arithmetic mean of the combined hydrocarbon plus oxides of nitrogen emissions for each piece of applicable large spark-ignition engine powered equipment comprising an operator's fleet. For full definition, see California Code of Regulations, title 13, section 2775.

Forklift: Electric Class 1 or 2 rider trucks or large spark-ignition engine powered Class 4, 5 or 6 rider trucks as defined by the Industrial Truck Association. Electric Class 3 trucks are not forklifts for the purposes of these Guidelines. More information can be found at http://www.osha.gov/dcsp/products/etools/pit/forklift/types/classes.html and http://www.indtrk.org.

Freight Locomotive: A locomotive that hauls freight as its primary function.

Funding Amount: The amount of funds dedicated to a contracted project for reporting purposes in CARL; this value may never exceed the grant amount.

Funding Cap: The maximum dollar amount or maximum percentage of Moyer or State funds that may be expended on a project, as specified by source category and limited by variables that include the contribution of other incentive programs, rules, regulations, and incremental cost.

Funding Target: The total funds required to meet a program milestone such as funds executed or liquidated during a funding cycle, for purposes of cumulative tracking and reporting. Funding targets consider regular Moyer Program funds, State Reserve funds, Rural District Assistance Program funds, Moyer voucher program funds, required match funds, interest funds, reallocated funds, recaptured funds, interest and salvage revenues, and other funds associated with the Moyer Program.

Funding Year: The designation given to each year that air districts are awarded Moyer Program funds. Moyer Program grant awards were first made in fiscal year 1998 to 1999; therefore, that year is designated as Year 1; fiscal year 1999 to 2000 is Year 2, etc. Each funding year is associated with set times for achieving program milestones such as contract execution, fund expenditure, and fund liquidation.

Funding Year Adjustment: An addition or subtraction to an air district's project and/or administrative fund amounts in one funding year to account for changes (e.g., recaptured funds, errors) in liquidated funds in an earlier funding year.

Grant Amount: Contracted amount of Moyer funds for a project, which may not exceed the maximum dollar amount or maximum percentage of eligible cost specified by source category and project type.

Glider Kit: A replacement chassis and cab for on-road heavy-duty vehicles. Glider kits are identified with a vehicle identification number starting with the letters "GL".

Gross Vehicle Weight Rating (GVWR): A value specified by the vehicle manufacturer as the maximum design loaded weight of a single vehicle. Examples are shown in Table B-1.

Harbor Craft: (also called "Commercial Harbor Craft") Any private, commercial, government, or military marine vessel including, but not limited to, passenger ferries, excursion vessels, tugboats, ocean-going tugboats, towboats, push-boats, crew and supply vessels, work boats, pilot vessels, supply boats, fishing vessels, research vessels, United States Coast Guard vessels, hovercraft, emergency response harbor craft, and barge vessels that do not otherwise meet the definition of ocean-going vessels or recreational vessels.

Head End Power Unit**:** Most passenger locomotives are equipped with head end power (HEP) or hotel power, an onboard generator typically about a 500 horsepower that provides power to the passenger cars of the train for such functions as heating, lighting and air conditioning.

Heavy-Duty Vehicles (HDV): Trucks and buses in the weight classes shown in Table B-1.

Table B-1
Heavy-Duty Vehicle Classification for Moyer Program On-Road Projects

Vehicle Classification	GVWR
Light Heavy-Duty (LHD)	14,001 to 19,500 pounds
Medium Heavy-Duty (MHD)	19,501 to 33,000 pounds
Heavy Heavy-Duty (HHD)	Over 33,000 pounds

Home Port: The port in which a vessel is registered or permanently based.

Incremental Cost: The cost of the project less a baseline cost that would otherwise be incurred by the applicant in the normal course of business. Incremental costs may include added lease, energy, or fuel costs pursuant to Health and Safety Code section 44283 as well as incremental capital costs.

Interest Revenue: Interest generated from Moyer Program funds held by an air district in interest-bearing accounts. Interest earned on Moyer Program funds becomes Moyer Program funds.

Industrial Tow Tractor: An electric or large spark-ignition engine-powered Class 6 truck as defined by the Industrial Truck Association. They are designed primarily to push or pull non-powered trucks, trailers, or other mobile loads.

Investor Owned Utility: A business providing utility services such as electricity, natural gas, telephone and water services, that is managed privately rather than as a function of a government or public cooperative. Examples are Pacific Gas and Electric, Southern California Edison, and Sempra Energy.

Large Fleet: Under the In-Use Off-Road Diesel-Fueled Fleets Regulation, a fleet with a total maximum power greater than 5,000 horsepower. A fleet must meet large fleet requirements of this regulation if the total vehicles under common ownership or control would be defined as a large fleet. All fleets owned by the United States, the State of California, or agencies thereof (i.e., an agency in the judicial, legislative, or executive branch of the federal or state government) are considered as a unit whole and must meet the large fleet requirements of the In-Use Off-Road Diesel-Fueled Fleets Regulation (California Code of Regulations, title 13, § 2449). Under the Large Spark Ignition Engine Fleet Requirements Regulation, a large fleet is an operator's aggregated operations in California of 26 or more pieces of large spark-ignition equipment.

Lawn and Garden Equipment: Equipment used to maintain lawns and gardens. This equipment is generally, but not exclusively, powered by spark-ignition engines. This equipment is traditionally used in applications such as lawn mowers, edger's, trimmers, leaf blowers, and chainsaws. Equipment that does not fall into this category includes golf carts, specialty vehicles, generators, pumps, and other small utility equipment.

Lawn Mower Exchange Event: An occasion where participants' existing gasoline lawn mowers are exchanged for new cordless, zero-emission electric lawn mowers or vouchers for new, cordless, zero-emission electric lawn mowers.

Level 2: Electric vehicle supply equipment for connection to an on-board vehicle charging system, with 208V–240V alternating-current (AC) charging up to 80 amps.

Line-Haul Locomotive**:** A locomotive powered by an engine or engines typically totaling 4,000 or more horsepower that transports goods between major urban centers.

Liquidate: To spend all moneys for a specified fiscal year to reimburse grantees for valid and eligible project invoices and air district administrative costs. Payments withheld from the grantee by an air district until all contractual reporting requirements are met may be excluded from these amounts for the purposes of liquidation.(H&SC § 44275(a)(12)). For a specific project, liquidation refers to all funded equipment as paid in full and operational.

Local Funds: Monies provided by any unit of local government including a publicly owned utility and Joint Powers Authority (JPA).

Match Funds: Funds under an air district's budget authority that will be applied towards eligible Moyer Program projects in accordance with the matching requirements of the program. See Health and Safety Code section 44287(e) and 44287.2(c).

Maximum Dollar Amount: The maximum amount of funds that may be expended on a project as specified by source category and project type, often to reflect incremental cost.

Maximum Grant Amount: The maximum amount of money a grantee is eligible to receive for a cost-effective Moyer Program project. The maximum grant amount for a project is the lowest of the three following values: (a) the grant amount at the cost-effectiveness limit; (b) the maximum percentage of eligible cost; or (c) any maximum dollar amount specified in the relevant source category chapter.

Maximum Percentage: The maximum percentage of eligible cost that may be expended on a project as specified by source category and project type, often to reflect incremental cost.

Medium Fleet. Under the In-Use Off-Road Diesel-Fueled Fleets Regulation, a fleet with total minimum power of greater than 2,500 horsepower and with a total maximum power less than or equal to 5,000 horsepower. Under the Large Spark Ignition Engine Fleet Requirements Regulation, an operator's aggregated operations in California of 4 to 25 pieces of large spark-ignition equipment.

Memorandum of Agreement (MOA) or Memorandum of Understanding (MOU): A document recording the basic terms of a proposed transaction or setting forth the principles and guidelines under which parties will work together.

Mitigation Funds: Monies received for the compensation for the impacts to the environment from a proposed activity.

Mobile Cargo Handling Equipment: Any motorized vehicle used to handle cargo delivered by ship, train, or truck such as yard trucks, rubber tired gantry cranes, top picks, dozers, and excavators.

Moyer Eligible Cost: Costs associated with projects that are eligible for reimbursement under the Moyer Program, prior to considering the cost-effectiveness limit or any project funding cap restrictions. This includes the sum of Moyer Paid Cost and Remaining Eligible Cost.

Moyer Ineligible Cost: Costs associated with a project that are not eligible under the Moyer Program guidelines, but are eligible project costs under other funding sources.

Moyer Paid Cost: Project costs eligible under the Moyer Program, and are to be paid by the Moyer Program. These costs are used to determine project cost-effectiveness, except in the case of infrastructure projects.

Moyer Program Funds: State funds awarded by ARB to local air districts to implement the Moyer Program, including project and administrative, and interest revenue from the awarded funds, and revenues from salvage of equipment scrapped under the program. Local funds that are under the air district's budget authority may also qualify as Moyer Program funds or match funds (see H&SC § 44287(e)); however, certain limitations apply (see H&SC § 44287(j)).

Nationally Recognized Testing Laboratory: Is a private-sector organization that OSHA has recognized as meeting the legal requirements in 29 CFR 1910.7 to perform testing and certification of products using consensus based test standards.

New Station: Construction of a new battery charging or alternative fueling station where there is currently no station.

Non-forklift fleet: Under the Large Spark Ignition Engine Fleet Requirements Regulation, an operator's aggregated operations in California of four or more sweeper/scrubbers, industrial tow tractors, or pieces of airport ground support equipment, alone or in combination.

Non-Moyer Funds: Project funds from sources other than the Moyer Program, Moyer match funds, and AB 923 $2 DMV fees.

Off-Highway Tractors: Equipment that feature yoke hitches that oscillate four ways to reduce frame stresses. Rugged turn stops prevent excessive wagon rotation in either direction. The rear platform functions as a power train guard providing a safe, stable work area. (These are not off-highway trucks (e.g. articulated trucks or rigid haul trucks) which are bulk-handling machines, such as earthmovers or dump trucks, designed to operate on steep or rough terrain and not designed to drive on-highway.)

Off-Road Compression-Ignition Equipment: A piece of equipment that is powered by an off-road compression-ignition engine which is any internal combustion engine: in or on a piece of equipment that is self-propelled or serves as a dual purpose by both propelling itself and performing another function and is primarily used off the highways (such as garden tractors, off-highway mobile cranes and bulldozers); or in or on a piece of equipment that is intended to be propelled while performing its function (such as lawnmowers and string trimmers); or that, by itself or in or on a piece of equipment, is portable or transportable, meaning designed to be and capable of being carried or moved from one location to another. Indicia of transportability include, but are not limited to wheels, skids, carrying handles, dolly, trailer, or platform that is consistent with California Code of Regulations, title 13 section 2421.

Off-Road Large Spark-Ignition Engine: any engine that produces a gross horsepower of 25 horsepower or greater (greater than 19 kilowatts for 2005 and later model years) or is designed (e.g., through fueling, engine calibrations, valve timing, engine speed modifications, etc.) to produce 25 horsepower or greater (greater than 19 kilowatts for 2005 and later model years) used to propel an off-road piece of equipment. The engine may be designed to use gasoline fuel, liquid petroleum gas, compressed natural gas, methanol fuel, or a combination of these.

Off-Road Large Spark-Ignition Equipment: Equipment that cannot be registered and driven safely on-road or was not designed to be driven on-road. Newer equipment uses engines certified to the off-road spark ignition engine standards. These engines may be designed to use gasoline fuel, liquid petroleum gas (LPG), compressed natural gas, methanol fuel or a combination of these and are most commonly found in forklifts.

Other Applied Funds: Funds that are not local, State, or federal that are used to co-fund a Moyer eligible project.

Operator: A person, corporation, public agency, or other entity that owns, operates or maintains a vehicle, equipment, or installation.

Passenger Locomotive: A locomotive that hauls passengers as its primary function.

Penalty Funds: Funds paid to an enforcing entity as a result of enforcement action brought against a violator of a local, State or federal law, ordinance, regulation or rule.

Pilot Vessel: A vessel designed for, but not limited to, the transfer and transport of maritime pilots to and from oceangoing vessels while such vessels are underway.

Policies and Procedures: An air district manual for local implementation of the Moyer Program. For more information see Chapter 3, Section C.

Power Take-Off (PTO): A secondary engine shaft (or equivalent) that provides substantial auxiliary power for purposes unrelated to vehicle propulsion or normal vehicle accessories such as air conditioning, power steering, and basic electrical accessories. A typical PTO uses a secondary shaft on the engine to transmit power to a hydraulic pump that powers auxiliary equipment.

Program Milestone: A measure of progress toward meeting Moyer Program grant terms or statutory requirements. Examples are contract execution, liquidation and (in Chapter 5) commitment.

Project Life: The period for which the Moyer Program funds surplus emission reductions for a given project.

Project Funds: Moyer Program funds designated for eligible project costs to reduce covered emissions from covered sources.

Propulsion Engine: A marine engine that generates the power to propel a vessel through the water.

Publicly Accessible: An infrastructure project that is available to provide fuel or energy to all members of the general public with no physical access restrictions and no necessity to enter into a contract or sign release of liability.

Public Entity: The State of California, a public university or college, a county, city, district, public authority, public agency, public corporation, another state government, the federal government, or any other subdivision or agency of a state government or the federal government.

Public Fleets: Heavy-duty on-road diesel-fueled vehicles operated by a municipality. A municipality is a city, county, city and county, special district, or a public agency of the State of California, and any department, division, public corporation, or public agency of this State, or two or more entities acting jointly, or the duly constituted body of an Indian reservation or Rancheria.

Public Funds: Funds provided toward project costs by local, State or federal public entities, including grants, rebates and vouchers.

Rail equipment: Non-locomotive equipment designed for use on tracks, such as on-rail vehicles, railcar movers, sweepers, and wheel cranes that have tires or mounted tracks. Equipment that replaces switcher locomotives are considered locomotives for the purposes of the Moyer Program.

Reallocation: A process for allocating mitigation funds and/or returned funds to eligible air districts. See Chapter 3, Section P for additional information.

Rebuilt or Remanufactured: Engines offered by the original engine manufacturer (OEM) or by a non-OEM rebuilder who demonstrates to ARB that the rebuilt engine and parts are functionally equivalent from an emissions and durability standpoint to the OEM engine and components being replaced.

Recaptured Funds: Project funds that are returned by a grantee to an air district or ARB because that grantee did not meet all of its contractual obligations. Air districts must spend these funds on another project in a later funding year.

Reduced Technology: Newer technology that is used by the applicant to obtain surplus emission reductions.

Remaining Eligible Cost: Project costs that are eligible under the Moyer Program but are to be paid by other sources of funding. Remaining eligible costs exist when the Moyer Paid Cost and Applicant Cost Share provide less than 100 percent of the Moyer Eligible Cost.

Remotely Located: Agricultural engines located in a federal ambient air quality area that is designated as unclassifiable or attainment for all PM and ozone national ambient air quality standards and that are located more than one-half mile from any residential area, school, or hospital.

Replacement Lawn Mower: A cordless, zero-emission electric lawn mower.

Repower: A repower is the replacement of the existing engine with an electric motor or a newer emission-certified engine instead of rebuilding the existing engine to its original specifications.

Retrofit: Modifications to the engine and fuel system so that the retrofitted engine does not have the same emissions specifications as the original engine, or the process of installing an ARB-verified emissions control system on an existing engine.

Returned Funds: Funds returned by an air district to ARB for reallocation because they are either not liquidated by the required funding year liquidation deadline, or are associated with an ARB Incentive Program Review mitigation measure.

Rough Terrain Forklift: Class 7 forklifts powered by compression ignition engines and having pneumatic tires that handle uneven surfaces. This includes both straight-mast forklifts and extended-reach forklifts, also called telescopic forklifts or tele-handlers.

Rubber Tired Dozer: A wheeled off-road tractor equipped with a substantial metal plate, or blade as opposed to a bucket on a loader. This equipment is commonly referred to as a rubber tired bulldozer and is used to push large quantities of soil, sand, rubble or other materials during construction and mining work where the traction of a crawler tractor is not required. A ripper, which is a claw-like device, may be attached to the back of a larger dozer.

Rural District Assistance Program: An element of the Moyer Program in which air districts pool their project funds to streamline project outreach, solicitation, and review.

School Bus: Vehicles used for the express purpose of transporting students, kindergarten through grade 12, from home to school, school to home, and to any school sponsored activities.

Shore Power: Electrical power being provided to the ship at berth by either the local utility or by distributed generation.

Skid Steer Loader: A very compact and maneuverable off-road tractor that uses a bucket on the end of movable arms to lift materials and move material such as dirt, debris, building materials, bulk goods, heavy objects, or snow removal. Unlike conventional loaders, the lift arms are alongside the driver with the pivot points behind the driver's shoulders. Skid steer loaders are used in tight spaces and can be equipped with a variety of attachments, such as a hammer, augur, trencher, forklift and other attachments (never greater than 120 horsepower (hp), predominantly 40-75 hp. Skid Steer loaders are often utilized to excavate swimming pools and in landscaping residential backyards.

Small Fleet: In the on-road sector, a fleet size of three or fewer vehicles as defined in the California Code of Regulations, title 13, section 2025(d)(31)(G). Under the In-Use Off-Road Diesel-Fueled Fleets Regulation, a fleet with a total maximum power of less than or equal to 2,500 horsepower that is owned by a business, non-profit organization, or local municipality; or a local municipality fleet in a low population county irrespective of total maximum power; or a non-profit training center irrespective of total maximum power. Under the Large Spark Ignition Engine Fleet Requirements Regulation, an operator's aggregated operations in California of 1 to 3 forklifts and/or 1 to 3 pieces of non-forklift equipment.

Smog Check: the motor vehicle inspection and maintenance program established by California Health and Safety Code Section 44000, et seq.

Solid Waste Collection Vehicle (SWCV): Diesel-fueled vehicles greater than 14,000 pounds GVWR with model year 1960 through 2006 engines used to collect residential and commercial solid waste.

Spark Ignition: A gasoline-fueled engine or any other type of engine with a spark plug (or other sparking device) and with operating characteristics significantly similar to a combustion cycle.

State Funds: Funds provided by a State agency for the purpose of co-funding projects under the Moyer Program. State agencies include every State office, department, division, bureau, board, commission, the University of California, and the California State University.

State Implementation Plan: Under the Clean Air Act, the plan submitted by a state that demonstrates attainment or maintenance of an air quality standard through implementation of specified control measures.

Supplemental Environmental Project: An environmentally beneficial project that a violator subject to an enforcement action voluntarily agrees to undertake in a settlement action to offset a portion of an administrative or civil penalty.

Sweeper/scrubber: A large spark-ignition engine-powered piece of industrial floor cleaning equipment designed to brush and vacuum up small debris and litter and then scrub and squeegee the floor.

Switch Locomotive: A locomotive powered by an engine or engines typically totaling less than 2,300 total horsepower, and used to separate and move railcars from track to track or transfer cars to and from regional carriers. All Class 3 railroad locomotives – including all short-line and military and industrial locomotives – are considered switch locomotives for the purposes of the Moyer Program eligibility.

Total Project Cost: The Moyer Eligible Cost and the Moyer Ineligible Cost for vehicles, equipment, engines, accessories, installation and infrastructure within a single Moyer Program project. An applicant may not accept grant funds from all sources that exceed 100 percent of total project cost excluding the Applicant Cost-Share.

Tow Boat: Any self-propelled vessel engaged in or intending to engage in the service of pulling, pushing, or hauling alongside barges or other vessels, or any combination of pulling, pushing, or hauling alongside barges or other vessels.

Transit Fleet Vehicle: On-road vehicles operated by a public transit agency, less than 35 feet in length and 33,000 GVWR, but greater than 8,500 GVWR, powered by heavy- duty engines fueled by diesel or alternative fuel; including service vehicles, tow trucks, dial-a-ride buses, paratransit buses, charter buses, and commuter service buses operated during peak commute hours with ten or fewer stops per day.

Transport Refrigeration Unit (TRU): A refrigeration system powered by an internal combustion engine designed to control the environment of temperature sensitive products transported in trucks and refrigerated trailers. TRUs may be capable of both cooling and heating.

Truck Stop Electrification: The installation at a truck stop of electric power infrastructure and/or external systems that provide heating, cooling, and other energy needs for trucks.

Tug Boat: Any self-propelled vessel engaged in, or intending to engage in, the service of pulling, pushing, maneuvering, berthing, or hauling alongside other vessels, or any combination of pulling, pushing, maneuvering, berthing or hauling alongside such vessels in harbors, over the open seas, or through rivers and canals. Tug boats generally can be divided into three groups: harbor or short-haul tugboats, ocean-going or long-haul tugboats, and barge tugboats. “Tug boat” is interchangeable with “tow boat” and “push boat” when the vessel is used in conjunction with barges.

Tier 1, 2, and 3 Engines: Engines that are subject to California Code of Regulations, title 13, section 2423(b)(1)(A) and/or Code of Federal Regulations, title 40,part 89.112(a). This also includes engines certified under the averaging, banking, and trading program with respect to the Tier 1, 2, and 3 Family Emission Limits (FEL) listed in California Code of Regulations, title 13, section 2423(b)(2)(A) and/or Code of Federal Regulations, title 40, part 89.112(d).

Tier 4 Engine: Engines that are subject to interim or final after-treatment based Tier 4 emission standards in California Code of Regulations, title 13, section 2423(b)(1)(B) and/or Code of Federal Regulations, title 40, part 1039.101. This also includes engines

certified under the averaging, banking, and trading program with respect to the Tier 4 FEL listed in California Code of Regulations, title 13, section 2423(b)(2)(B) and/or Code of Federal Regulations, title 40, part 1039.101. For locomotives, the term refers to the Tier 4 (2015 engine model year) emission standards in the Code of Federal Regulations, title 40, Part 1033.

Uncontrolled Large Spark-Ignition Engines: Means pre-2001 uncertified engines and 2001-2003 certified "non-compliant' large spark-ignition engines.

Urban Bus: A passenger carrying vehicle owned or operated by a public transit agency, powered by a heavy heavy-duty engine, or of a type normally powered by a heavy heavy-duty engine, intended primarily for intra-city operation. The buses are generally greater than 35 feet, and or greater than 33,000 pounds gross vehicle weight rating.

Utility: A privately-owned company that provides the same or similar service for water, natural gas, and electricity as a public utility operated by a municipality.

Voluntary Accelerated Vehicle Retirement Enterprise (VAVR): a privately owned and/or operated business by an enterprise operator.

Verification: A determination by ARB or the U.S. EPA that a diesel emission control strategy meets specified requirements, based on both data submitted and engineering judgement.

Violator: An individual, company, or entity responsible for a violation of an environmental law, regulation or rule.

Voucher Incentive Program (VIP): An air district incentive program using Moyer Program funds to provide a streamlined approach to replace or retrofit older, high-polluting heavy-duty vehicles or equipment with cleaner-than -required vehicles or equipment providing early or extra emission reductions. Funds for VIP projects are used to reduce some of the costs associated with replacing or retrofitting a vehicle.

Workover Rig: Mobile self-propelled rigs used to perform one or more remedial operations on an existing well. The primary function of a workover rig is to act as a hoist so that pipe, sucker rods and down-hole equipment can be run into and out of a well. Operations include deepening, plugging back, or pulling and resetting liners, usually on a producing oil or gas well to try to restore or increase the well's production.

APPENDIX C

COST-EFFECTIVENESS CALCULATION METHODOLOGY

APPENDIX C: COST-EFFECTIVENESS CALCULATION METHODOLOGY

A. Introduction

Cost-effectiveness is the measure of dollars provided to a project for each ton of covered emissions reduced. Statute requires that the Air Resources Board (ARB) update the cost-effectiveness limit and capital recovery factors (CRF) annually. In addition, changes in statute per SB 513 now allow ARB, in consultation with air quality management districts and air pollution control districts (air districts), to establish new cost-effectiveness limits that reflect the cost of regulations and technology.

To determine a project's cost-effectiveness, all Moyer Program funds, air district match funds, and local AB 923 funds must be included. Non-Moyer funds used to co-fund a Moyer eligible project do not need to be included in the cost-effectiveness calculation. Projects that include such funds must meet all Moyer requirements and the other funding source requirements.

Projects are subject to the cost-effectiveness limits in Table C-1, which shows the changes in the cost-effectiveness limit over time based on changes in the Consumer Price Index. Historically, one limit has been applied to all Moyer Program projects. Per SB 513, a second cost-effectiveness limit for school buses was added in 2016 as shown in the table.

Table C-1
Cost-Effectiveness Limit Criteria 1998-2016

Year	Annual CA CPI	Percentage change (inflation rate)	Annual Change	Revised C/E Limit
1998	163.7	NA	NA	$12,000
1999	168.5	2.93%	$352	$12,352
2000	174.8	3.74%	$462	$12,814
2001	181.7	3.95%	$506	$13,319
2002	186.1	2.42%	$323	$13,642
2003	190.4	2.31%	$315	$13,957
2004	195.4	2.63%	$367	$14,324
2005	202.6	3.68%	$528	$14,852
2006	210.5	3.90%	$579	$15,431
2007	217.4	3.28%	$506	$15,938
2008	224.8	3.40%	$541	$16,479
2009	224.1	-0.31%	-$51	$16,428
2010	227.0	1.29%	$212	$16,640
2011	233.0	2.66%	$443	$17,084
2012	238.3	2.25%	$385	$17,469
2013	241.8	1.46%	$255	$17,724
2014	246.1	1.77%	$313	$18,037
2015	249.1	1.25%	$225	$18,262
2016 Base	No C/E update pending 2017 guideline update			$18,262
2016 School Bus	New C/E Limit under SB 513			$276,230

Table C-2 shows the cost-effectiveness limits proposed under the 2017 Guidelines. As shown, two cost-effectiveness limits are now available: one to support conventional projects and a second higher cost-effectiveness limit that air districts may choose to apply to the additional reductions provided by the cleanest engines, including those needed for long-term SIP commitments.

Base Limit: The base cost-effectiveness limit is $30,000 per weighted ton of emissions reductions. This level allows full funding for a wide range of currently typical projects, such as diesel replacement projects for early compliance with the Truck and Bus Regulation. The level is consistent with the cost of compliance with regulations and will enable grants of sufficient size to encourage off-road engines to be replaced or repowered sooner to a Tier 4 standard.

Optional Advanced Technology Limit: For advanced technology projects that are zero-emission, or alternatively meet the cleanest optional standard level certified, air districts have the option to apply a cost-effectiveness limit of up to $100,000 per weighted ton for the emissions reductions beyond those achieved by the required standard. The higher cost-effectiveness limit is not technology or vocation specific, but

available for technologies like the 0.02 g/bhp-hr optional low-NOx engine. To be eligible, the engine must be:

- Zero-emission or meet the cleanest optional emission standard where applicable (0.02 g/bhp-hr in the case of on-road);
- Commercially available and offered for sale; and
- Certified or verified by ARB or the United States Environmental Protection Agency

The higher cost-effectiveness limit is applied only to the incremental emission reductions beyond what the conventional project would achieve. An air district would apply the base cost-effectiveness limit for costs associated with getting engines to the cleanest required standard, and then could apply the advanced technology limit to the additional costs of getting emissions down to or below the cleanest optional standard.

Table C-2
Cost-Effectiveness Limit Criteria 2017

Year	Project	Proposed Change or Status	Revised C/E Limit
2017	Base Limit	New C/E Limit	$30,000
	Optional Advanced Technology Limit	New C/E Limit for incremental reductions from specified advanced technologies	$100,000
	School Bus	2016 C/E Limit retained in 2017 Guidelines	$276,230

For projects in source categories without optional standards, only vehicles certified as zero-emission would be eligible for the higher cost-effectiveness limit. In these cases, the higher limit would apply to the incremental reductions below the most stringent standard for that category. General calculations for determining cost-effectiveness and other calculations needed to administer the Moyer Program are described in the following pages.

B. General Cost-Effectiveness Calculations

1. Determining the Maximum Grant Amount

The calculation methodology below must be applied in order to ensure final grant amounts meet the cost-effectiveness limit requirement, and do not exceed incremental cost based on the maximum percentage or any other funding caps. For advanced technology projects that include a baseline vehicle dirtier than the cleanest required standard, the calculations in (A), (B), and (C) below must be applied twice. The project life may differ between the first and second series of calculations, depending on availability of surplus emission reductions. The first series of calculations is made using the base cost-effectiveness limit and the emission reductions going up to the cleanest required standard (including

deterioration), and the second series of calculations is made using the advanced technology cost-effectiveness limit and the emission reductions beyond the cleanest required standard. The final maximum grant amount is equal to the combined total of the lowest values from each series. Note that school bus projects are subject to funding caps and a separate cost-effectiveness limit as listed above in Table C-2. The maximum grant amount for any given project is the lowest of the three following calculations:

- The potential grant amount at the cost-effectiveness limit;
- The potential grant amount based on maximum percentage of eligible cost; or
- The potential grant amount based on any maximum dollar amount or other funding cap specified in the relevant source category chapter.

Each of the above values is calculated as follows:

(A) The potential grant amount at the cost-effectiveness limit is determined by multiplying the cost-effectiveness limit by the estimated annual emission reductions and dividing by the CRF in formula C-1 below.

Formula C-1: Potential grant amount at the cost-effectiveness limit ($)

Potential grant amount ($) =
*cost-effectiveness limit ($/ton) * estimated annual emission reductions (weighted tons/yr) / CRF*

The CRF is based on a discount rate. The CRF uses an interest rate and project life to determine the rate at which earnings could reasonably be expected to accrue if the same funds were invested over that length of time. The CRF may be calculated using Formula C-2 below, or you may refer to Tables D-24 and D-25 in Appendix D for CRFs at various project lives. Each source category chapter will specify which project lives are acceptable to determine which CRF value to use.

Formula C-2: Capital recovery factor

Capital recovery factor =
*(1 + discount rate[(a)]) ^ project life * discount rate /((1 + discount rate) ^ project life - 1)*

[(a)] Discount rate varies from year to year. See Tables D-24 and D-25 in Appendix D for CRF values at a one percent and two percent discount rate, respectively.

(1) Calculating the Annual Weighted Surplus Emission Reductions

Annual weighted surplus emission reductions are calculated using Formula C-3 below. Note that particulate matter (PM) is weighted by a factor of 20.

Formula C-3: Annual weighted surplus emission reductions (weighted tons/yr)

Weighted emission reductions (weighted tons/yr) =
*NOx reductions (tons/yr) + ROG reductions (tons/yr) + (20 * PM reductions (tons/yr))*

The result of Formula C-3 is used to complete Formula C-1 to determine the potential grant amount at the cost-effectiveness limit, as well for Formula C-14 to determine the cost-effectiveness if not at the limit.

In order to determine the annual surplus emission reductions by pollutant, Formula C-4, C-5, C-6, C-7,or C-8 below must be completed for each pollutant (NOx, ROG, and PM), for the baseline technology and the reduced technology. Formula C-4 is the general calculation and can be applied to any project, whereas Formulas C-5, C-6, C-7 and C-8 are specific variations of Formula C-4 for use with mileage, hours of operation, fuel use, and shore power systems, respectively.

All five fomulas involve multiplying the engine emission factor (found in Appendix D) by the annual activity level and by other adjustment factors (such as load factor in the case of off-road equipment calculations) as specified for the calculation methodologies presented. Emission factors are also adjusted to account for in-use deterioration where applicable.

Formula C-4: Estimated annual emissions (tons/yr)

Annual emissions by pollutant (tons/yr) =
*(emission factor + deterioration product (if applicable)) * annual activity * adjustment factor(s) (if applicable) * percentage operation in California / 907,200 (g/ton)*

Deterioration product =
*deterioration rate * total equipment activity*

Total equipment activity =
*annual activity * deterioration life (yrs)*

Deterioration life (baseline equipment) (yrs) =
expected first year of operation – baseline engine model year + (project life / 2)

Deterioration life (reduced equipment) (yrs) =
project life / 2

The Moyer Program allows the emission reductions from a project to be calculated using a variety of methods, but mileage and hours of operation are the primary methods. Specific activity factors allowed for each project category may differ and are identified in the source category chapters.

a. Calculating Annual Emissions Based on Annual Miles Traveled

Calculations based on annual miles traveled are used for on-road projects only. Mileage records must be maintained by the engine owner as described in Chapter 4: On-Road Heavy-Duty Vehicles. Formula C-5 below describes the method for calculating pollutant emissions based on miles traveled, including the method for calculating mile-based deterioration products.

Formula C-5: Estimated annual emissions based on mileage (tons/yr)

Annual emissions by pollutant (tons/yr) =
*(emission factor (g/mi) + deterioration product (g/mi) (if applicable)) * annual activity (mi/yr) * percentage operation in California / 907,200 (g/ton)*

Mile-based deterioration product (g/mi) =
*deterioration rate (g/mi-10,000 mi) * total equipment activity (mi)*

Total equipment activity[(b)] (mi) =
*annual activity (mi/yr) * deterioration life (yrs)*

Deterioration life (baseline equipment) (yrs) =
expected first year of operation – baseline engine model year + (project life / 2)

Deterioration life (reduced equipment) (yrs) =
project life / 2

[(b)] Total equipment activity for mile-based calculations is limited to 400,000 miles for school buses or 800,000 miles for other on-road vehicles. Used heavy heavy-duty replacement vehicles add 500,000 miles, medium heavy-duty vehicles add 250,000 miles, or light heavy-duty vehicles add 150,000 miles.

b. Calculating Annual Emissions Based on Hours of Operation

When hours of equipment operation are the basis for determining emissions, the horsepower rating of the engine and an engine load factor found in Appendix D must be used. The method for calculating emissions based on hours of operation is described in Formula C-6 below, and includes the method for calculating hour-based deterioration product.

Formula C-6: Estimated annual emissions based on hours of operation (tons/yr)

Annual emissions by pollutant (tons/yr) =
*(emission factor (g/bhp-hr) + deterioration product (g/bhp-hr) (if applicable)) * horsepower (hp) * load factor * annual activity (hrs/yr) * percentage operation in California / 907,200 (g/ton)*

Hour-based deterioration product (g/bhp-hr) =
*deterioration rate (g/bhp-hr-hr) * total equipment activity (hrs)*

Total equipment activity[(c)] (hrs) =
*annual activity (hrs/yr) * deterioration life (yrs)*

Deterioration life (baseline equipment) (yrs) =
expected first year of operation – baseline engine model year + (project life / 2)

Deterioration life (reduced equipment) (yrs) =
project life / 2

The engine load factor is an indicator of the nominal amount of work done by the engine for a particular application. It is given as a fraction of the rated horsepower of the engine and varies with engine application. Load factors for a variety of equipment types may be found in Appendix D.

c. Calculating Annual Emissions Based on Fuel Consumption

In some cases as outlined in each source category chapter, fuel consumption may be used to calculate annual emissions. In such cases a fuel consumption rate factor must be used to convert

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[(c)] Total equipment activity for hour-based calculations is limited to a maximum of 12,000 hours for diesel engines, 3,500 hours for large-spark ignition (LSI) engines with a model year of 2006 or older, or 5,000 hours for LSI engines with a model year of 2007 or newer.

emissions given in g/bhp-hr to units of grams of emissions per gallon of fuel used (g/gal). The fuel consumption rate factor is a number that combines the effects of engine efficiency and the energy content of the fuel used in that engine into an approximation of the amount of work output by an engine for each unit of fuel consumed. Formula C-7 below is used to calculate the annual emissions based on annual fuel consumed.

Formula C-7: Estimated annual emissions based on fuel consumption (tons/yr)

Annual emissions by pollutant (tons/yr) =
*emission factor (g/bhp-hr) * fuel consumption rate factor (bhp-hr/gal) * annual activity (gal/yr) * percentage operation in California / 907,200 (g/ton)*

d. Calculating Annual Emissions for Shore Power Systems

For marine shore power systems, calculate the estimated annual emissions by pollutant as shown in Formula C-8 below.

Formula C-8: Estimated annual emissions for shore power systems (tons/yr)

Annual emissions by pollutant (tons/yr) =
ship emission factor (g/kW-hr) * power requirements (kW) * berthing time (hrs/visit) * annual number of visits (visits/yr) * 0.9 / 907,200 (g/ton)

(2) Calculating Annual Surplus Emission Reductions by Pollutant

Subtract the annual emissions for the reduced technology from the annual emissions for the baseline technology as shown in Formula C-9 below, for NO_x, ROG and PM emissions.

Formula C-9: Annual surplus emission reductions (tons/yr)

Annual surplus emission reductions by pollutant (tons/yr) =
annual emissions for the baseline technology (tons/yr) –
annual emissions for the reduced technology (tons/yr)

For marine vessels with a wet exhaust system, a wet exhaust factor of 0.80 must be applied; calculate the annual surplus emission reductions as shown in Formula C-10 below.

Formula C-10: Annual surplus emission reductions for marine vessels with wet exhaust systems (tons/yr)

*Annual surplus emission reductions by pollutant (tons/yr) = 0.80 * (annual emissions for the baseline technology (tons/yr) – annual emissions for the reduced technology (tons/yr))*

For retrofits, multiply the baseline technology pollutant emissions by the percentage of emission reductions that the ARB-verified reduced technology is verified to following Formula C-11 below.

Formula C-11: Annual surplus emission reductions for retrofits (tons/yr)

*Annual surplus emission reductions by pollutant (tons/yr) = annual emissions for the baseline technology (tons/yr) * reduced technology verification percentage*

For on-road heavy-duty projects, the baseline will be the newer vehicle emissions.

For marine vessel hybrid systems, calculate the annual surplus emission reductions as shown in Formula C-12 below.

Formula C-12: Annual surplus emission reductions for marine vessel hybrid systems (tons/yr)

*Annual surplus emission reductions by pollutant (tons/yr) = total annual emissions (all engines on vessel) for the baseline technology (tons/yr) – (total annual emissions (all engines on vessel) for the baseline technology (tons/yr) * reduced technology verification percentage)*

For marine vessels, calculate the annual surplus emission reductions for each pollutant as shown in Formula C-13 below.

Formula C-13: Total annual surplus emission reductions for marine vessels (tons/yr)

*Total annual surplus emission reductions for marine vessels by pollutant (tons/yr) = (propulsion engine annual surplus emission reductions (tons/yr) * number of propulsion engines) + (auxiliary engine annual surplus emission reductions (tons/yr) * number of auxiliary engines)*

(B) The potential grant amount based on maximum percentage of eligible cost is a measure of the incremental cost as determined by multiplying the cost of the reduced technology by the maximum percentage of eligible cost (from the applicable chapter) as described in Formula C-14 below.

Formula C-14: Potential grant amount based on maximum percentage of eligible cost ($)

Potential grant amount ($) =
*cost of reduced technology ($) * maximum percentage of eligible cost*

(C) The potential grant amount based on any maximum dollar amount or other funding cap is specified in the relevant source category chapter

2. Calculating Two for One Projects

In Two for One equipment replacement projects, two baseline technology equipment are replaced with one reduced technology equipment. First, calculate the emission reduction benefits based on activity for each baseline engine separately using Formulas C-4, C-5, C-6, C-7, or C-8. These emission reductions will then be summed together before deducting the emission reduction benefits of the reduced technology using Formula C-9. See the sample calculations supplemental document for an example on this calculation methodology.

3. Calculating Split Project Life Projects

Split Project Life: Split Project Life Projects must use a separate project life for the two baseline technology scenarios. First, Formulas C-4, C-5, C-6, C-7, or C-8 must be used to calculate emission reduction by pollutant for the two baseline scenarios:

(A) Baseline technology to phase 1 reduced technology
(B) Phase 1 reduced technology to phase 2 reduced technology

Formula C-3 is used to calculate the annual emission reductions for each baseline technology. Next, a fraction of the project life must be applied to the annual emission reductions for each of the baseline scenarios, as outlined below in Formula C-15.

Formula C-15: Split project life

Total annual weighted surplus emission reductions (tons/yr) =
*(fraction project life (yrs) * annual weighted surplus emissions from transaction 1 (tons/yr) /*
*total project life (yrs)) + (fraction project life (yrs) **
annual weighted surplus emissions from transaction 2 (tons/yr) / total project life (yrs))

Total annual weighted surplus emission reductions (tons/yr) =
$(n_1 * a_1 / t) + (n_2 * a_2 / t)$
where:
n_1 = *fraction project life from transaction 1 (yrs)*
n_2 = *fraction project life from transaction 2 (yrs)*
a_1 = *annual weighted surplus emissions from transaction 1 (tons/yr)*
a_2 = *annual weighted surplus emissions from transaction 2 (tons/yr)*
t = total project life (yrs)

4. Calculating the Applicant Cost Share

Moyer eligible costs are costs associated with a project that are eligible for reimbursement under the program prior to considering the cost-effectiveness limit or any project cap restrictions. Guidance on these costs is contained in Chapters 2, 3, and the applicable chapter for the Moyer project. The applicant cost share is determined by multiplying the Moyer eligible cost by 15 percent, as described in Formula C-16 below. Applicant cost share is determined from the Moyer eligible costs, but the value itself is not an ineligible Moyer cost. A public entity applicant may other use public funds toward meeting this requirement.

Formula C-16: Applicant cost share ($)

Applicant cost share ($) ≥
*15 percent * Moyer eligible costs ($)*

5. Calculation for Co-funding Moyer Funds with Other Sources

Air districts must request information from grantee to determine what other funds will be used toward the project. This information will be utilized to ensure that the applicant is not overpaid for the project by adding the Applicant Cost Share contribution and the grants paid toward the project, as shown in Formula C-17 below and comparing against the total project cost value. The total project cost includes both Moyer eligible and Moyer ineligible costs. Refer to Chapters 2 and 3 for additional criteria and guidance related to co-funding projects.

Formula C-17: Project overpayment check ($)

Total project cost ≥
applicant cost share ($) + ∑grants paid ($)

If the total project cost is exceeded then adjustments must be made to ensure the project applicant is not overpaid for the project.

6. Calculating the Cost-Effectiveness of a Grant Amount

The cost-effectiveness of a grant amount is determined by multiplying the CRF as calculated in Formula C-18 by the grant amount, and dividing that by the annual weighted surplus emission reductions that will be achieved by the project as calculated in Formula C-3.

Formula C-18: Cost-effectiveness of weighted surplus emission reductions ($/tons)

Cost-effectiveness ($/tons) =
*grant amount ($) * CRF / annual weighted surplus emission reductions (weighted tons/yr)*

C. List of Formulas

The necessary formulas to calculate the cost-effectiveness of surplus emission reductions for a project funded through the Moyer Program are provided below.

Formula C-1: Potential grant amount at the cost-effectiveness limit ($)

Potential grant amount ($) =
*cost-effectiveness limit ($/ton) * estimated annual emission reductions (weighted tons/yr) /CRF*

Formula C-2: Capital recovery factor (CRF)

Capital recovery factor =
*(1 + discount rate[(d)]) ^ project life * discount rate* /((1 + discount rate*) ^ project life - 1)*

Formula C-3: Annual weighted surplus emission reductions (weighted tons/yr)

Weighted emission reductions (weighted tons/yr) =
*NO_x reductions (tons/yr) + ROG reductions (tons/yr) + (20 * PM reductions (tons/yr))*

Formula C-4: Estimated annual emissions (tons/yr)

Annual emission by pollutant (tons/yr) =
*(emission factor + deterioration product (if applicable)) * annual activity * adjustment factor(s) * percentage operation in California / 907,200 (g/ton)*

Deterioration product =
*deterioration rate * total equipment activity*

Total equipment activity =
*annual activity * deterioration life (yrs)*

Deterioration life (baseline) (yrs) =
expected first year of operation – baseline engine model year + (project life / 2)

Deterioration life (reduced) (yrs) =
project life / 2

(d) *Discount rate varies from year to year. See Tables D-24 and D-25 in Appendix D for CRF values at a 1 percent and 2 percent discount rate, respectively.*

Formula C-5: Estimated annual emissions based on mileage (tons/yr)

Annual emissions by pollutant (tons/yr) =
*(emission factor (g/mi) + deterioration product (g/mi) (if applicable)) * annual activity (mi/yr) * percentage operation in California / 907,200 (g/ton)*

Mile-based deterioration product (g/mi) =
*deterioration rate (g/mi-10,000 mi) * total equipment activity (mi)*

Total equipment activity[(e)] (miles) =
*annual activity (mi/yr) * deterioration life (yrs)*

Deterioration life (baseline) (yrs) =
expected first year of operation – baseline engine model year + (project life / 2)

Deterioration life (reduced) (yrs) =
project life / 2

Formula C-6: Estimated annual emissions based on hours of operation (tons/yr)

Annual emissions by pollutant (tons/yr) =
*(emission factor (g/bhp-hr) + deterioration product (g/bhp-hr) (if applicable)) * horsepower (hp) * load factor * annual activity (hrs/yr) * percentage operation in California / 907,200 (g/ton)*

Hour-based deterioration product (g/bhp-hr) =
*deterioration rate (g/bhp-hr-hr) * total equipment activity (hrs)*

Total equipment activity[(f)] (hrs) =
*annual activity (hrs/yr) * deterioration life (yrs)*

Deterioration life (baseline) (yrs) =
expected first year of operation – baseline engine model year + (project life / 2)

Deterioration life (reduced) (yrs) =
project life / 2

[(e)] Total equipment activity for mile-based calculations is limited to 400,000 miles for school buses or 800,000 miles for other on-road vehicles. Used heavy heavy-duty replacement vehicles add 500,000 miles, medium heavy-duty vehicles add 250,000 miles, or light heavy-duty vehicles add 150,000 miles.

[(f)] Total equipment activity for hour-based calculations is limited to a maximum of 12,000 hours for diesel engines, 3,500 hours for large-spark ignition (LSI) engines with a model year of 2006 or older, or 5,000 hours for LSI engines with a model year of 2007 or newer.

Formula C-7: Estimated annual emissions based on fuel consumption (tons/yr)

Annual emissions by pollutant (tons/yr) =
*Emission factor (g/bhp-hr) * fuel consumption rate factor (bhp-hr/gal) * annual activity (gal/yr) * percentage operation in California / 907,200 (g/ton)*

Formula C-8: Estimated annual emissions for shore power systems (tons/yr)

Annual emissions by pollutant (tons/yr) =
*Ship emission factor (g/kW-hr) * power requirements (kW) * berthing time (hrs/visit) * annual number of visits (visits/yr) * 0.9 / 907,200 (g/ton)*

Formula C-9: Annual surplus emission reductions (tons/yr)

Annual surplus emission reductions by pollutant (tons/yr) =
annual emissions for the baseline technology (tons/yr) –
annual emissions for the reduced technology (tons/yr)

Formula C-10: Annual surplus emission reductions for marine vessels with wet exhaust systems (tons/yr)

Annual surplus emission reductions by pollutant (tons/yr) =
*0.80 * (annual emissions for the baseline technology (tons/yr) –*
annual emissions for the reduced technology (tons/yr))

Formula C-11: Annual surplus emission reductions for retrofits (tons/yr)

Annual surplus emission reductions by pollutant (tons/yr) =
*annual emissions for the baseline technology (tons/yr) **
reduced technology verification percentage

Formula C-12: Annual surplus emission reductions for marine vessel hybrid systems (tons/yr)

Annual surplus emission reductions by pollutant (tons/yr) =
total annual emissions (all engines on vessel) for the baseline technology (tons/yr) –
*(total annual emissions (all engines on vessel) for the baseline technology (tons/yr) **
reduced technology verification percentage)

Formula C-13: Total annual surplus emission reductions for marine vessels (tons/yr)

*Total annual surplus emission reductions for marine vessels by pollutant (tons/yr) = (propulsion engine annual surplus emission reductions (tons/yr) * number of propulsion engines) + (auxiliary engine annual surplus emission reductions (tons/yr) * number of auxiliary engines)*

Formula C-14: Potential grant amount based on maximum percentage of eligible cost ($)

*Incremental cost ($) = cost of reduced technology ($) * maximum percentage of eligible cost*

Formula C-15: Split project life

*Total annual weighted surplus emission reductions (tons/yr) = (fraction project life (yrs) * annual weighted surplus emissions from transaction 1 (tons/yr) / total project life (yrs)) + (fraction project life (yrs) * annual weighted surplus emissions from transaction 2 (tons/yr) / total project life (yrs))*

Total annual weighted surplus emission reductions (tons/yr) =
$(n_1 * a_1 / t) + (n_2 * a_2 / t)$
where:
n_1 = *fraction project life from transaction 1 (yrs)*
n_2 = *fraction project life from transaction 2 (yrs)*
a_1 = *annual weighted surplus emissions from transaction 1 (tons/yr)*
a_2 = *annual weighted surplus emissions from transaction 2 (tons/yr)*
t = *total project life (yrs)*

Formula C-16: Applicant cost share ($)

Applicant cost share ($) ≥ 15 percent * moyer eligible costs ($)

Formula C-17: Project overpayment check ($)

Total project cost ≥ applicant cost share ($) + ∑grants paid ($)

Formula C-18: Cost-effectiveness of weighted surplus emission reductions ($/ton)

*Cost-effectiveness ($/ton) = grant amount ($) * CRF / annual weighted surplus emission reductions (weighted tons/yr)*

APPENDIX D

TABLES FOR EMISSION REDUCTION AND COST-EFFECTIVENESS CALCULATIONS

APPENDIX D:

TABLES FOR EMISSION REDUCTION AND COST-EFFECTIVENESS CALCULATIONS

This appendix presents tables summarizing the data needed to calculate the emission reductions and cost-effectiveness of potential projects. Included are data such as engine emission factors, load factors, and other conversion factors used in the calculations discussed in Appendix C: Cost-Effectiveness Calculation Methodology.

	Table Number
Heavy-Duty On-Road Projects	D-1 to D-6
Off-Road Diesel and Non-Mobile Agricultural (Ag) Projects	D-7 to D-9
Large Spark-Ignition (LSI) Projects	D-10 to D-13
Locomotive Projects	D-14a to D-14b
Marine Projects	D-15a to D-20
All Engines – Fuel Consumption	D-21
Reference Tables	D-22 to D-25

Table D-1
Heavy-Duty Vehicles
14,001-33,000 pounds (lbs) Gross Vehicle Weight Rating (GVWR)
Emission Factors (g/mile)[a] (EF) and Deterioration Rates (g/mile-10k miles) (DR)

Engine Model Year	NOx[b]		ROG[b],[c]		PM[b],[i]	
	EF[d]	DR[e]	EF[d]	DR[e]	EF[d]	DR[e]
Pre-1987	14.52	0.031	0.89	0.051	0.713	0.0283
1987-90	14.31	0.041	0.70	0.060	0.774	0.0252
1991-93	10.70	0.054	0.37	0.031	0.425	0.0193
1994-97	10.51	0.063	0.27	0.036	0.241	0.0129
1998-02	10.33	0.072	0.28	0.036	0.266	0.0116
2003-06	6.84	0.071	0.23	0.021	0.175	0.0067
2007-09	3.99	0.090	0.18	0.007	0.014	0.0008
2007+[f] (0.21-0.50 g/bhp-hr NOx FEL)	1.27	0.079	0.06	0.002	0.002	0.0001
2010-12 (0.20 g/bhp-hr NOx std)	1.03	0.079	0.06	0.002	0.002	0.0001
2013+[g] (0.20 g/bhp-hr NOx std)	1.03	0.045	0.06	0.001	0.002	0.0001
2016+[h] (0.10 g/bhp-hr NOx std)	0.52	0.023	0.06	0.001	0.002	0.0001
2016+[h] (0.05 g/bhp-hr NOx std)	0.26	0.011	0.06	0.001	0.002	0.0001
2016+[h] (0.02 g/bhp-hr NOx std)	0.10	0.005	0.06	0.001	0.002	0.0001

[a] EMFAC 2014 Zero-Mile Based Emission Factors. Factors are based on diesel engines. Same factors used for alternative fuel engines due to limited alternative fuel data in EMFAC.
[b] Emission factors incorporate the ultra low-sulfur diesel fuel correction factors listed in Table D-22. NOx – Oxides of nitrogen, ROG – Reactive Organic Gases, PM – Particulate Matter.
[c] EMFAC provides HC emission factors which are converted into ROG. ROG = HC * 1.26639.
[d] Emission Factors are based on zero-mile rates contained in EMFAC 2014.
[e] Deterioration Rate per 10,000 miles.
[f] All model year 2007 and newer engines with Family Emission Limits (FEL) from 0.21 g/bhp-hr to 0.50 g/bhp-hr NOx must use different emission factors from those listed for model years 2010 and newer engines certified to 0.20 g/bhp-hr NOx standards. FEL emission factors are based on EMFAC factors for model year 2010-2012 engines that include weighted averaging of 0.5, 0.35, and 0.20 g/bhp-hr NOx standards based on sales.
[g] Deterioration rates for 2013+ engines incorporate use of on-board diagnostic system.
[h] Factors for 2016+ engines are reduced values of 2013 factors by 50 percent, 75 percent, and 90 percent to correspond with 0.10 g/bhp-hr NOx, 0.05 g/bhp-hr NOx, and 0.02 g/bhp-hr NOx optional low NOx standards.
[i] Factors for 2006 or older engines are for unfiltered trucks.

Table D-2
Heavy-Duty Vehicles
Over 33,000 pounds (lbs) GVWR
Emission Factors (g/mile)[a] (EF) and Deterioration Rates (g/mile-10k miles) (DR)

Engine Model Year	NOx[b]		ROG[b],[c]		PM[b],[i]	
	EF[d]	DR[e]	EF[d]	DR[e]	EF[d]	DR[e]
Pre-1987	21.37	0.018	1.38	0.031	1.260	0.0200
1987-90	21.07	0.024	1.08	0.037	1.369	0.0178
1991-93	18.24	0.037	0.78	0.027	0.574	0.0104
1994-97	17.92	0.043	0.58	0.031	0.377	0.0080
1998-02	17.61	0.049	0.60	0.031	0.415	0.0073
2003-06	11.66	0.049	0.49	0.018	0.267	0.0041
2007-09	6.80	0.077	0.39	0.007	0.022	0.0006
2007+[f] (0.21-0.50 g/bhp-hr NOx FEL)	2.17	0.068	0.13	0.002	0.004	0.0001
2010-12 (0. 2 g/bhp-hr NOx std)	1.76	0.068	0.13	0.002	0.004	0.0001
2013+[g] (0. 2 g/bhp-hr NOx std)	1.76	0.039	0.13	0.001	0.004	0.0001
2016+[h] (0.10 g/bhp-hr NOx std)	0.88	0.019	0.13	0.001	0.004	0.0001
2016+[h] (0.05 g/bhp-hr NOx std)	0.44	0.010	0.13	0.001	0.004	0.0001
2016+[h] (0.02 g/bhp-hr NOx std)	0.18	0.004	0.13	0.001	0.004	0.0001

[a] EMFAC 2014 Zero-Mile Based Emission Factors. Factors are based on diesel engines. Same factors used for alternative fuel engines due to limited alternative fuel data in EMFAC.
[b] Emission factors incorporate the ultra low-sulfur diesel fuel correction factors listed in Table D-22.
[c] EMFAC provides HC emission factors which are converted into ROG. ROG = HC * 1.26639.
[d] Emission Factors are based on zero-mile rates contained in EMFAC 2014.
[e] Deterioration Rate are per 10,000 miles.
[f] All model year 2007 and newer engines with Family Emission Limits (FEL) from 0.21 g/bhp-hr to 0.50 g/bhp-hr NOx must use different emission factors from those listed for model years 2010 and newer engines certified to 0.20 g/bhp-hr NOx standards. FEL emission factors are based on EMFAC factors for model year 2010-2012 engines that include weighted averaging of 0.5, 0.35, and 0.20 g/bhp-hr NOx standards based on sales.
[g] Deterioration rates for 2013+ engines incorporate use of on-board diagnostic system.
[h] Factors for 2016+ engines are reduced values of 2013 factors by 50 percent, 75 percent, and 90 percent to correspond with 0.10 g/bhp-hr NOx, 0.05 g/bhp-hr NOx, and 0.02 g/bhp-hr NOx optional low NOx standards, respectively.
[i] Factors for 2006 or older engines are for unfiltered trucks.

Table D-3
Diesel Urban Buses
Emission Factors (g/mile)[a]

Engine Model Year	NOx[b]	ROG[b],[c]	PM[b],[e]
Pre-1987	42.97	1.88	0.929
1987-1990	37.39	1.87	0.878
1991-1993	23.72	1.84	0.835
1994-1995	27.71	1.81	1.015
1996-1998	36.46	1.81	1.217
1999-2002	18.97	1.81	0.417
2003	13.02	0.77	0.084
2004-2006	3.56	0.08	0.084
2007+ (0.20 g/bhp-hr NOx std)	1.90	0.03	0.011
2016+[d] (0.10 g/bhp-hr NOx std)	0.95	0.03	0.011
2016+[d] (0.05 g/bhp-hr NOx std)	0.47	0.03	0.011
2016+[d] (0.02 g/bhp-hr NOx std)	0.19	0.03	0.011

[a] EMFAC 2014 Zero-Mile Based Emission Factors.
[b] Emission factors incorporate the ultra low-sulfur diesel fuel correction factors listed in Table D-22.
[c] EMFAC provides HC emission factors which are converted into ROG. ROG = HC * 1.26639.
[d] Factors for 2016+ engines are reduced values of 2007 factors by 50 percent, 75 percent, and 90 percent to correspond with 0.10 g/bhp-hr NOx, 0.05 g/bhp-hr NOx, and 0.02 g/bhp-hr NOx optional low NOx standards, respectively.
[e] Factors for 2006 or older engines are for unfiltered trucks.

Table D-4
Alternative Fuel Urban Buses
Emission Factors (g/mile)[a]

Engine Model Year	NOx	ROG[b]	PM[d]
Pre-2003	21.60	2.68	0.043
2003-06	15.40	3.87	0.023
2007+ (0.20 g/bhp-hr NOx std)	0.65	0.04	0.001
2016+[c] (0.10 g/bhp-hr NOx std)	0.33	0.04	0.001
2016+[c] (0.05 g/bhp-hr NOx std)	0.16	0.04	0.001
2016+[c] (0.02 g/bhp-hr NOx std)	0.07	0.04	0.001

[a] EMFAC 2014 Zero-Mile Based Emission Factors.
[b] EMFAC provides HC emission factors which are converted into ROG.
ROG (Pre-2007 engines) = HC * 0.16137.
ROG (2007+ engines) = HC * 0.013972.
[c] Factors for 2016+ engines are reduced values of 2007 factors by 50 percent, 75 percent, and 90 percent to correspond with 0.10 g/bhp-hr NOx, 0.05 g/bhp-hr NOx, and 0.02 g/bhp-hr NOx optional low NOx standards, respectively.
[d] Factors for 2006 or older engines are for unfiltered trucks.

Table D-5
Diesel Refuse Trucks
Emission Factors (g/mile)[a]

Engine Model Year	NOx[b]	ROG[b],[c]	PM[b],[g]
pre-1994	34.69	0.01	0.346
1994-97	31.53	0.01	0.137
1998-02	31.25	0.01	0.144
2003-06	21.39	0.01	0.086
2007-09	11.25	0.14	0.008
2007+[d] (0.21-0.50 g/bhp-hr NOx FEL)	1.23	0.26	0.008
2010+[e] (0.20 g/bhp-hr NOx std)	1.09	0.04	0.008
2016+[f] (0.10 g/bhp-hr NOx)	0.54	0.04	0.008
2016+[f] (0.05 g/bhp-hr NOx)	0.27	0.04	0.008
2016+[f] (0.02 g/bhp-hr NOx)	0.11	0.04	0.008

Note: These emission factors are not applicable to transfer trucks. Transfer trucks must use the emission factors from Table D-1 or D-2. Per EMFAC 2014, solid waste collection vehicles are considered to be well-maintained and have negligible deterioration which is why only zero-mile emission factors are to be used in calculations for solid waste collection vehicle projects.

(a) EMFAC 2014 Zero-Mile Based Emission Factors.
(b) Emission factors incorporate the ultra low-sulfur diesel fuel correction factors listed in Table D-22.
(c) EMFAC provides HC emission factors which are converted into ROG. ROG = HC * 1.26639.
(d) All model year 2007 and newer engines with Family Emission Limits (FEL) from 0.21 g/bhp-hr to 0.50 g/bhp-hr NOx must use different emission factors from those listed for model years 2010 and newer engines certified to 0.20 g/bhp-hr NOx standards. FEL emission factors are based on EMFAC factors for model year 2010-2012 engines that include weighted averaging of 0.5, 0.35, and 0.20 g/bhp-hr NOx standards based on sales.
(e) These 2010+ emission factors are based only on engines certified to the 0.20 g/bhp-hr NOx standard.
(f) Factors for 2016+ engines are reduced values of 2013 factors by 50 percent, 75 percent, and 90 percent to correspond with 0.10 g/bhp-hr NOx, 0.05 g/bhp-hr NOx, and 0.02 g/bhp-hr NOx optional low NOx standards, respectively.
(g) Factors for 2006 or older engines are for unfiltered trucks.

Table D-6
Alternative Fuel Refuse Trucks
Emission Factors (g/mile)[a]

Engine Model Year	NOx	ROG[b]	PM[d]
Pre-2007	53.20	9.86	0.091
2007-09	18.80	3.68	0.004
2010+ (0.20 g/bhp-hr NOx std)	0.88	0.14	0.004
2016+[c] (0.10 g/bhp-hr NOx)	0.44	0.14	0.004
2016+[c] (0.05 g/bhp-hr NOx)	0.22	0.14	0.004
2016+[c] (0.02 g/bhp-hr NOx)	0.09	0.14	0.004

Note: These emission factors are not applicable to transfer trucks. Transfer trucks must use the emission factors from Table D-1 or D-2. Per EMFAC 2014, solid waste collection vehicles are considered to be well-maintained and have negligible deterioration which is why only zero-mile emission factors are to be used in calculations for solid waste collection vehicle projects.

[a] EMFAC 2014 Zero-Mile Based Emission Factors.
[b] EMFAC provides HC emission factors which are converted into ROG.
ROG (Pre-2007 engines) = HC * 0.16137.
ROG (2007+ engines) = HC * 0.013972.
[c] Factors for 2016+ engines are reduced values of 2010 factors by 50 percent, 75 percent, and 90 percent to correspond with 0.10 g/bhp-hr NOx, 0.05 g/bhp-hr NOx, and 0.02 g/bhp-hr NOx optional low NOx standards, respectively.
[d] Factors for 2006 or older engines are for unfiltered trucks.

Table D-7
Off-Road Diesel Engines Default Load Factors

Category	Equipment Type	Load Factor
Airport Ground Support	Aircraft Tug	0.54
	Air Conditioner	0.75
	Air Start Unit	0.90
	Baggage Tug	0.37
	Belt Loader	0.34
	Bobtail	0.37
	Cargo Loader	0.34
	Cargo Tractor	0.36
	Forklift	0.20
	Ground Power Unit	0.75
	Lift	0.34
	Passenger Stand	0.40
	Service Truck	0.20
	Other Ground Support Equipment	0.34
Agricultural (Mobile, Portable or Stationary)	Agricultural Mowers	0.43
	Agricultural Tractors	0.70
	Balers	0.58
	Combines/Choppers	0.70
	Chippers/Stump Grinders	0.73
	Generator Sets	0.74
	Hydro Power Units	0.48
	Irrigation Pump	0.65
	Shredders	0.40
	Sprayers	0.50
	Swathers	0.55
	Tillers	0.78
	Other Agricultural	0.51
Construction	Air Compressors	0.48
	Bore/Drill Rigs	0.50
	Cement & Mortar Mixers	0.56
	Concrete/Industrial Saws	0.73
	Concrete/Trash Pump	0.74
	Cranes	0.29
	Crawler Tractors	0.43
	Crushing/Process Equipment	0.78
	Excavators	0.38
	Graders	0.41

Table D-7
Off-Road Diesel Engines Default Load Factors
(Continued)

Category	Equipment Type	Load Factor
Construction	Off-Highway Tractors	0.44
	Off-Highway Trucks	0.38
	Pavers	0.42
	Other Paving	0.36
	Pressure Washer	0.30
	Rollers	0.38
	Rough Terrain Forklifts	0.40
	Rubber Tired Dozers	0.40
	Rubber Tired Loaders	0.36
	Scrapers	0.48
	Signal Boards	0.78
	Skid Steer Loaders	0.37
	Surfacing Equipment	0.30
	Tractors/Loaders/Backhoes	0.37
	Trenchers	0.50
	Welders	0.45
	Other Construction Equipment	0.42
Industrial	Aerial Lifts	0.31
	Forklifts	0.20
	Sweepers/Scrubbers	0.46
	Other General Industrial	0.34
	Other Material Handling	0.40
Logging	Fellers/Bunchers	0.71
	Skidders	0.74
Oil Drilling	Drill Rig	0.50
	Lift (Drilling)	0.60
	Swivel	0.60
	Workover Rig (Mobile)	0.50
	Other Workover Equipment	0.60
Cargo Handling	Container Handling Equipment	0.59
	Cranes	0.20
	Excavators	0.55
	Forklifts	0.30
	Other Cargo Handling Equipment	0.51
	Sweeper/Scrubber	0.68
	Tractors/Loaders/Backhoes	0.55
	Yard Trucks	0.39
Other	All	0.43

Table D-8
Uncontrolled Off-Road Diesel Engines
Emission Factors (g/bhp-hr) (EF) and Deterioration Rates (g/bhp-hr-hr) (DR)

Horsepower	Model Year	NOx		ROG		PM10	
		EF	DR	EF	DR	EF	DR
25-49	Pre-1988	6.51	0.000098	1.68	0.000210	0.547	0.0000424
	1988+	6.42	0.000097	1.64	0.000210	0.547	0.0000424
20-119	Pre-1988	12.09	0.00028	1.31	0.000061	0.605	0.0000440
	1988+	8.14	0.00019	0.90	0.000042	0.497	0.0000361
120+	Pre-1970	13.02	0.00030	1.20	0.000056	0.554	0.0000403
	1970-1979	11.16	0.00026	0.91	0.000042	0.396	0.0000288
	1980-1987	10.23	0.00024	0.80	0.000037	0.396	0.0000288
	1988+	7.60	0.00018	0.62	0.000029	0.274	0.0000199

Table D-9
Controlled Off-Road Diesel Engines
Emission Factors (g/bhp-hr) (EF) and Deterioration Rates (g/bhp-hr-hr) (DR) [a]

Horsepower	Tier	NOx		ROG		PM10	
		EF	DR	EF	DR	EF	DR
25-49	1	5.26	0.0000980	1.32	0.000170	0.480	0.0000372
	2	4.63	0.0000930	0.22	0.000050	0.280	0.0000218
	4 (Interim)	4.55	0.0000950	0.09	0.000036	0.128	0.0000096
	4 (Final)	2.75	0.0000570	0.09	0.000036	0.009	0.0000010
50-74	1	6.54	0.0001500	0.90	0.000042	0.552	0.0000402
	2	4.75	0.0000710	0.17	0.000025	0.192	0.0000141
	3[b]	2.74	0.0000360	0.09	0.000023	0.192	0.0000141
	4 (Interim)	2.74	0.0000360	0.09	0.000023	0.112	0.0000080
	4 (Final)	2.74	0.0000360	0.09	0.000023	0.009	0.0000009
75-99	1	6.54	0.0001500	0.90	0.000042	0.552	0.0000402
	2	4.75	0.0000710	0.17	0.000025	0.192	0.0000141
	3	2.74	0.0000360	0.09	0.000023	0.112	0.0000080
	4 (Phase-Out)	2.74	0.0000360	0.09	0.000030	0.009	0.0000009
	4 (Phase-In or Alt. NOx)	2.15	0.0000270	0.08	0.000021	0.009	0.0000009
	4 (Final)	0.26	0.0000035	0.05	0.000015	0.009	0.0000009
100-174	1	6.54	0.0001500	0.62	0.000029	0.304	0.0000221
	2	4.15	0.0000600	0.15	0.000023	0.128	0.0000094
	3	2.32	0.0000300	0.09	0.000030	0.112	0.0000080
	4 (Phase-Out)	2.32	0.0000300	0.09	0.000030	0.009	0.0000004
	4 (Phase-In or Alt. NOx)	2.15	0.0000270	0.08	0.000020	0.009	0.0000004
	4 (Final)	0.26	0.0000040	0.05	0.000011	0.009	0.0000004

Table D-9
Controlled Off-Road Diesel Engines
Emission Factors (g/bhp-hr) (EF) and Deterioration Rates (g/bhp-hr-hr) (DR) [(a)]
(Continued)

Horsepower	Tier	NOx		ROG		PM10	
		EF	DR	EF	DR	EF	DR
175-299	1	5.93	0.0001400	0.29	0.000013	0.120	0.0000064
	2	4.15	0.0000600	0.11	0.000022	0.088	0.0000046
	3	2.32	0.0000300	0.09	0.000023	0.088	0.0000046
	4 (Phase-Out)	2.32	0.0000300	0.09	0.000023	0.009	0.0000003
	4 (Phase-In or Alt. NOx)	1.29	0.0000170	0.06	0.000017	0.009	0.0000003
	4 (Final)	0.26	0.0000036	0.05	0.000011	0.009	0.0000003
300-750	1	5.93	0.0000990	0.29	0.000010	0.120	0.0000064
	2	3.79	0.0000500	0.09	0.000023	0.088	0.0000044
	3	2.32	0.0000300	0.09	0.000023	0.088	0.0000044
	4 (Phase-Out)	2.32	0.0000300	0.09	0.000023	0.009	0.0000003
	4 (Phase-In or Alt. NOx)	1.29	0.0000170	0.06	0.000017	0.009	0.0000003
	4 (Final)	0.26	0.0000036	0.05	0.000011	0.009	0.0000003
751+	1	5.93	0.0000990	0.29	0.000010	0.120	0.0000064
	2	3.79	0.0000500	0.09	0.000023	0.088	0.0000044
	4 (Interim)	2.24	0.0000280	0.06	0.000017	0.051	0.0000021
	4 (Final)	2.24	0.0000280	0.05	0.000011	0.017	0.0000009

Note: Engines participating in the “Tier 4 Early Introduction Incentive for Engine Manufacturers” program per California Code of Regulations, Title 13, section 2423(b)(6) are eligible for funding provided the engines are certified to the final Tier 4 emission standards. The Air Resources Board (ARB) Executive Order indicates engines certified under this provision. The emission rates for these engines shall be equivalent to the emission factors associated with Tier 3 engines.

Note: For equipment with baseline engines certified under the flexibility provisions per California Code of Regulations, Titles 13, section 2423(d), baseline emission rates shall be determined by using the previous applicable emission standard or Tier for that engine model year and horsepower rating. The ARB Executive Order indicates engines certified under this provision.

[(a)] Emission factors were converted using the ultra low-sulfur diesel fuel correction factors listed in Table D-23.
[(b)] Alternate compliance option.

Table D-10
Off-Road LSI Equipment Default Load Factors

Category	Equipment Type	Load Factor
Agriculture (Mobile, Portable or Stationary)	Agricultural Tractors	0.62
	Balers	0.55
	Combines/Choppers	0.74
	Chipper/Stump Grinder	0.78
	Generator Sets	0.68
	Sprayers	0.50
	Swathers	0.52
	Pumps	0.65
	Other Agricultural Equipment	0.55
Airport Ground Support	A/C Tug	0.80
	Baggage Tug	0.55
	Belt Loader	0.50
	Bobtail	0.55
	Cargo Loader	0.50
	Forklift	0.30
	Ground Power Unit	0.75
	Lift	0.50
	Passenger Stand	0.59
	Other Ground Support Equipment	0.50
Construction	Air Compressors	0.56
	Asphalt Pavers	0.66
	Bore/Drill Rigs	0.79
	Concrete/Industrial Saws	0.78
	Concrete/Trash Pump	0.69
	Cranes	0.47
	Gas Compressor	0.85
	Paving Equipment	0.59
	Pressure Washer	0.85
	Rollers	0.62
	Rough Terrain Forklifts	0.63
	Rubber Tired Loaders	0.54
	Skid Steer Loaders	0.58
	Tractors/Loaders/Backhoes	0.48

Table D-10
Off-Road LSI Equipment Default Load Factors
(Continued)

Category	Equipment Type	Load Factor
Construction	Trenchers	0.66
	Welders	0.51
	Other Construction	0.48
Industrial	Aerial Lifts	0.46
	Forklifts	0.30
	Sweepers/Scrubbers	0.71
	Other Industrial	0.54

Table D-11a
Off-Road LSI Engines
Emission Factors (g/bhp-hr) (EF) and Deterioration Rates (g/bhp-hr-hr) (DR)
Gasoline

Horsepower	Model Year	NOx		ROG		PM10	
		EF	DR	EF	DR	EF	DR
25-50	Uncontrolled pre-2004	8.01	0.0000406	3.760	0.000412	0.060	0.000
	Controlled 2001 - 2006	1.33	0.0004710	0.710	0.000169	0.060	0.000
	Controlled 2007 - 2009	0.89	0.0001192	0.473	0.000064	0.060	0.000
	Controlled 2010+	0.27	0.0000250	0.142	0.000013	0.060	0.000
51-120	Uncontrolled Pre-2004	11.84	0.0000601	2.630	0.000287	0.060	0.000
	Controlled 2001 – 2006	1.78	0.0002070	0.260	0.000081	0.060	0.000
	Controlled 2007 - 2009	1.17	0.0000660	0.130	0.000074	0.060	0.000
	Controlled 2010+	0.35	0.0000300	0.030	0.000014	0.060	0.000
121+	Uncontrolled pre-2004	12.94	0.0001270	1.610	0.000042	0.060	0.000
	Controlled 2001 – 2006	1.94	0.0002780	0.160	0.000102	0.060	0.000
	Controlled 2007 - 2009	1.17	0.0000660	0.130	0.000074	0.060	0.000
	Controlled 2010+	0.35	0.0000300	0.030	0.000014	0.060	0.000

Table D-11b
Off-Road LSI Engines
Emission Factors (g/bhp-hr) (EF) and Deterioration Rates (g/bhp-hr-hr) (DR)
Alternative Fuels

Horsepower	Model Year	NOx		ROG		PM10	
		EF	DR	EF	DR	EF	DR
25-50	Uncontrolled pre-2004	13.00	0.0000662	1.380	0.000151	0.060	0.000
	Controlled 2001 - 2006	1.95	0.0002760	0.140	0.000106	0.060	0.000
	Controlled 2007 - 2009	1.30	0.0000011	0.093	0.000172	0.060	0.000
	Controlled 2010+	0.39	0.0000002	0.028	0.000036	0.060	0.000
51-120	Uncontrolled pre-2004	10.53	0.0000533	1.550	0.000169	0.060	0.000
	Controlled 2001 – 2006	1.58	0.0003500	0.160	0.000103	0.060	0.000
	Controlled 2007 - 2009	1.04	0.0000125	0.100	0.000047	0.060	0.000
	Controlled 2010+	0.31	0.0000380	0.030	0.000014	0.060	0.000
121+	Uncontrolled pre-2004	10.51	0.0001040	1.380	0.000035	0.060	0.000
	Controlled 2001 – 2006	1.58	0.0002640	0.140	0.000106	0.060	0.000
	Controlled 2007 - 2009	1.04	0.0000125	0.100	0.000047	0.060	0.000
	Controlled 2010+	0.31	0.0000380	0.030	0.000014	0.060	0.000

Table D-12
Emission Factors for Off-Road LSI Engine Retrofits
Verified to Absolute Emission Number (g/bhp-hr)

Manufacturers of LSI retrofit systems may verify to a percentage emission reduction or absolute emissions. If a retrofit system is verified to a percentage reduction, the emission factors will be that verified percentage of the appropriate emissions factors in Table D-11a or D-11b. If a retrofit system is verified to an absolute emission number, when calculating emission reductions use the following table for the emission factors and the deterioration rate for the baseline engine.

Fuel	Verified Value	NOx	ROG	PM10
Gasoline	3.0	1.78	0.26	0.060
	2.5	1.48	0.22	0.060
	2.0	1.19	0.17	0.060
	1.5	0.89	0.13	0.060
	1.0	0.59	0.09	0.060
	0.6	0.35	0.03	0.060
	0.5	0.29	0.03	0.060
Alt Fuel	3.0	1.58	0.16	0.060
	2.5	1.32	0.13	0.060
	2.0	1.05	0.11	0.060
	1.5	0.79	0.08	0.060
	1.0	0.53	0.05	0.060
	0.6	0.31	0.03	0.060
	0.5	0.26	0.03	0.060

Table D-13a
Off-Road LSI Engines Certified to Optional Standards
Emission Factors (g/bhp-hr) (EF) and Deterioration Rates (g/bhp-hr-hr) (DR)
Gasoline

Horsepower	Optional Standard	NOx		ROG		PM10	
		EF	DR	EF	DR	EF	DR
25-50	0.4	0.18	0.000017	0.09	0.0000087	0.060	0.000
	0.2	0.09	0.000008	0.05	0.0000043	0.060	0.000
	0.1	0.04	0.000005	0.02	0.0000027	0.060	0.000
51-120	0.4	0.24	0.000021	0.04	0.0000034	0.060	0.000
	0.2	0.12	0.000010	0.02	0.0000017	0.060	0.000
	0.1	0.06	0.000005	0.01	0.0000009	0.060	0.000
121+	0.4	0.26	0.000022	0.02	0.0000017	0.060	0.000
	0.2	0.13	0.000011	0.01	0.0000009	0.060	0.000
	0.1	0.06	0.000005	0.01	0.0000009	0.060	0.000

Table D-13b
Off-Road LSI Engines Certified to Optional Standards
Emission Factors (g/bhp-hr) (EF) and Deterioration Rates (g/bhp-hr-hr) (DR)
Alternative Fuels

Horsepower	Optional Standard	NOx		ROG		PM10	
		EF	DR	EF	DR	EF	DR
25-50	0.4	0.26	0.000022	0.02	0.0000017	0.060	0.000
	0.2	0.13	0.000011	0.01	0.0000009	0.060	0.000
	0.1	0.07	0.000006	0.00	0.0000000	0.060	0.000
51-120	0.4	0.21	0.000031	0.02	0.0000030	0.060	0.000
	0.2	0.11	0.000015	0.01	0.0000013	0.060	0.000
	0.1	0.05	0.000007	0.01	0.0000013	0.060	0.000
121+	0.4	0.21	0.000034	0.01	0.0000016	0.060	0.000
	0.2	0.11	0.000015	0.01	0.0000013	0.060	0.000
	0.1	0.05	0.000010	0.00	0.0000000	0.060	0.000

LOCOMOTIVES

Table D-14a
Locomotive Emission Factors (g/bhp-hr)
Based on 1998 Federal Standards

Engine Model Year	Type	NOx[(a)]	ROG[(b)]	PM10[(a)]
Pre-1973	Line-haul and Passenger	12.22	0.51	0.275
	Switcher	16.36	1.06	0.378
1973-2001 Tier 0	Line-haul and Passenger	8.93	1.05	0.516
	Switcher	13.16	2.21	0.619
2002-2004 Tier 1	Line-haul and Passenger	6.96	0.58	0.387
	Switcher	10.34	1.26	0.464
2005-2011 Tier 2	Line-haul and Passenger	5.17	0.32	0.172
	Switcher	7.61	0.63	0.206

Note: These factors are to be used for the project baseline emissions if the baseline locomotive is certified or required to be certified to the 1998 federal locomotive remanufacture standards, and for the reduced emission locomotive if the project locomotive is remanufactured to these 1998 standards. Factors are based upon Regulatory Impact Analysis: Final United States Environmental Protection Agency (U.S. EPA) Locomotive Regulation (2008).

[(a)] NOx and PM10 emission factors have been adjusted by a factor of 0.94 and 0.86, respectively, to account for use of California ultra-low sulfur diesel fuel.
[(b)] ROG = HC * 1.053

Table D-14b
Locomotive Emission Factors (g/bhp-hr)
Based on 2008 Federal Standards

Engine Model Year	Type	NOx[(a)]	ROG[(b)]	PM10[(a)]
1973-2001 Tier 0+	Line-haul and Passenger	6.96	0.58	0.189
	Switcher	11.09	2.21	0.224
2002-2004 Tier 1+	Line-haul and Passenger	6.96	0.58	0.189
	Switcher	10.34	1.26	0.224
2005-2011 Tier 2+	Line-haul and Passenger	5.17	0.32	0.086
	Switcher	7.61	0.63	0.112
2011-2014 Tier 3	Line-haul and Passenger	5.17	0.32	0.086
	Switcher	4.70	0.63	0.086
2015 Tier 4	Line-haul and Passenger	1.22	0.15	0.026
	Switcher	1.22	0.15	0.026

Note: These factors are to be used for the project baseline emissions if the baseline locomotive is certified or required to be certified to the new (2008) federal locomotive remanufacture standards, and for the reduced emission locomotive if the project locomotive is remanufactured to the new standards or meets Tier 3 standards. Factors are based upon Regulatory Impact Analysis: Final U.S. EPA Locomotive Regulation (2008).

[(a)] NOx and PM10 emission factors have been adjusted by a factor of 0.94 and 0.86, respectively, to account for use of California ultra-low sulfur diesel fuel.

[(b)] ROG = HC * 1.053

Table D-15a
Uncontrolled Harbor Craft Propulsion Engine
Emission Factors (g/bhp-hr)

Horsepower	Model Year	NOx	ROG	PM10
25-50	All	7.57	1.32	0.520
51-120	pre-1997	14.27	1.04	0.575
	1997+	9.70	0.71	0.524
121-250	pre-1971	15.36	0.95	0.527
	1971-1978	14.27	0.79	0.451
	1979-1983	13.17	0.72	0.376
	1984+	12.07	0.68	0.376
251+	pre-1971	15.36	0.91	0.506
	1971-1978	14.27	0.76	0.431
	1979-1983	13.17	0.68	0.363
	1984-1994	12.07	0.65	0.363
251-750	1995+	8.97	0.49	0.260
751+	1995+	12.07	0.60	0.363

Table D-15b
Controlled Harbor Craft Propulsion Engine
Emission Factors (g/bhp-hr)

Horsepower	Tier	NOx	ROG	PM10
25-50	1	6.93	1.30	0.580
	2	5.04	1.30	0.240
	3	5.04	1.30	0.176
51-120	1	6.93	0.71	0.524
	2	5.04	0.71	0.240
	3	5.04	0.71	0.176
121-175	1	8.97	0.49	0.290
	2	4.84	0.49	0.176
	3	3.60	0.49	0.077
176-750	1	8.97	0.49	0.290
	2	4.84	0.49	0.120
	3	3.87	0.49	0.068
751-1900	1	8.97	0.49	0.290
	2	5.24	0.49	0.160
	3	3.87	0.49	0.068
1901+	1	8.97	0.49	0.290
	2	5.24	0.49	0.160
	3	4.14	0.49	0.085

Table D-16
Tier 4 Harbor Craft Propulsion Engine
Emission Standards (g/bhp-hr)
(Not applicable for engines using FEL or ABT for compliance)

Model Year	Horsepower	Tier	NOx	ROG	PM10
2016+	805-4960	4	1.34	0.142	0.030

Table D-17a
Uncontrolled Harbor Craft Auxiliary Engine
Emission Factors (g/bhp-hr)

Horsepower	Model Year	NOx	ROG	PM10
25-50	all	6.42	1.58	0.460
51-120	pre-1997	12.09	1.23	0.508
	1997+	8.14	0.85	0.417
121-250	pre-1971	13.02	1.13	0.466
	1971-1978	12.09	0.94	0.399
	1979-1983	11.16	0.86	0.333
	1984-1995	10.23	0.82	0.333
	1996+	7.75	0.59	0.255
251-750	pre-1971	13.02	1.08	0.448
	1971-1978	12.09	0.90	0.381
	1979-1983	11.16	0.81	0.321
	1984-1994	10.23	0.77	0.321
	1995+	7.60	0.58	0.230
751+	pre-1971	13.02	1.08	0.448
	1971-1978	12.09	0.90	0.381
	1979-1986	11.16	0.81	0.321
	1987-1998	10.23	0.72	0.321
	1999+	7.75	0.58	0.255

Table D-17b
Controlled Harbor Craft Auxiliary Engine
Emission Factors (g/bhp-hr)

Horsepower	Tier	NOx	ROG	PM10
25-50	1	6.54	1.54	0.511
	2	5.04	1.54	0.240
	3	5.04	1.54	0.176
51-120	1	6.93	0.85	0.464
	2	5.04	0.85	0.240
	3	5.04	0.85	0.176
121-175	1	6.93	0.58	0.255
	2	4.84	0.58	0.176
	3	3.60	0.58	0.077
176-750	1	6.93	0.58	0.255
	2	4.84	0.58	0.120
	3	3.78	0.58	0.068
751-1900	1	6.93	0.58	0.255
	2	5.24	0.58	0.160
	3	3.87	0.58	0.068
1901+	1	6.93	0.58	0.255
	2	5.24	0.58	0.160
	3	4.14	0.58	0.085

Table D-18
Harbor Craft Load Factors

Vessel Type	Propulsion Engine	Auxiliary Engine
Charter Fishing	0.52	0.43
Commercial Fishing	0.27	
Ferry/Excursion	0.42	
Pilot	0.51	
Tow	0.68	
Work	0.45	
Other	0.52	
Barge/Dredge	0.45	0.65
Crew & Supply	0.38	0.32
Tug	0.50	0.31

Table D-19
Shore Power
Default Emission Rates (Grams per kilowatt-hour (g/kW-hr))

Pollutant	Emission Rate
NOx	13.09
ROG	0.49
PM10 (marine gas oil fuel with 0.11- 0.5 % sulfur content)	0.38
PM10 (marine gas oil fuel with <= 0.10 % sulfur content)	0.25

Table D-20
Shore Power
Default Power Requirements

Ship Category	Ship Size / Type Default (Twenty-foot Equivalent Unit (TEU))	Power Requirement (kW)
Container Vessel	<1,000	1,000
	1,000 – 1,999	1,300
	2,000 – 2,999	1,600
	3,000 – 3,999	1,900
	4,000 – 4,999	2,200
	5,000 – 5,999	2,300
	6,000 – 6,999	2,500
	7,000 – 7,999	2,900
	8,000 – 9,999	3,300
	10,000 – 12,000	3,700
Passenger Vessel	No Default Value – Use Actual Power Requirement[(a)]	
Reefer	Break Bulk	1,300
	Fully containerized	3,300

[(a)] The average power requirement for passenger vessels is 7,400 kW (ARB Oceangoing Vessel Survey, 2005).

ALL ENGINES

Table D-21
Fuel Consumption Rate Factors (bhp-hr/gal)

Category	Horsepower/Application	Fuel Consumption Rate
Non-Mobile Agricultural Engines	ALL	17.5
Locomotive	Line Haul and Passenger (Class I/II)	20.8
	Line Haul and Passenger (Class III)	18.2
	Switcher	15.2
Other	< 750 hp	18.5
	≥ 750 hp	20.8

REFERENCES

The information in these tables has already been incorporated into the preceding emission factor tables. These tables are included for informational purposes.

Table D-22
Fuel Correction Factors
On-Road Diesel Engines

Model Year	NOx	PM10	HC
Pre- 2007	0.93	0.72	0.72
2007+	0.93	0.80	0.72

Table D-23
Fuel Correction Factors
Off-Road Diesel Engines

Model Year	NOx	PM10	HC
Pre-Tier 1	0.930	0.720	0.720
Tier 1 – Tier 3	0.948	0.800	0.720
Tier 4	0.948	0.852	0.720

Table D-24
Capital Recovery Factor (CRF) for Various Project Lives
At a 1% Discount Rate

Project Life	CRF
1	1.010
2	0.508
3	0.340
4	0.256
5	0.206
6	0.173
7	0.149
8	0.131
9	0.117
10	0.106
11	0.096
12	0.089
13	0.082
14	0.077
15	0.072
16	0.068
17	0.064
18	0.061
19	0.058
20	0.055

Table D-25
Capital Recovery Factor (CRF) for Various Project Lives
At a 2% Discount Rate[a][b]

Project Life	CRF
1	1.020
2	0.515
3	0.347
4	0.263
5	0.212
6	0.179
7	0.155
8	0.137
9	0.123
10	0.111
11	0.102
12	0.095
13	0.088
14	0.083
15	0.078
16	0.074
17	0.070
18	0.067
19	0.064
20	0.061

[a] Upon ARB approval of the 2017 Moyer Program Guidelines, the discount rate is one percent. Per statute ARB reviews and may update discount rates annually, using the average rates of return for U.S. Treasury securities and the California Consumer Price Index data available at the time of publication.

[b] The Discount Rate varies from year to year, and may increase beyond 2 percent. The formula used to calculate the CRF based on the Discount Rate can be found in Appendix C, Formula C-2.

APPENDIX E

CHAPTER REFERENCES

APPENDIX E: CHAPTER REFERENCES

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Indirect Source Review Program

2023 ANNUAL REPORT

July 1, 2022 - June 30, 2023

San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT
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SAMIR SHEIKH

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I. EXECUTIVE SUMMARY

This "*2023 Annual Report on the District's Indirect Source Review Program"* covers the reporting period from July 1, 2022, through June 30, 2023.

The District's Indirect Source Review (ISR) rule, was originally adopted in 2005 to reduce the growth in both nitrogen oxides (NOx) and particulate matter smaller than ten microns in aerodynamic diameter (PM_{10}) emissions from mobile and area sources associated with construction and operation of new industrial, commercial, residential, transit and other non-residential development projects in the Valley. New development projects create air pollution during construction and operation by prompting more vehicle trips and other pollution-causing activities. To address the rule requirements and achieve emissions reductions at the project site and within local communities, developers incorporate clean air measures into their project designs to reduce emissions impacts at project locations. Some examples include: use of clean, newer model-year off-road construction equipment, zero emission and or near-zero emission heavy duty on-road trucks and van fleets, zero and or near-zero emission on-site equipment, installation of electric vehicle charging infrastructure, solar power, installation of bike paths and sidewalks, and high-efficiency buildings.

If on-site clean air measures implemented by a developer do not achieve the emission reductions mandated by the ISR rule, the developer must pay an off-site mitigation fee for balance of the emission reductions required for the project. One hundred percent of off-site mitigation fees are used by the District to fund emission reduction projects through its incentive grant programs. Additionally, developers pay an administrative fee equal to four percent (4%) of the required off-site fees. This administrative fee is to cover the District's cost of administering the off-site emission reduction projects through the District's grants and incentives programs.

In addition to reducing the development project's impact on air quality through compliance with the District's ISR rule, a developer can further reduce the project's impact on air quality by entering into a "Voluntary Emission Reduction Agreement" (VERA) with the District to address the mitigation requirements under the California Environmental Quality Act (CEQA) or National Environmental Policy Act (NEPA). Under a VERA, the developer may fully mitigate project emission impacts by providing funds to the District, which are then used by the District to administer emission reduction projects. The District has entered into 52 VERAs since 2005.

This annual report includes revenues, expenditures, and emission reductions achieved for both ISR and VERA (ISR-VERA program). To date, in addition to avoiding approximately over 20,800 tons of NOx and PM_{10} emissions from new development through the incorporation of on-site mitigation and clean-air design measures into projects subject to the Indirect Source Review rule, the District has achieved more than

18,689 tons of reductions in NOx and PM_{10} emissions through the investment of over $162 million dollars in ISR and VERA funds through its emission reduction grants and incentives programs.

During this reporting period, the District received 360 ISR Air Impact Assessment applications and entered into two VERAs.

The total amount of funds received for this reporting period under the ISR rule and VERA program were $7,245,676 and $5,020,240, respectively, for a total of $12,265,916. The District achieved emission reductions via grants and incentives clean-air projects totaling 1,270 tons NOx and 220 tons PM_{10}, for a combined total of 1,490 tons, at a cost effectiveness of $13,154 per ton of emissions reduced.

II. INTRODUCTION

The San Joaquin Valley's challenges in meeting national ambient air quality standards are unmatched anywhere in the nation due to the region's unique geography, meteorology and topography. Since 1992, the District has adopted more than 670 rules to implement an aggressive on-going control strategy to reduce emissions in the Valley in order to reach attainment of the federal mandates, resulting in air quality benefits throughout the Valley. Through these ongoing efforts by the District, and significant efforts by CARB to reduce emissions from mobile sources, NOx emissions across the Valley have been reduced by over 75%, while stationary source emissions, which are under the District's jurisdiction, have been reduced by over 90% since 1980.

Although significant progress has been made, the San Joaquin Valley is one of the fastest growing regions in the state. The Population Research Unit of the Department of Finance recent population growth projections, demonstrated a 13.9% increase in the Valley's population from 2020 to 2035 period. In contrast, the total population for the State of California is projected to increase by only 7.4% over the same time period.

Population growth results in increased area source emissions from activities such as consumer product use, fuel combustion for heating and cooking, and landscape maintenance. The total number of vehicle miles traveled (VMT) also increases with population growth, resulting in more emissions due to the combustion of vehicle fuels.

The projected growth in these so called "indirect source" emissions erodes some of the progress generated by emission reductions achieved through the District's stationary source air quality management program and state and federal mobile source controls.

Although the District cannot directly regulate mobile source tailpipe emissions, it does have longstanding statutory authority to regulate indirect sources of air pollution. Pursuant to this authority, the District made a federally enforceable commitment to regulate indirect sources when it adopted its PM_{10} Attainment Plan in June 2003. Subsequently, the California State Legislature passed Senate Bill 709, Florez, in the fall of 2003, which Governor Gray Davis subsequently signed and codified into the Health and Safety Code in §40604. This additional legislation required the District to adopt, by regulation, a schedule of fees to be assessed on area wide or indirect sources of emissions that are regulated by the District.

The purpose of the District's Indirect Source Review rule is to require developers to incorporate clean air measures and reduce emissions of NOx and PM10 from new development projects. It is important to note, particulate matter emissions from mobile sources are overwhelmingly PM2.5, a subset of PM10. Therefore, the PM10 emission reductions achieved under ISR result directly in PM2.5 emission reductions. In other words, PM10 emissions increases are being offset by emissions reductions that are overwhelmingly PM2.5, a positive impact on PM2.5 concentrations.

The Indirect Source Review rule applies to any applicant that seeks to gain final discretionary approval for a development project, or any portions thereof, which upon full build-out will include any one of the following:

- 50 residential units
- 2,000 square feet of commercial space
- 9,000 square feet of educational space
- 10,000 square feet of government space
- 20,000 square feet of medical or recreational space
- 25,000 square feet of light industrial space
- 39,000 square feet of general office space
- 100,000 square feet of heavy industrial space
- 9,000 square feet of any land use not identified above

Additionally, the Indirect Source Review rule applies to any applicant that seeks to gain approval from a public agency for a large development project, which upon full build out will include any of the following:

- 250 residential units
- 10, 000 square feet of commercial space
- 45,000 square feet of educational space
- 50,000 square feet of governmental space
- 100,000 square feet of medical office or recreational space
- 125,000 square feet of light industrial space
- 195,000 square feet of general office space
- 500,000 square feet of heavy industrial space
- 45,000 of square feet of space not identified above

In addition to the above, a transit or transportation development project is subject to the Indirect Source Review rule if construction exhaust emissions equal or exceed two (2.0) tons of NOx or two (2.0) tons of PM10.

This report was prepared pursuant to provisions of Rule 9510 that require the District to prepare an annual report regarding expenditure of received funds and achieved emission reductions. The annual report includes the following:

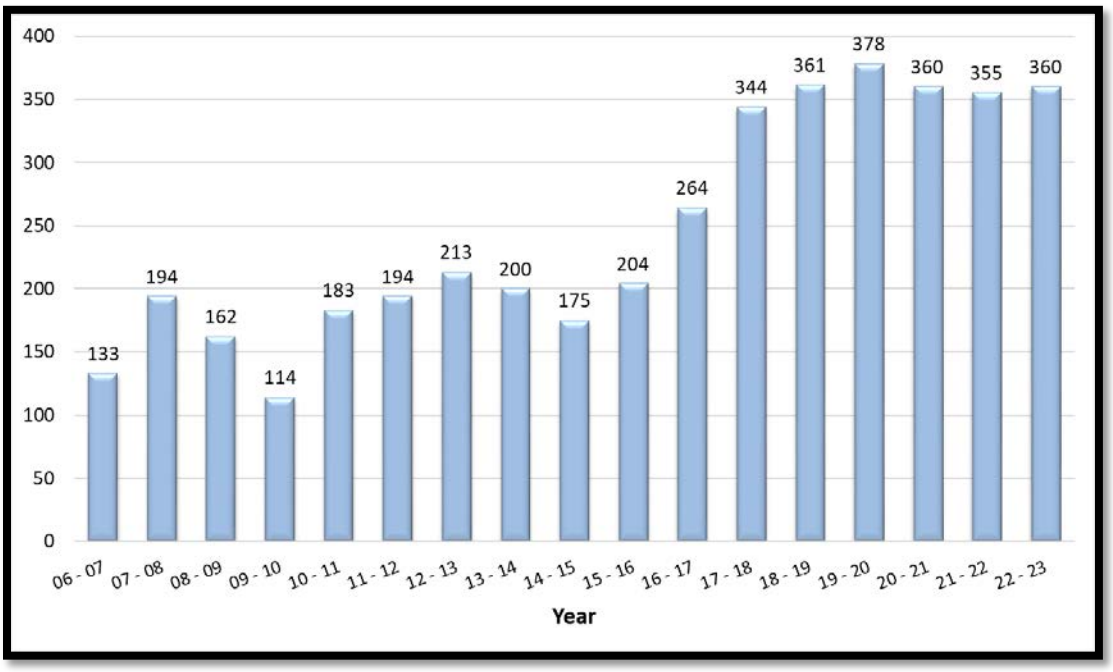
- Total amount of off-site fees received;
- Total monies spent;
- Total monies remaining;
- Any refunds distributed;
- A list of all projects funded;
- Total emissions reductions realized; and
- The overall cost-effectiveness factor for the projects funded.

III. IMPLEMENTATION

District Indirect Source Review Rule

During this reporting period, the District received 360 ISR applications. For historic context, the number of ISR applications received each year is presented in Figure 1 below.

Figure 1: Number of ISR Applications Received



Voluntary Emission Reduction Agreements

A Voluntary Emission Reduction Agreement is an air quality mitigation measure by which a developer can voluntarily enter into a contractual agreement with the District to mitigate a development project's impact on air quality, going beyond reductions achieved by compliance with the District's ISR rule. Under the agreement, the developer provides funds to the District to administer the implementation of the VERA. The District then identifies emissions reductions projects, funds those projects, and verifies that the specified emission reductions have been successfully achieved.

The types of emission reduction projects that have been funded in the past include electrification of stationary internal combustion engines (such as agricultural irrigation pumps), replacing old heavy-duty trucks with new, cleaner, more efficient heavy-duty trucks, and replacement of older farm tractors with cleaner tractors. Since 2005, the District has entered into 52 VERAs. It is the District's experience that implementation of a VERA is an effective mitigation measure under CEQA, to achieve emission reductions necessary to reduce air quality impacts to a less than significant level.

For development projects subject to the ISR rule, the developer must also comply with applicable ISR rule provisions. This report therefore includes revenues and emission reductions achieved through both the ISR and the VERA process.

During this reporting period, the District adopted the following VERAs, with their estimated dollar amounts and emissions reductions shown below:

- Majestic Gateway: $4,583,446 and 476.1 tons of emissions reductions
- Shafter-Wasco Composting and Waste Division: $197,292 and 20.4 tons of emissions reductions

Oil and Gas Emission Reduction Agreement

In 2015, Kern County adopted an EIR for amendments to the Kern County Zoning Ordinance to address oil and gas exploration and operation activities in the identified area within Kern County. Consistent with the final EIR, Kern County and the District adopted an oil and gas emission reduction agreement (OGERA) to mitigate emissions associated with future oil and gas exploration and production in the San Joaquin Valley. Under this process, Kern County collects a mitigation fee from oil and gas companies when issuing permits for the drilling of new oil or gas production wells, and transfers the funds to the District to mitigate air quality impacts through its grants and incentives programs.

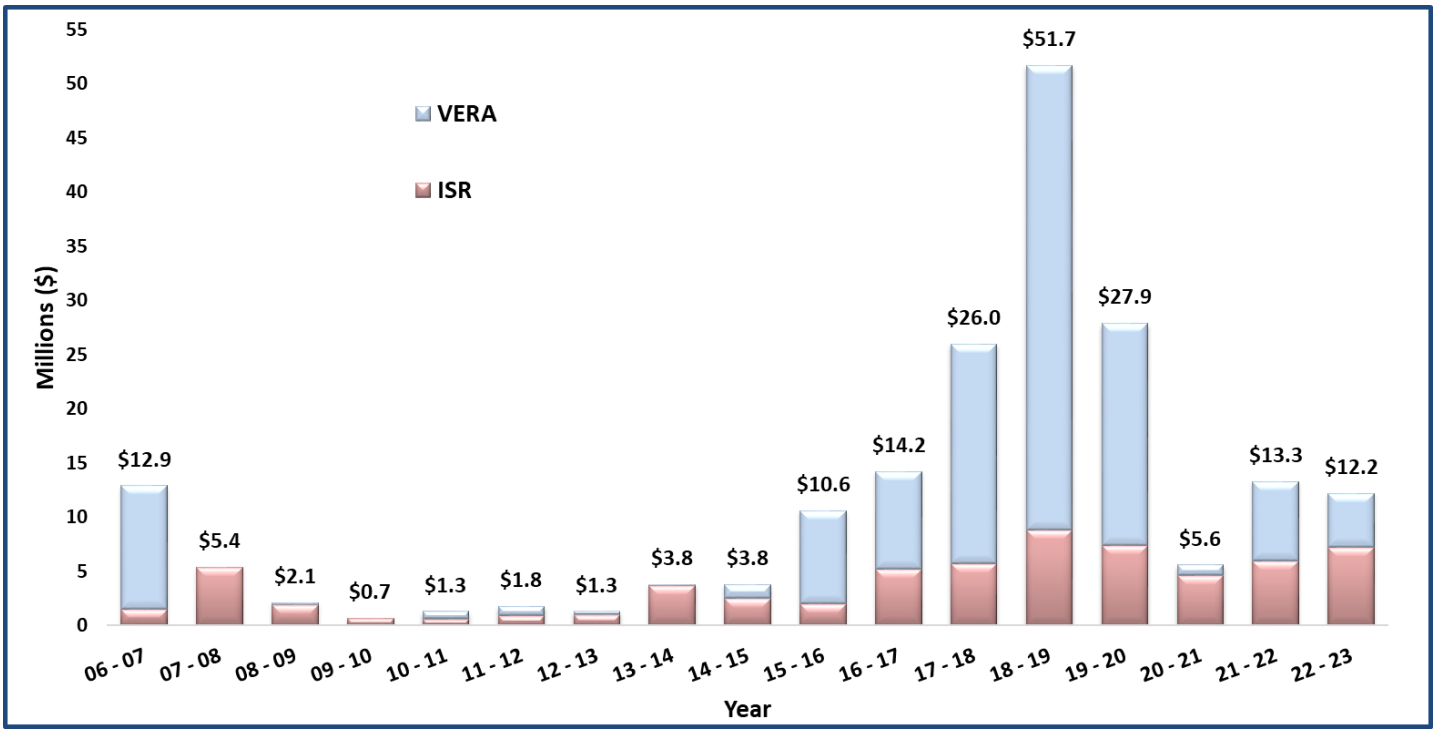
A Petition for Writ of Mandate filed in the Kern County Superior Court challenged Kern County's 2015 Ordinance. The County subsequently amended the Ordinance and accompanying EIR in 2021, which was also challenged by Petitioners. On June 7, 2022, the court issued a ruling that the 2021 amended Ordinance was defective in several respects and ordered suspension of the Ordinance. Following the County's correction of the defects, in November 2022, the court lifted suspension of the Ordinance to allow oil and gas permitting to resume.

However, following an appeal of the Superior Court's ruling, on January 26, 2023, the Court of Appeal re-imposed the suspension of oil and gas permitting in Kern County pending review of the Superior Court's ruling. The District is currently working with Kern County and monitoring the impacts of the ruling as it relates to implementation of the OGERA.

IV. FISCAL SUMMARY

The total amount of funds received for this reporting period under ISR and VERA were $7,245,676 and $5,020,240 respectively, for a total of $12,265,916.

Figure 2: ISR and VERA Program Funds Received



As presented in Table 1 below, the District's ISR and VERA accounts held a beginning balance of $34,963,884. During this reporting period, the District received $12,265,916, spent (paid out) off-site emission reduction projects totaling $19,610,101, encumbered $19,475,357 in contracts for emission reduction projects, leaving an unencumbered balance of $8,144,342.

Table 1: ISR-VERA Fiscal Summary (July 1, 2022 - June 30, 2023)

	ISR	VERA	Total
Beginning Fund Balance	$8,032,311	$26,931,573	$34,963,884
Amount Received	$7,245,676	$5,020,240	$12,265,916
Amount Refunded	$0	$0	$0
Amount Spent (Paid Out)	-$9,647,436	-$9,962,665	-$19,610,101
Ending Fund Balance	$5,630,551	$21,989,148	$27,619,699
Encumbered Amount	-$4,929,514	-$14,545,843	-$19,475,357
Ending Unencumbered Amount	**$701,037**	**$7,443,305**	**$8,144,342**

V. EMISSION REDUCTION SUMMARY

Through the District's grants and incentives programs, clean-air emissions reduction projects undergo a thorough application review before the contract for these projects between the District and the project applicant is executed. Once executed, funds are then encumbered for that project. The contract is valid for a limited time to allow for the purchase of the new equipment and to submit a reimbursement request. Once the reimbursement request is approved, the funds encumbered for the emission reduction project are spent (reimbursed to the project applicant). This process typically takes several months for completion. Therefore, depending on the types of emission reduction projects available for funding, the funds received during this reporting period may result in the funds being spent the in same reporting period or in future reporting periods.

ISR and VERA Off-Site Emission Reductions Achieved

During this reporting period, the District achieved emission reductions via grants and incentives clean-air projects totaling 1,270 tons NOx and 220 tons PM_{10}, for a combined total of 1,490 tons, at a cost effectiveness of $13,153 per ton of emissions reduced, summarized in Table 2 below. The District spent ISR and VERA monies to fund 2,741 clean-air emission reduction projects. These clean-air projects included the replacement of older, higher-emitting agricultural tractors with new latest-tier tractors, replacement of older, higher-emitting agricultural irrigation water pump

engines with electric motors, retrofit of residential open-hearth fireplaces with certified natural gas burning inserts, rebates to Valley residents and businesses for the purchase or lease of new clean-air vehicles, new zero-emission railcar moving equipment to replace an existing switcher locomotive for use within the Valley and a dairy feed mixer electrification project. A complete list of all clean-air projects funded under this annual report period is presented in Appendix A.

Table 2: Off-Site Emission Reductions Achieved (July 1, 2022 - June 30, 2023)

Program	NOx (tons)	PM_{10} (tons)	Total (tons)	Amount Paid Out	Cost Effectiveness
ISR	217.5	138.1	355.6	$9,646,815	$27,128/ton
VERA	1,052.9	82.4	1,135.3	$9,962,665	$8,775/ton
Total	**1,270.4**	**220.5**	**1,490.9**	**$19,609,480**	**$13,153/ton**

ISR and VERA Off-Site Emission Reductions Achieved - Historic Since 2006

As discussed above, mitigation funds under ISR and VERA are administered through the District's grants and incentive programs to fund clean-air projects in the Valley. The District has built a reputation for excellence in the implementation of these programs, as highlighted in multiple audits by state agencies that commended the District's incentive programs for their efficiency and effectiveness. Since inception of the District's ISR rule and VERA program, the District's programs have achieved the emissions reductions shown in Table 3 below.

Table 3: Off-Site Emission Reductions Achieved Since 2006

Program	NOx (tons)	PM_{10} (tons)	Total (tons)
ISR	5,612	1,652	**7,264**
VERA	10,603	1,027	**11,630**
Total	**16,215**	**2,679**	**18,894**

ISR Program Estimated Emission Reductions - Previous Reporting Period

Estimated emission reductions are a combination of emission reductions to be achieved through implementation of project design elements at full project build out and through funding off-site emission reductions projects through District grants and incentive programs using off-site emission reduction mitigation fees.

For this reporting period, projects assessed under ISR resulted in estimated combined on-site and off-site emission reductions as shown in Table 4 below.

Table 4: Estimated Emission Reductions from Approved ISR Projects During the Previous Reporting Period (July 1, 2022 - June 30, 2023)

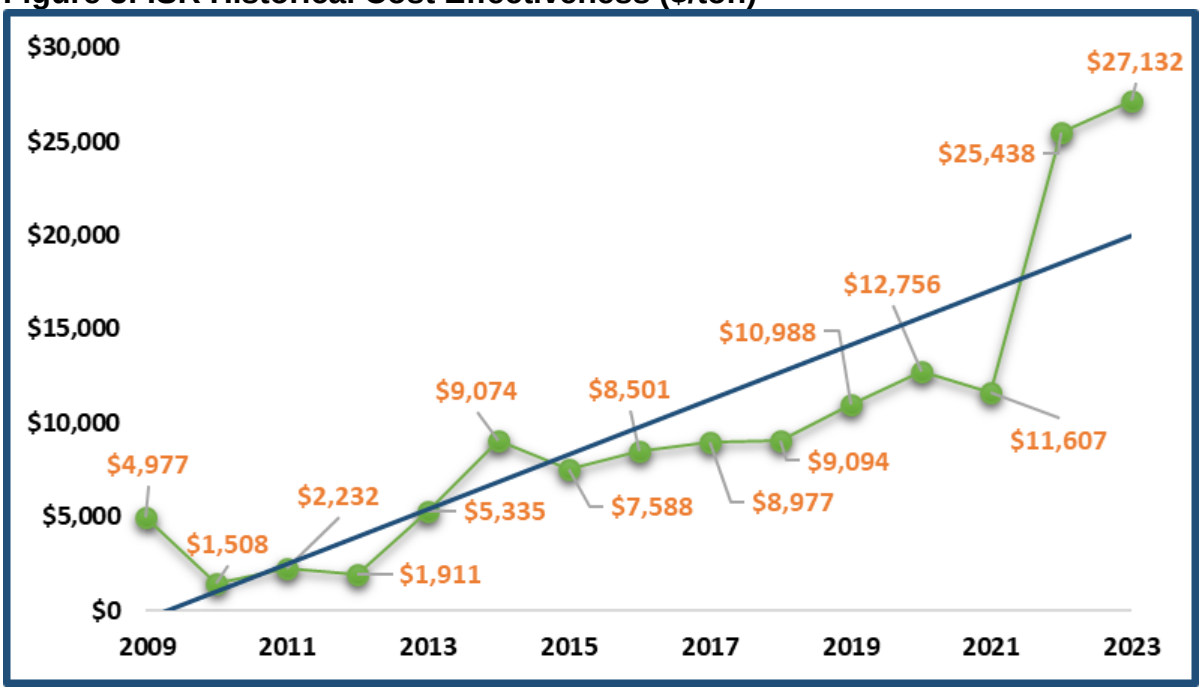
Source	NOx (tons)	PM_{10} (tons)	Total (tons)
On-site Emission Reductions	859	1,846	**2,705**
Off-site Emission Reductions	1,419	1,117	**2,536**
Total	**2,278**	**2,963**	**5,241**

VI. COST EFFECTIVENESS

Over the years, the District has had significant success achieving emission reductions under ISR, including reductions achieved through the aforementioned offsite mitigation fees. Since 2008, the offsite mitigation fees collected under the ISR is $9,350 per ton of NOx and $9,011 per ton of PM10.

Historically, determining cost effectiveness for voluntary incentive grant projects follows the methodology established by the state's perennial Carl Moyer Memorial Air Quality Standards Attainment Program (Carl Moyer Program). Cost effectiveness is defined as a measure of dollars provided to an emission reduction project for each ton of emissions reduced. Statute requires that the California Air Resources Board (CARB) updated the cost effectiveness annually based on changes to the California Consumer Price Index. In addition, SB 513 has required CARB and Air District's to establish new cost effectiveness limits that specifically reflect categories such as school bus replacement projects, as well as advanced zero-emission technology projects. These increased cost effectiveness limits reflect the significantly higher cost of new and emerging zero-emission technology, compared with the more traditional technology. With the promulgation and implementation of several statewide regulations that require a shift to zero-emission technology, the Carl Moyer Program, and other state incentive funding programs focus almost exclusively on funding zero-emission technology. The current program cost effectiveness limits must also take into account regulatory compliance dates that can limit the surplus nature of the emission reductions. These factors and the availability of voluntary incentive projects at any given time that meet these new mandates have led to an increase in the cost effectiveness year over year. The current cost effectiveness for projects funded under the Carl Moyer Program are $34,000/ton of emission reduced (combined NOx, ROG, and PM) for conventional projects and up to $522,000 for advanced, zero-emission projects, such as school buses and heavy-duty trucks. Figure 3 below illustrates the steady increase in the cost effectiveness over the years for achieving emission reductions through District incentive grant programs under ISR.

Figure 3: ISR Historical Cost Effectiveness ($/ton)



Overall as a program the District has successfully mitigated emissions associated with projects and collected mitigation fees; however over the past five years specifically (2019 - 2023), the Rule's current collection rate in $/ton is now below the actual $/ton achieved through the District's Grants and Incentives programs.

To cover the District's cost of administering these funds, the project proponent is required to pay an administrative fee equal to four percent (4%) of the required offsite mitigation fee. This administrative fee has been in place and remained at 4% since the rule's initial adoption in 2005, and is lower than all other grant programs that the District and other air districts administer, as other administrative fees range from 6.25% - 15%.

Therefore, the current mitigation fee schedule and administrative fees will be critical in ensuring the dollars collected by the District in the future are sufficient to achieve and administer the required emission reductions under ISR.

APPENDIX A - EMISSION REDUCTION PROJECTS

List of all emission reduction projects funded by the ISR-VERA Program from July 2022 through June 2023:

Grant Project Number	Program	Component	Option	NOx Reduced (tons/project life)	PM10 Reduced (tons/project life)
G-107675	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-100120	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-103917	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-104040	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-104804	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-104934	Burn Cleaner	Wood Stove Change Out	New Device		0.6926
G-105619	Burn Cleaner	Wood Stove Change Out	New Device		0.3199
G-105962	Burn Cleaner	Wood Stove Change Out	New Device		0.1154
G-106315	Burn Cleaner	Wood Stove Change Out	New Device		0.4618
G-106544	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-106604	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-106890	Burn Cleaner	Wood Stove Change Out	New Device		0.0577
G-107411	Burn Cleaner	Wood Stove Change Out	New Device		0.3182
G-107556	Burn Cleaner	Wood Stove Change Out	New Device		0.1154
G-107704	Burn Cleaner	Wood Stove Change Out	New Device		0.4618
G-107705	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-107823	Burn Cleaner	Wood Stove Change Out	New Device		0.0577
G-107839	Burn Cleaner	Wood Stove Change Out	New Device		0.0577
G-107950	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-108075	Burn Cleaner	Wood Stove Change Out	New Device		0.1154
G-108246	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-108397	Burn Cleaner	Wood Stove Change Out	New Device		0.6926
G-108719	Burn Cleaner	Wood Stove Change Out	New Device		0.08
G-109017	Burn Cleaner	Wood Stove Change Out	New Device		0.0577
G-109023	Burn Cleaner	Wood Stove Change Out	New Device		0.0577
G-109932	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-110787	Burn Cleaner	Wood Stove Change Out	New Device		0.1154
G-111705	Burn Cleaner	Wood Stove Change Out	New Device		0.1154
G-112434	Burn Cleaner	Wood Stove Change Out	New Device		0.0618
G-112948	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-113229	Burn Cleaner	Wood Stove Change Out	New Device		0.4618
G-113387	Burn Cleaner	Wood Stove Change Out	New Device		0.4618
G-114307	Burn Cleaner	Wood Stove Change Out	New Device		0.4618
G-114563	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-114633	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-114862	Burn Cleaner	Wood Stove Change Out	New Device		0.0796

G-114898	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-115675	Burn Cleaner	Wood Stove Change Out	New Device		0.4618
G-115690	Burn Cleaner	Wood Stove Change Out	New Device		0.1154
G-115763	Burn Cleaner	Wood Stove Change Out	New Device		0.6926
G-115879	Burn Cleaner	Wood Stove Change Out	New Device		0.0577
G-116237	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-116631	Burn Cleaner	Wood Stove Change Out	New Device		0.0577
G-116641	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-117215	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-117544	Burn Cleaner	Wood Stove Change Out	New Device		0.4618
G-117560	Burn Cleaner	Wood Stove Change Out	New Device		0.1154
G-117577	Burn Cleaner	Wood Stove Change Out	New Device		0.0177
G-117783	Burn Cleaner	Wood Stove Change Out	New Device		0.4798
G-117921	Burn Cleaner	Wood Stove Change Out	New Device		0.1154
G-118045	Burn Cleaner	Wood Stove Change Out	New Device		0.0577
G-118302	Burn Cleaner	Wood Stove Change Out	New Device		0.1154
G-118621	Burn Cleaner	Wood Stove Change Out	New Device		0.0577
G-118669	Burn Cleaner	Wood Stove Change Out	New Device		0.6926
G-119188	Burn Cleaner	Wood Stove Change Out	New Device		1.1544
G-119284	Burn Cleaner	Wood Stove Change Out	New Device		0.4618
G-119294	Burn Cleaner	Wood Stove Change Out	New Device		0.1154
G-119375	Burn Cleaner	Wood Stove Change Out	New Device		0.9235
G-119598	Burn Cleaner	Wood Stove Change Out	New Device		0.1154
G-119673	Burn Cleaner	Wood Stove Change Out	New Device		0.4946
G-119678	Burn Cleaner	Wood Stove Change Out	New Device		0.1237
G-121158	Burn Cleaner	Wood Stove Change Out	New Device		0.0577
G-121965	Burn Cleaner	Wood Stove Change Out	New Device		0.1197
G-121973	Burn Cleaner	Wood Stove Change Out	New Device		0.0577
G-122783	Burn Cleaner	Wood Stove Change Out	New Device		0.3199
G-123106	Burn Cleaner	Wood Stove Change Out	New Device		0.1154
G-124185	Burn Cleaner	Wood Stove Change Out	New Device		0.0577
G-124508	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-125410	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-126765	Burn Cleaner	Wood Stove Change Out	New Device		0.1419
G-126984	Burn Cleaner	Wood Stove Change Out	New Device		0.0577
G-127445	Burn Cleaner	Wood Stove Change Out	New Device		0.0577
G-127738	Burn Cleaner	Wood Stove Change Out	New Device		0.6926
G-128895	Burn Cleaner	Wood Stove Change Out	New Device		0.0577
G-129431	Burn Cleaner	Wood Stove Change Out	New Device		0.1154
G-130509	Burn Cleaner	Wood Stove Change Out	New Device		0.0577
G-131251	Burn Cleaner	Wood Stove Change Out	New Device		0.1154
G-131876	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-132276	Burn Cleaner	Wood Stove Change Out	New Device		0.0577
G-132885	Burn Cleaner	Wood Stove Change Out	New Device		0.0177

G-132925	Burn Cleaner	Wood Stove Change Out	New Device		0.1154
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G-151759	Burn Cleaner	Wood Stove Change Out	New Device		0.3182
G-151764	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-151783	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-151792	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-151825	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-151833	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-151834	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-151952	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-151958	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-151959	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-151965	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-152042	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-152055	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-152083	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-152085	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-152089	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-152095	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-152167	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-152173	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-152186	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-152192	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-152197	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-152219	Burn Cleaner	Wood Stove Change Out	New Device		0.0709
G-152229	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-152233	Burn Cleaner	Wood Stove Change Out	New Device		0.2309

G-152255	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-152261	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-152268	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-152280	Burn Cleaner	Wood Stove Change Out	New Device		0.1599
G-152315	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-152368	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-152370	Burn Cleaner	Wood Stove Change Out	New Device		0.3182
G-152387	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-152430	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-152448	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-152487	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-152488	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-152489	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-152490	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-152497	Burn Cleaner	Wood Stove Change Out	New Device		0.0709
G-152589	Burn Cleaner	Wood Stove Change Out	New Device		0.3182
G-152598	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-152629	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-152745	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-152748	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-152791	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-152796	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-152802	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-152830	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-153078	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-153091	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-153095	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-153245	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-153251	Burn Cleaner	Wood Stove Change Out	New Device		0.2473
G-153282	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-153455	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-153458	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-153571	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-153579	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-153611	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-153630	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-153670	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-153671	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-153677	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-153754	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-153767	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-153786	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-153833	Burn Cleaner	Wood Stove Change Out	New Device		0.0709
G-153837	Burn Cleaner	Wood Stove Change Out	New Device		0.3182

G-153914	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-154027	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-154097	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-154114	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-154132	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-154324	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-155428	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-86836	Burn Cleaner	Wood Stove Change Out	New Device		0.1596
G-89710	Burn Cleaner	Wood Stove Change Out	New Device		0.23088
G-90802	Burn Cleaner	Wood Stove Change Out	New Device		0.23088
G-91215	Burn Cleaner	Wood Stove Change Out	New Device		0.23088
G-83839	Heavy-Duty	Off-Road	Ag Tractor Replacement	9.9	0.49
C-46128-1	Heavy-Duty	Off-Road	Ag Tractor Replacement	7.99	0.6
C-57171-1	Heavy-Duty	Off-Road	Ag Tractor Replacement	1.04	0.11
C-59505-1	Heavy-Duty	Off-Road	Ag Tractor Replacement	6.7	0.46
C-59507-1	Heavy-Duty	Off-Road	Ag Tractor Replacement	3.99	0.26
C-62529-1	Heavy-Duty	Dairy Feed Mixer	Electrification	59.63	4.63
G-101534	Heavy-Duty	Off-Road	Ag Tractor Replacement	0.09	0.02
G-103338	Heavy-Duty	Off-Road	Ag Tractor Replacement	38.09	1.99
G-103392	Heavy-Duty	Off-Road	Ag Tractor Replacement	0.74	0.15
G-103397	Heavy-Duty	Off-Road	Ag Tractor Replacement	9.35	0.79
G-107026	Heavy-Duty	Off-Road	Ag Tractor Replacement	4.5	0.41
G-107105	Heavy-Duty	Off-Road	Ag Tractor Replacement	2.89	0.19
G-107121	Heavy-Duty	Off-Road	Ag Tractor Replacement	7.49	0.68
G-107141	Heavy-Duty	Off-Road	Ag Tractor Replacement	12.75	0.94
G-107431	Heavy-Duty	Off-Road	Ag Tractor Replacement	6.8	0.62
G-107830	Heavy-Duty	Off-Road	Ag Tractor Replacement	5.5	0.47
G-107832	Heavy-Duty	Off-Road	Ag Tractor Replacement	3.25	0.21
G-107838	Heavy-Duty	Off-Road	Ag Tractor Replacement	0.44	0.36
G-108011	Heavy-Duty	Off-Road	Ag Tractor Replacement	8.94	0.62
G-108013	Heavy-Duty	Off-Road	Ag Tractor Replacement	12.95	0.69
G-108706	Heavy-Duty	Off-Road	Ag Tractor Replacement	7.28	0.93
G-108943	Heavy-Duty	Off-Road	Ag Tractor Replacement	2.57	0.23
G-109115	Heavy-Duty	Off-Road	Ag Tractor Replacement	1.67	0.2
G-109128	Heavy-Duty	Off-Road	Ag Tractor Replacement	6.45	0.59
G-109418	Heavy-Duty	Off-Road	Ag Tractor Replacement	15.47	0.39
G-110225	Heavy-Duty	Off-Road	Ag Tractor Replacement	13.17	0.7
G-110530	Heavy-Duty	Off-Road	Ag Tractor Replacement	21.08	0.6
G-110587	Heavy-Duty	Off-Road	Ag Tractor Replacement	20.67	1.1
G-110695	Heavy-Duty	Off-Road	Ag Tractor Replacement	7.49	0.75
G-110713	Heavy-Duty	Off-Road	Ag Tractor Replacement	22.55	1.67
G-110715	Heavy-Duty	Off-Road	Ag Tractor Replacement	0.91	0.29
G-110716	Heavy-Duty	Off-Road	Ag Tractor Replacement	0.91	0.29
G-110717	Heavy-Duty	Off-Road	Ag Tractor Replacement	0.91	0.29

G-110718	Heavy-Duty	Off-Road	Ag Tractor Replacement	0.91	0.29
G-110719	Heavy-Duty	Off-Road	Ag Tractor Replacement	0.91	0.29
G-110721	Heavy-Duty	Off-Road	Ag Tractor Replacement	0.91	0.29
G-110864	Heavy-Duty	Off-Road	Ag Tractor Replacement	4.29	0.41
G-110910	Heavy-Duty	Off-Road	Ag Tractor Replacement	2.08	0.27
G-110959	Heavy-Duty	Off-Road	Ag Tractor Replacement	7.37	0.51
G-111049	Heavy-Duty	Off-Road	Ag Tractor Replacement	23.31	1.34
G-111249	Heavy-Duty	Off-Road	Ag Tractor Replacement	0.73	0.23
G-111288	Heavy-Duty	Off-Road	Ag Tractor Replacement	5.72	0.42
G-111289	Heavy-Duty	Off-Road	Ag Tractor Replacement	5.72	0.42
G-111449	Heavy-Duty	Off-Road	Ag Tractor Replacement	4.17	0.35
G-111623	Heavy-Duty	Off-Road	Ag Tractor Replacement	4.71	0.35
G-111722	Heavy-Duty	Off-Road	Ag Tractor Replacement	7.08	0.65
G-112038	Heavy-Duty	Off-Road	Ag Tractor Replacement	6.68	0.5
G-112039	Heavy-Duty	Off-Road	Ag Tractor Replacement	6.68	0.5
G-113687	Heavy-Duty	Off-Road	Ag Tractor Replacement	4	0.2
G-113692	Heavy-Duty	Off-Road	Ag Tractor Replacement	19.17	1.09
G-113696	Heavy-Duty	Off-Road	Ag Tractor Replacement	5.46	0.7
G-113698	Heavy-Duty	Off-Road	Ag Tractor Replacement	9.73	0.72
G-115004	Heavy-Duty	Off-Road	Ag Tractor Replacement	0.98	0.35
G-116114	Heavy-Duty	Off-Road	Ag Tractor Replacement	3.84	0.36
G-116974	Heavy-Duty	Off-Road	Ag Tractor Replacement	8.07	0.6
G-117435	Heavy-Duty	Off-Road	Ag Tractor Replacement	16.48	0.47
G-119291	Heavy-Duty	Off-Road	Ag Tractor Replacement	9.31	0.61
G-124495	Heavy-Duty	Off-Road	Ag Tractor Replacement	16.79	0.48
G-124546	Heavy-Duty	Off-Road	Ag Tractor Replacement	12.27	0.65
G-125113	Heavy-Duty	Off-Road	Ag Tractor Replacement	28.24	1.96
G-125670	Heavy-Duty	Off-Road	Ag Tractor Replacement	4.12	0.37
G-126551	Heavy-Duty	Off-Road	Ag Tractor Replacement	8.32	0.62
G-140677	Heavy-Duty	Ag Engine	Diesel to Diesel	2.86	0.16
G-66106	Heavy-Duty	Off-Road	Ag Tractor Replacement	14.31	0.76
G-66108	Heavy-Duty	Off-Road	Ag Tractor Replacement	17.27	1.19
G-66109	Heavy-Duty	Off-Road	Ag Tractor Replacement	13.83	1.26
G-66110	Heavy-Duty	Off-Road	Ag Tractor Replacement	25.6	0.8
G-66560	Heavy-Duty	Off-Road	Ag Tractor Replacement	9.67	0.88
G-66565	Heavy-Duty	Off-Road	Ag Tractor Replacement	10.16	0.92
G-66568	Heavy-Duty	Off-Road	Ag Tractor Replacement	9.67	0.88
G-66946	Heavy-Duty	Off-Road	Ag Tractor Replacement	14.67	0.78
G-69348	Heavy-Duty	Off-Road	Ag Tractor Replacement	1.03	0.11
G-69618	Heavy-Duty	Off-Road	Ag Tractor Replacement	8.58	0.49
G-73414	Heavy-Duty	Locomotive	Replacement	64.69	1.5
G-73416	Heavy-Duty	Locomotive	Replacement	64.69	1.5
G-75359	Heavy-Duty	Off-Road	Ag Tractor Replacement	3.97	0.36
G-76150	Heavy-Duty	Off-Road	Ag Tractor Replacement	6.3	0.57

G-76304	Heavy-Duty	Off-Road	Ag Tractor Replacement	4.39	0.33
G-78575	Heavy-Duty	Off-Road	Ag Tractor Replacement	27.13	0.69
G-80530	Heavy-Duty	Ag Engine	Alt Fuel to Electric	4.23	0.1
G-80920	Heavy-Duty	Off-Road	Ag Tractor Replacement	3.64	0.24
G-80971	Heavy-Duty	Off-Road	Ag Tractor Replacement	1.01	0.08
G-81259	Heavy-Duty	Off-Road	Ag Tractor Replacement	11.98	0.63
G-81732	Heavy-Duty	Off-Road	Ag Tractor Replacement	39.25	2.08
G-81861	Heavy-Duty	Off-Road	Ag Tractor Replacement	9.39	0.49
G-89922	Heavy-Duty	Off-Road	Ag Tractor Replacement	13.11	0.7
G-89925	Heavy-Duty	Off-Road	Ag Tractor Replacement	2.27	0.16
G-92722	Heavy-Duty	Off-Road	Ag Tractor Replacement	5.72	0.42
G-92840	Heavy-Duty	Off-Road	Ag Tractor Replacement	14.91	0.85
G-92845	Heavy-Duty	Off-Road	Ag Tractor Replacement	0.16	0.04
G-92846	Heavy-Duty	Off-Road	Ag Tractor Replacement	0.16	0.04
G-92854	Heavy-Duty	Off-Road	Ag Tractor Replacement	0.16	0.04
G-92856	Heavy-Duty	Off-Road	Ag Tractor Replacement	0.34	0.1
G-93091	Heavy-Duty	Off-Road	Ag Tractor Replacement	2.18	0.14
G-94125	Heavy-Duty	Off-Road	Ag Tractor Replacement	25.32	1.34
G-94432	Heavy-Duty	Off-Road	Ag Tractor Replacement	8.15	0.41
G-95177	Heavy-Duty	Off-Road	Ag Tractor Replacement	23.6	1.25
G-95421	Heavy-Duty	Off-Road	Ag Tractor Replacement	2.67	0.26
G-95474	Heavy-Duty	Off-Road	Ag Tractor Replacement	6.29	0.47
G-95716	Heavy-Duty	Off-Road	Ag Tractor Replacement	0.88	0.1
G-95717	Heavy-Duty	Off-Road	Ag Tractor Replacement	1.49	0.18
G-95719	Heavy-Duty	Off-Road	Ag Tractor Replacement	1.89	0.23
G-95721	Heavy-Duty	Off-Road	Ag Tractor Replacement	1.88	0.23
G-95738	Heavy-Duty	Off-Road	Ag Tractor Replacement	1.77	0.22
G-95744	Heavy-Duty	Off-Road	Ag Tractor Replacement	1.34	0.16
G-95745	Heavy-Duty	Off-Road	Ag Tractor Replacement	1.37	0.17
G-95746	Heavy-Duty	Off-Road	Ag Tractor Replacement	1.48	0.18
G-95747	Heavy-Duty	Off-Road	Ag Tractor Replacement	1.36	0.16
G-95748	Heavy-Duty	Off-Road	Ag Tractor Replacement	1.01	0.12
G-96110	Heavy-Duty	Off-Road	Ag Tractor Replacement	1.51	0.18
G-96111	Heavy-Duty	Off-Road	Ag Tractor Replacement	1.51	0.18
G-96112	Heavy-Duty	Off-Road	Ag Tractor Replacement	1.42	0.17
G-96113	Heavy-Duty	Off-Road	Ag Tractor Replacement	1.51	0.18
G-96114	Heavy-Duty	Off-Road	Ag Tractor Replacement	1.47	0.18
G-97962	Heavy-Duty	Off-Road	Ag Tractor Replacement	7.56	0.56
G-98464	Heavy-Duty	Ag Engine	Alt Fuel to Electric	1.19	0.14
G-99415	Heavy-Duty	Off-Road	Ag Tractor Replacement	4.66	0.13
G-88837	Heavy-Duty	Off-Road	Ag Tractor Replacement	35.43	1.87
C-63331-1	Heavy-Duty	Off-Road	Ag Tractor Replacement	30.11	1.72
G-107900	Heavy-Duty	Off-Road	Ag Tractor Replacement	20.54	1.17
G-115048	Heavy-Duty	Off-Road	Ag Tractor Replacement	16.2	2.11

C-54743-1	Heavy-Duty	Off-Road	Ag Tractor Replacement	14.33	0.39
G-141940	Heavy-Duty	Off-Road	Ag Tractor Replacement	11.48	1.05
G-135044	Heavy-Duty	Off-Road	Ag Tractor Replacement	12.11	0.38
G-114796	Heavy-Duty	Off-Road	Ag Tractor Replacement	11.37	0.65
G-112907	Heavy-Duty	Off-Road	Ag Tractor Replacement	11.34	0.57
C-53942-1	Heavy-Duty	Off-Road	Ag Tractor Replacement	11.24	0.56
G-113329	Heavy-Duty	Off-Road	Ag Tractor Replacement	11.36	0.33
C-51760-1	Heavy-Duty	Off-Road	Ag Tractor Replacement	10.03	1.29
G-133703	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0001	0.0001
G-116489	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-125668	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0094	0.0016
G-130761	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-131764	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-132155	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0132	0.0022
G-132170	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0106	0.0018
G-132878	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-132884	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-132979	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0132	0.0022
G-133159	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0095	0.0016
G-133189	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0099	0.0017
G-133341	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-133384	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-133542	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0099	0.0017
G-133551	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-133627	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-133634	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0083	0.0014
G-133635	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0132	0.0022
G-133638	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0106	0.0018
G-133642	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-133733	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-133740	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-133834	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-133835	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0132	0.0022
G-133873	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-133879	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0086	0.0014
G-133903	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0086	0.0014
G-133906	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0099	0.0017
G-133913	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-133919	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-133929	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-133982	Light-Duty	Drive Clean	EV Vehicle Rebate	0.033	0.0055
G-133986	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0099	0.0017
G-133993	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-134003	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.001

G-134014	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-134020	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-134028	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0099	0.0017
G-134056	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-134057	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-134059	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0123	0.002
G-134229	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-134232	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-134236	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-134254	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0067	0.0011
G-134257	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0089	0.0015
G-134258	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0057	0.0009
G-134290	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0099	0.0017
G-134327	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-134341	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-134359	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-134361	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.0011
G-134367	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-134387	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0094	0.0016
G-134389	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0048	0.0008
G-134390	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0081	0.0013
G-134392	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0075	0.0013
G-134396	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.0011
G-134397	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0099	0.0017
G-134401	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-134402	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0148	0.0025
G-134403	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0165	0.0028
G-134413	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-134414	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-134417	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-134425	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0069	0.0011
G-134426	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0139	0.0023
G-134428	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-134430	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0186	0.0031
G-134432	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0106	0.0018
G-134434	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-134437	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0048	0.0008
G-134439	Light-Duty	Drive Clean	EV Vehicle Rebate	0.005	0.0008
G-134440	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0072	0.0012
G-134442	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-134447	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0099	0.0017
G-134452	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0264	0.0044
G-134458	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0198	0.0033
G-134474	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0106	0.0018

G-134478	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-134518	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.001
G-134525	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-134526	Light-Duty	Drive Clean	EV Vehicle Rebate	0.005	0.0008
G-134529	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.001
G-134530	Light-Duty	Drive Clean	EV Vehicle Rebate	0.063	0.0105
G-134531	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0099	0.0017
G-134541	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-134556	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-134567	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0064	0.0011
G-134573	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-134574	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0099	0.0017
G-134580	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0185	0.0031
G-134586	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-134587	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-134589	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0099	0.0017
G-134606	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-134607	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-134610	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0089	0.0015
G-134671	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-134682	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0159	0.0026
G-134683	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-134688	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.001
G-134702	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-134705	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-134719	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-134720	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0048	0.0008
G-134724	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0132	0.0022
G-134725	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0081	0.0013
G-134726	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-134732	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-134737	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0099	0.0017
G-134746	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-134747	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-134748	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0132	0.0022
G-134757	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0094	0.0016
G-134764	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-134766	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-134769	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0056	0.0009
G-134775	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-134777	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-134778	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0091	0.0015
G-134779	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0075	0.0013
G-134780	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012

G-134781	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-134783	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0119	0.002
G-134799	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-134802	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0099	0.0017
G-134812	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-134815	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-134816	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0099	0.0017
G-134817	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-134819	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0099	0.0017
G-134821	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0132	0.0022
G-134822	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-134826	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-134827	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-134841	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0099	0.0017
G-134846	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-134853	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0106	0.0018
G-134855	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-134876	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-134880	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0106	0.0018
G-134885	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-134890	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0089	0.0015
G-134892	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0112	0.0019
G-134893	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0099	0.0017
G-134894	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0058	0.001
G-134896	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0099	0.0016
G-134927	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0132	0.0022
G-134928	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0094	0.0016
G-134932	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-134975	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.0011
G-134977	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0106	0.0018
G-134979	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-134991	Light-Duty	Drive Clean	EV Vehicle Rebate	0.006	0.001
G-134993	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0093	0.0015
G-135000	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-135003	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-135018	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0099	0.0017
G-135027	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0139	0.0023
G-135029	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-135035	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-135041	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0124	0.0021
G-135053	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-135059	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0075	0.0013
G-135070	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0089	0.0015
G-135093	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013

G-135103	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.0011
G-135108	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0159	0.0026
G-135111	Light-Duty	Drive Clean	EV Vehicle Rebate	0.005	0.0008
G-135112	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-135114	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-135123	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0165	0.0028
G-135130	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0099	0.0017
G-135131	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-135132	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-135140	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0198	0.0033
G-135143	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-135144	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-135150	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0099	0.0017
G-135151	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0132	0.0022
G-135152	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-135163	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-135168	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0067	0.0011
G-135188	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0132	0.0022
G-135190	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-135210	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-135211	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-135217	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0094	0.0016
G-135239	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-135241	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0099	0.0017
G-135246	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0099	0.0017
G-135253	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0064	0.0011
G-135276	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0099	0.0017
G-135284	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0132	0.0022
G-135285	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0099	0.0017
G-135288	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0198	0.0033
G-135291	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-135303	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0099	0.0017
G-135304	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0119	0.002
G-135306	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0198	0.0033
G-135369	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-135384	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-135388	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-135456	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-135476	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-135480	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0057	0.0009
G-135490	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-135528	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0049	0.0008
G-135529	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-135541	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013

G-135575	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0082	0.0014
G-135675	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0112	0.0019
G-135681	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0099	0.0017
G-135682	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-135697	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0198	0.0033
G-135709	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0238	0.004
G-135809	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-135822	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0165	0.0028
G-135824	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-135827	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0185	0.0031
G-135836	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-135837	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0089	0.0015
G-135844	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-135876	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0089	0.0015
G-135882	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0089	0.0015
G-135884	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-135885	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.0011
G-135935	Light-Duty	Drive Clean	EV Vehicle Rebate	0.005	0.0008
G-135945	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0162	0.0027
G-135947	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-135967	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-135971	Light-Duty	Drive Clean	EV Vehicle Rebate	0.005	0.0008
G-135972	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-135973	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0106	0.0018
G-135974	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.0011
G-135979	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-136056	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-136058	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0069	0.0012
G-136059	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0198	0.0033
G-136071	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.0011
G-136095	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-136131	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0231	0.0039
G-136133	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-136142	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-136146	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-136152	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0178	0.003
G-136186	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0069	0.0012
G-136193	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-136195	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0264	0.0044
G-136199	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-136204	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0089	0.0015
G-136213	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0094	0.0016
G-136217	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-136224	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0107	0.0018

G-136233	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-136248	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0139	0.0023
G-136256	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-136259	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0119	0.002
G-136286	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0052	0.0009
G-136288	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-136346	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-136370	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0258	0.0043
G-136384	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-136433	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-136439	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-136447	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0132	0.0022
G-136469	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-136473	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-136478	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0073	0.0012
G-136510	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0075	0.0013
G-136556	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-136575	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0056	0.0009
G-136614	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0089	0.0015
G-136615	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.0011
G-136637	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0047	0.0008
G-136652	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-136662	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0099	0.0017
G-136947	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-136992	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-137066	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0056	0.0009
G-137069	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-137265	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0198	0.0033
G-137267	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0162	0.0027
G-137460	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0082	0.0014
G-137495	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-137513	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-137519	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-137529	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0132	0.0022
G-137535	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0094	0.0016
G-137538	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0145	0.0024
G-137565	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0165	0.0028
G-137588	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0099	0.0017
G-137602	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-137608	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-137613	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0106	0.0018
G-137614	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-137678	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0132	0.0022
G-137704	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0126	0.0021

G-137723	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0089	0.0015
G-137831	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-137834	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-137844	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0132	0.0022
G-137914	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-137974	Light-Duty	Drive Clean	EV Vehicle Rebate	0.005	0.0008
G-138072	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0052	0.0009
G-138083	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-138092	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0073	0.0012
G-138124	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-138127	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-138137	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-138140	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-138200	Light-Duty	Drive Clean	EV Vehicle Rebate	0.005	0.0008
G-138227	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-138233	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-138254	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-138256	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-138286	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-138299	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-138324	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0111	0.0019
G-138328	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0116	0.0019
G-138331	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-138336	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-138337	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-138387	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0056	0.0009
G-138396	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-138408	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-138425	Light-Duty	Drive Clean	EV Vehicle Rebate	0.005	0.0008
G-138449	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0119	0.002
G-138452	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-138494	Light-Duty	Drive Clean	EV Vehicle Rebate	0.005	0.0008
G-138495	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-138496	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-138567	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0099	0.0017
G-138568	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-138626	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0198	0.0033
G-138640	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-138646	Light-Duty	Drive Clean	EV Vehicle Rebate	0.005	0.0008
G-138695	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-138696	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-138770	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0052	0.0009
G-138773	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-138786	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.001

G-138794	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-138822	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-138823	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0047	0.0008
G-138841	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-138842	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0069	0.0012
G-138844	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0143	0.0024
G-138852	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-138853	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-138897	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-138905	Light-Duty	Drive Clean	EV Vehicle Rebate	0.005	0.0008
G-138950	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-138959	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-138968	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0185	0.0031
G-138978	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-139144	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-139150	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-139191	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-139201	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-139210	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0056	0.0009
G-139213	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0056	0.0009
G-139217	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-139302	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-139309	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-139314	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.0011
G-139317	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-139333	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0119	0.002
G-139379	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-139432	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0083	0.0014
G-139436	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-139461	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-139469	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0048	0.0008
G-139470	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0089	0.0015
G-139471	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-139472	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0089	0.0015
G-139474	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0095	0.0016
G-139476	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0159	0.0026
G-139483	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0065	0.0011
G-139494	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-139506	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0083	0.0014
G-139529	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0099	0.0017
G-139547	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0145	0.0024
G-139551	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-139567	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0099	0.0017
G-139600	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0077	0.0013

G-139613	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-139643	Light-Duty	Drive Clean	EV Vehicle Rebate	0.005	0.0008
G-139665	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-139678	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0089	0.0015
G-139679	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-139697	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-139700	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-139722	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0094	0.0016
G-139726	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0119	0.002
G-139783	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-139797	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0065	0.0011
G-139805	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-139869	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-139890	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0056	0.0009
G-139899	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0065	0.0011
G-139924	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0099	0.0017
G-139928	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0099	0.0017
G-139937	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-139940	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-139953	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-139965	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0065	0.0011
G-139970	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.001
G-139977	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0089	0.0015
G-139979	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0099	0.0017
G-139981	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-139993	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0093	0.0015
G-140024	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-140025	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-140026	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-140029	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-140031	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-140042	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0058	0.001
G-140053	Light-Duty	Drive Clean	EV Vehicle Rebate	0.005	0.0008
G-140063	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0073	0.0012
G-140069	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-140141	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0099	0.0017
G-140142	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0069	0.0012
G-140152	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0141	0.0024
G-140167	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-140245	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0251	0.0042
G-140246	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0048	0.0008
G-140253	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0048	0.0008
G-140267	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0064	0.0011
G-140270	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001

G-140273	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-140288	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.001
G-140292	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0145	0.0024
G-140294	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0159	0.0026
G-140295	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-140296	Light-Duty	Drive Clean	EV Vehicle Rebate	0.013	0.0022
G-140305	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0075	0.0013
G-140327	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-140375	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0074	0.0012
G-140388	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0132	0.0022
G-140393	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-140395	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-140397	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-140409	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-140411	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-140412	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-140413	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-140415	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-140427	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-140478	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-140481	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-140483	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0099	0.0017
G-140527	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0157	0.0026
G-140577	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-140589	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-140641	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0132	0.0022
G-140672	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-140690	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-140691	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.0011
G-140692	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0058	0.001
G-140694	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0075	0.0013
G-140696	Light-Duty	Drive Clean	EV Vehicle Rebate	0.005	0.0008
G-140731	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-140749	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.0011
G-140768	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-140773	Light-Duty	Drive Clean	EV Vehicle Rebate	0.005	0.0008
G-140774	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0132	0.0022
G-140789	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0149	0.0025
G-140818	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-140826	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-140828	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0132	0.0022
G-140838	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-140844	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-140855	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0132	0.0022

G-140868	Light-Duty	Drive Clean	EV Vehicle Rebate	0.005	0.0008
G-140882	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-140921	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0125	0.0021
G-140927	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0164	0.0027
G-140951	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-140967	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.001
G-140977	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-140983	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0065	0.0011
G-141040	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0116	0.0019
G-141077	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0083	0.0014
G-141084	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0065	0.0011
G-141088	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-141095	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-141101	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-141118	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0094	0.0016
G-141119	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0069	0.0011
G-141120	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0082	0.0014
G-141126	Light-Duty	Drive Clean	EV Vehicle Rebate	0.005	0.0008
G-141133	Light-Duty	Drive Clean	EV Vehicle Rebate	0.005	0.0008
G-141140	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0054	0.0009
G-141147	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-141162	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0198	0.0033
G-141171	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-141175	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0075	0.0013
G-141182	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-141193	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-141207	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0089	0.0015
G-141208	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-141209	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-141252	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-141299	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0099	0.0017
G-141313	Light-Duty	Drive Clean	EV Vehicle Rebate	0.005	0.0008
G-141318	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0094	0.0016
G-141378	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-141430	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-141451	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0075	0.0013
G-141505	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-141522	Light-Duty	Drive Clean	EV Vehicle Rebate	0.005	0.0008
G-141584	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.0011
G-141596	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0054	0.0009
G-141605	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-141611	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0238	0.004
G-141616	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0084	0.0014
G-141622	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0075	0.0013

G-141633	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-141644	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-141645	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0075	0.0013
G-141646	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0112	0.0019
G-141648	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0048	0.0008
G-141652	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0065	0.0011
G-141665	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0198	0.0033
G-141681	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-141685	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0065	0.0011
G-141694	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0078	0.0013
G-141708	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0048	0.0008
G-141729	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-141732	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-141763	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-141764	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-141840	Light-Duty	Drive Clean	EV Vehicle Rebate	0.005	0.0008
G-141853	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0113	0.0019
G-141877	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0051	0.0008
G-141878	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-141902	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.001
G-141933	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0089	0.0015
G-141936	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.0011
G-141937	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.0011
G-141960	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.0011
G-141966	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-141967	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-141968	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0099	0.0017
G-141983	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-141993	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0106	0.0018
G-142000	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-142004	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0089	0.0015
G-142012	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-142016	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0185	0.0031
G-142020	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0054	0.0009
G-142063	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-142115	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-142117	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.0011
G-142127	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0119	0.002
G-142157	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0094	0.0016
G-142253	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0159	0.0026
G-142259	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-142265	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.001
G-142268	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.001
G-142291	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011

G-142292	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-142294	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0089	0.0015
G-142302	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-142333	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-142338	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-142347	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-142350	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0048	0.0008
G-142365	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0057	0.0009
G-142368	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-142375	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-142389	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-142396	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-142398	Light-Duty	Drive Clean	EV Vehicle Rebate	0.005	0.0008
G-142403	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0048	0.0008
G-142404	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-142410	Light-Duty	Drive Clean	EV Vehicle Rebate	0.005	0.0008
G-142430	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-142466	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0096	0.0016
G-142467	Light-Duty	Drive Clean	EV Vehicle Rebate	0.005	0.0008
G-142470	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0089	0.0015
G-142488	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0086	0.0014
G-142494	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-142496	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0067	0.0011
G-142497	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0074	0.0012
G-142504	Light-Duty	Drive Clean	EV Vehicle Rebate	0.005	0.0008
G-142505	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-142513	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0119	0.002
G-142517	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-142547	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0099	0.0017
G-142554	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-142560	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-142572	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.0011
G-142621	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0057	0.0009
G-142628	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0188	0.0031
G-142633	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-142649	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-142650	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-142651	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-142653	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-142671	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0098	0.0016
G-142677	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0231	0.0039
G-142679	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-142698	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0056	0.0009
G-142699	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0119	0.002

G-142701	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0075	0.0013
G-142702	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-142710	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0056	0.0009
G-142721	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-142722	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-142731	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.0011
G-142741	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0101	0.0017
G-142746	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-142759	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0099	0.0017
G-142767	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-142770	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0051	0.0008
G-142775	Light-Duty	Drive Clean	EV Vehicle Rebate	0.005	0.0008
G-142777	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-142782	Light-Duty	Drive Clean	EV Vehicle Rebate	0.005	0.0008
G-142826	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0089	0.0015
G-142838	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.0011
G-142872	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0048	0.0008
G-142923	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0075	0.0013
G-142927	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-142963	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0109	0.0018
G-143036	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-143049	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-143072	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-143076	Light-Duty	Drive Clean	EV Vehicle Rebate	0.005	0.0008
G-143078	Light-Duty	Drive Clean	EV Vehicle Rebate	0.005	0.0008
G-143112	Light-Duty	Drive Clean	EV Vehicle Rebate	0.005	0.0008
G-143225	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-143265	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-143266	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-143269	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0099	0.0017
G-143274	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-143290	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0056	0.0009
G-143294	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.0011
G-143298	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0083	0.0014
G-143317	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0048	0.0008
G-143318	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-143320	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0099	0.0017
G-143339	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0083	0.0014
G-143340	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-143371	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0089	0.0015
G-143376	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-143377	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-143381	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-143383	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009

G-143385	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0113	0.0019
G-143386	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-143396	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0106	0.0018
G-143399	Light-Duty	Drive Clean	EV Vehicle Rebate	0.014	0.0023
G-143410	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0073	0.0012
G-143411	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-143414	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0048	0.0008
G-143426	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0077	0.0013
G-143453	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0089	0.0015
G-143463	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-143734	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0297	0.005
G-143853	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0178	0.003
G-143861	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0094	0.0016
G-143899	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-143946	Light-Duty	Drive Clean	EV Vehicle Rebate	0.005	0.0008
G-143975	Light-Duty	Drive Clean	EV Vehicle Rebate	0.005	0.0008
G-143976	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0211	0.0035
G-143991	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-143992	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-144097	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0095	0.0016
G-144103	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.001
G-144104	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-144117	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-144126	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-144136	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-144173	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-144198	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-144212	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-144243	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-144244	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-144245	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-144246	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0075	0.0013
G-144253	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0086	0.0014
G-144262	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-144272	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-144275	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-144277	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0129	0.0021
G-144286	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0054	0.0009
G-144291	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-144323	Light-Duty	Drive Clean	EV Vehicle Rebate	0.005	0.0008
G-144325	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0157	0.0026
G-144326	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-144373	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0065	0.0011
G-144428	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013

G-144457	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.001
G-144476	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-144491	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-144512	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0089	0.0015
G-144519	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0093	0.0015
G-144571	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0126	0.0021
G-144574	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0077	0.0013
G-144583	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0231	0.0039
G-144615	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-144625	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0089	0.0015
G-144653	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0089	0.0015
G-144670	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0099	0.0017
G-144688	Light-Duty	Drive Clean	EV Vehicle Rebate	0.013	0.0022
G-144691	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0099	0.0017
G-144707	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-144713	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0106	0.0018
G-144738	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-144746	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0057	0.0009
G-144749	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-144753	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-144755	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-144758	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-144764	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0051	0.0008
G-144783	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0065	0.0011
G-144847	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0075	0.0013
G-144882	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-144883	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0089	0.0015
G-144884	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-144906	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0085	0.0014
G-144907	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0065	0.0011
G-144937	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0074	0.0012
G-144938	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-144988	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-145045	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.001
G-145054	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-145068	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0048	0.0008
G-145087	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-145091	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.0011
G-145113	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-145117	Light-Duty	Drive Clean	EV Vehicle Rebate	0.005	0.0008
G-145140	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0116	0.0019
G-145161	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-145164	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-145165	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012

G-145166	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-145167	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-145171	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-145175	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0159	0.0026
G-145180	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0054	0.0009
G-145194	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0132	0.0022
G-145206	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0048	0.0008
G-145218	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0067	0.0011
G-145220	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0143	0.0024
G-145224	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0099	0.0017
G-145233	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-145237	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-145293	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-145295	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0099	0.0017
G-145338	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0056	0.0009
G-145340	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-145342	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-145365	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0056	0.0009
G-145393	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-145395	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.0011
G-145405	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0065	0.0011
G-145412	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0094	0.0016
G-145481	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-145515	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-145524	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0093	0.0015
G-145525	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.0011
G-145531	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0056	0.0009
G-145532	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-145533	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-145534	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-145539	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0075	0.0013
G-145545	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-145546	Light-Duty	Drive Clean	EV Vehicle Rebate	0.014	0.0023
G-145549	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.001
G-145551	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-145572	Light-Duty	Drive Clean	EV Vehicle Rebate	0.005	0.0008
G-145574	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0077	0.0013
G-145580	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0069	0.0012
G-145583	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-145584	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0058	0.001
G-145585	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0069	0.0012
G-145586	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0129	0.0021
G-145587	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0075	0.0013
G-145588	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012

G-145590	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-145591	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-145593	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-145594	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-145596	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.001
G-145598	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0099	0.0017
G-145599	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0129	0.0021
G-145607	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0069	0.0012
G-145614	Light-Duty	Drive Clean	EV Vehicle Rebate	0.005	0.0008
G-145640	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0067	0.0011
G-145675	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0095	0.0016
G-145678	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-145682	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0089	0.0015
G-145719	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0126	0.0021
G-145724	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.0011
G-145726	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-145731	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-145746	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-145747	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0075	0.0013
G-145765	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0065	0.0011
G-145776	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0094	0.0016
G-145783	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0083	0.0014
G-145784	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-145793	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-145794	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-145845	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-145846	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0165	0.0028
G-145864	Light-Duty	Drive Clean	EV Vehicle Rebate	0.005	0.0008
G-145906	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.001
G-145927	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-145951	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-145955	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0188	0.0031
G-145975	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.0011
G-145976	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0109	0.0018
G-145983	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0089	0.0015
G-145984	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0065	0.0011
G-145991	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0099	0.0017
G-146015	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-146016	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0064	0.0011
G-146025	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-146029	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-146034	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-146038	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0094	0.0016
G-146044	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0056	0.0009

G-146062	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-146081	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-146097	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0075	0.0013
G-146133	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.001
G-146141	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-146146	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0075	0.0013
G-146149	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-146159	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0083	0.0014
G-146160	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-146229	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0188	0.0031
G-146239	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-146242	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0162	0.0027
G-146245	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0248	0.0041
G-146281	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0198	0.0033
G-146298	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0048	0.0008
G-146318	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-146328	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-146344	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-146346	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0099	0.0017
G-146373	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-146376	Light-Duty	Drive Clean	EV Vehicle Rebate	0.006	0.001
G-146378	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0134	0.0022
G-146385	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0106	0.0018
G-146405	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-146406	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0099	0.0017
G-146408	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-146426	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0068	0.0011
G-146436	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0093	0.0015
G-146440	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0056	0.0009
G-146443	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-146453	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-146456	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-146465	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-146468	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.0011
G-146469	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-146475	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0069	0.0012
G-146481	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-146500	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0074	0.0012
G-146505	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-146507	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0099	0.0017
G-146512	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0067	0.0011
G-146516	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0083	0.0014
G-146523	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.0011
G-146552	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.0011

G-146560	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-146566	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-146567	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-146573	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0169	0.0028
G-146626	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0084	0.0014
G-146635	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-146706	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0231	0.0039
G-146718	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-146735	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-146743	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0074	0.0012
G-146744	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0095	0.0016
G-146774	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-146777	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-146813	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0149	0.0025
G-146832	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0165	0.0028
G-146833	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-146840	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-146842	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-146844	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0119	0.002
G-146850	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-146853	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0165	0.0028
G-146865	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0089	0.0015
G-146866	Light-Duty	Drive Clean	EV Vehicle Rebate	0.005	0.0008
G-146887	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0075	0.0013
G-146892	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-146896	Light-Duty	Drive Clean	EV Vehicle Rebate	0.005	0.0008
G-146913	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-146917	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0069	0.0011
G-146936	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.0011
G-146938	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-146993	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-147050	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-147053	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.0011
G-147055	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-147065	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0099	0.0017
G-147070	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0074	0.0012
G-147074	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-147160	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-147170	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-147179	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0048	0.0008
G-147196	Light-Duty	Drive Clean	EV Vehicle Rebate	0.005	0.0008
G-147197	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0075	0.0013
G-147201	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-147203	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001

G-147215	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0132	0.0022
G-147218	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-147222	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.0011
G-147225	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0069	0.0012
G-147245	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0072	0.0012
G-147257	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-147266	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0099	0.0017
G-147269	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-147275	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-147282	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-147285	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-147286	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-147295	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0069	0.0012
G-147298	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-147302	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-147307	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0099	0.0017
G-147312	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0113	0.0019
G-147338	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-147342	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-147343	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0069	0.0012
G-147348	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-147349	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-147361	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-147366	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-147374	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0178	0.003
G-147385	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-147394	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-147395	Light-Duty	Drive Clean	EV Vehicle Rebate	0.005	0.0008
G-147396	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-147410	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-147413	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-147423	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-147426	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-147437	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-147465	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-147466	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-147482	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.0011
G-147489	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0048	0.0008
G-147494	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0056	0.0009
G-147495	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-147553	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0048	0.0008
G-147559	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0056	0.0009
G-147572	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0074	0.0012
G-147574	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.001

G-147581	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0074	0.0012
G-147585	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-147586	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0046	0.0008
G-147587	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-147597	Light-Duty	Drive Clean	EV Vehicle Rebate	0.005	0.0008
G-147612	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.001
G-147616	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-147630	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0112	0.0019
G-147633	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0048	0.0008
G-147640	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-147659	Light-Duty	Drive Clean	EV Vehicle Rebate	0.005	0.0008
G-147663	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0132	0.0022
G-147683	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0056	0.0009
G-147690	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-147692	Light-Duty	Drive Clean	EV Vehicle Rebate	0.005	0.0008
G-147696	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-147704	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-147707	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0074	0.0012
G-147712	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0048	0.0008
G-147714	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-147726	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0089	0.0015
G-147734	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0132	0.0022
G-147735	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-147736	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-147738	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0159	0.0026
G-147739	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0064	0.0011
G-147742	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-147749	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.0011
G-147750	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-147751	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.001
G-147752	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0056	0.0009
G-147753	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-147754	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-147755	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0099	0.0017
G-147763	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0099	0.0017
G-147770	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-147771	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-147777	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.0011
G-147779	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-147781	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-147786	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-147788	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0074	0.0012
G-147789	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0048	0.0008
G-147791	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011

G-147816	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-147818	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0074	0.0012
G-147819	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0046	0.0008
G-147837	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0046	0.0008
G-147838	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0088	0.0015
G-147843	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-147848	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-147849	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-147853	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0046	0.0008
G-147854	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-147859	Light-Duty	Drive Clean	EV Vehicle Rebate	0.005	0.0008
G-147862	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-147863	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0048	0.0008
G-147869	Light-Duty	Drive Clean	EV Vehicle Rebate	0.005	0.0008
G-147872	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-147874	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.001
G-147876	Light-Duty	Drive Clean	EV Vehicle Rebate	0.005	0.0008
G-147878	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-147880	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0058	0.001
G-147883	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-147884	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-147909	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0058	0.001
G-147912	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0056	0.0009
G-147917	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.001
G-147918	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-147934	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-147948	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-147950	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-147954	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-147960	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0046	0.0008
G-147969	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.0011
G-147977	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.001
G-147979	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-148015	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-148016	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0099	0.0017
G-148025	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-148026	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-148029	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0056	0.0009
G-148031	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0051	0.0009
G-148034	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-148041	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0094	0.0016
G-148042	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-148044	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-148060	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011

G-148061	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0089	0.0015
G-148062	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0046	0.0008
G-148064	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0046	0.0008
G-148067	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0075	0.0013
G-148073	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-148079	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-148081	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0127	0.0021
G-148084	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-148093	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0089	0.0015
G-148096	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0075	0.0013
G-148101	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-148104	Light-Duty	Drive Clean	EV Vehicle Rebate	0.005	0.0008
G-148108	Light-Duty	Drive Clean	EV Vehicle Rebate	0.005	0.0008
G-148109	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-148111	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-148117	Light-Duty	Drive Clean	EV Vehicle Rebate	0.005	0.0008
G-148144	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-148145	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0119	0.002
G-148173	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0132	0.0022
G-148176	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0088	0.0015
G-148195	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0099	0.0017
G-148198	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-148200	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-148201	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.001
G-148205	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0056	0.0009
G-148207	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-148212	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-148218	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.0011
G-148237	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-148263	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0099	0.0017
G-148267	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0075	0.0013
G-148268	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-148281	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0056	0.0009
G-148286	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0046	0.0008
G-148296	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0074	0.0012
G-148300	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-148304	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0151	0.0025
G-148308	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0083	0.0014
G-148320	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-148321	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0082	0.0014
G-148335	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-148339	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-148340	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-148341	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011

G-148348	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0046	0.0008
G-148370	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0056	0.0009
G-148379	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-148390	Light-Duty	Drive Clean	EV Vehicle Rebate	0.014	0.0023
G-148392	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0159	0.0026
G-148395	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0075	0.0013
G-148418	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0095	0.0016
G-148448	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0048	0.0008
G-148460	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0099	0.0017
G-148464	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-148465	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0046	0.0008
G-148514	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0106	0.0018
G-148547	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-148550	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-148562	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0095	0.0016
G-148591	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-148604	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0048	0.0008
G-148616	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-148618	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-148619	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0132	0.0022
G-148624	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-148631	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-148632	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-148633	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-148634	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-148636	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.0011
G-148646	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-148649	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.0011
G-148650	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0048	0.0008
G-148652	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-148655	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-148657	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-148660	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-148662	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-148665	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-148672	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-148673	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0106	0.0018
G-148675	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-148682	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0107	0.0018
G-148685	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0007	0.0005
G-148694	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-148699	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-148702	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-148714	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.0011

G-148716	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0099	0.0017
G-148718	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-148723	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0149	0.0025
G-148744	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0206	0.0034
G-148758	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-148764	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0046	0.0008
G-148765	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0073	0.0012
G-148772	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0089	0.0015
G-148781	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-148788	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.0011
G-148808	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0094	0.0016
G-148818	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0048	0.0008
G-148831	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-148834	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0213	0.0035
G-148839	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0075	0.0013
G-148840	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.0011
G-148893	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0145	0.0024
G-148913	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-148919	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0048	0.0008
G-148926	Light-Duty	Drive Clean	EV Vehicle Rebate	0.005	0.0008
G-148935	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-148937	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-148938	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0089	0.0015
G-148974	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0051	0.0008
G-148979	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-148996	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-149002	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0077	0.0013
G-149004	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-149005	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0099	0.0017
G-149008	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0046	0.0008
G-149010	Light-Duty	Drive Clean	EV Vehicle Rebate	0.005	0.0008
G-149012	Light-Duty	Drive Clean	EV Vehicle Rebate	0.014	0.0023
G-149054	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-149063	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0056	0.0009
G-149065	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0132	0.0022
G-149076	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-149091	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.0011
G-149093	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0048	0.0008
G-149094	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0054	0.0009
G-149112	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-149115	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0056	0.0009
G-149125	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-149127	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-149135	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001

G-149138	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0099	0.0017
G-149148	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0132	0.0022
G-149162	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0075	0.0013
G-149188	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0099	0.0017
G-149191	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0075	0.0013
G-149216	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-149218	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-149221	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-149236	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0067	0.0011
G-149252	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.0011
G-149273	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.001
G-149275	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-149276	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-149279	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-149280	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0095	0.0016
G-149281	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-149287	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-149332	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0088	0.0015
G-149352	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0075	0.0013
G-149378	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0086	0.0014
G-149389	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0198	0.0033
G-149393	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-149395	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0067	0.0011
G-149407	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0099	0.0017
G-149424	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0149	0.0025
G-149433	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0056	0.0009
G-149438	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-149443	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-149444	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0099	0.0017
G-149448	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-149449	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0152	0.0025
G-149454	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-149461	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-149468	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-149470	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-149473	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-149475	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0065	0.0011
G-149479	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0099	0.0017
G-149495	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-149497	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.0011
G-149499	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-149504	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-149508	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-149513	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013

G-149515	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0056	0.0009
G-149516	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-149517	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-149518	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0077	0.0013
G-149521	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0075	0.0013
G-149524	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0048	0.0008
G-149525	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0086	0.0014
G-149527	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-149536	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-149554	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-149557	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-149567	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-149569	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.0011
G-149580	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0165	0.0028
G-149608	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-149614	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-149617	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0046	0.0008
G-149625	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0238	0.004
G-149627	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0094	0.0016
G-149628	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-149632	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0046	0.0008
G-149633	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0009	0.0006
G-149642	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0103	0.0017
G-149655	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0065	0.0011
G-149657	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0046	0.0008
G-149658	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-149659	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-149667	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0083	0.0014
G-149683	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0046	0.0008
G-149691	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-149694	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0046	0.0008
G-149698	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-149700	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-149702	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-149704	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-149705	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0075	0.0013
G-149707	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-149718	Light-Duty	Drive Clean	EV Vehicle Rebate	0.005	0.0008
G-149772	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-149782	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-149787	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0149	0.0025
G-149789	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-149791	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0089	0.0015
G-149805	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009

G-149807	Light-Duty	Drive Clean	EV Vehicle Rebate	0.013	0.0022
G-149810	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.0011
G-149813	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0132	0.0022
G-149819	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-149821	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0119	0.002
G-149831	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-149832	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0112	0.0019
G-149833	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0065	0.0011
G-149840	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0046	0.0008
G-149867	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0046	0.0008
G-149871	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-149882	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0065	0.0011
G-149886	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-149897	Light-Duty	Drive Clean	EV Vehicle Rebate	0.005	0.0008
G-149898	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-149900	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-149904	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-149905	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.0011
G-149907	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0005	0.0003
G-149908	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-149910	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-149913	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-149915	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0046	0.0008
G-149920	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0065	0.0011
G-149927	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-149943	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-149945	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-149954	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-149967	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0089	0.0015
G-149977	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-149981	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-149983	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-149987	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-149990	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-149994	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-150005	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-150014	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0046	0.0008
G-150015	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0088	0.0015
G-150045	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0065	0.0011
G-150048	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-150056	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-150060	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-150069	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-150095	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0057	0.001

G-150096	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0088	0.0015
G-150123	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.0011
G-150142	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-150143	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0008	0.0005
G-150161	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-150163	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0069	0.0012
G-150176	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0143	0.0024
G-150180	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0046	0.0008
G-150181	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0075	0.0013
G-150196	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0083	0.0014
G-150197	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0094	0.0016
G-150206	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0099	0.0017
G-150222	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0064	0.0011
G-150228	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0119	0.002
G-150241	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0046	0.0008
G-150248	Light-Duty	Drive Clean	EV Vehicle Rebate	0.012	0.002
G-150249	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0057	0.0009
G-150290	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0097	0.0016
G-150295	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-150296	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-150297	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-150324	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-150329	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0075	0.0013
G-150331	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-150333	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0047	0.0008
G-150345	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-150347	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0069	0.0012
G-150349	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0046	0.0008
G-150358	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-150364	Light-Duty	Drive Clean	EV Vehicle Rebate	0.005	0.0008
G-150376	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-150381	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0056	0.0009
G-150382	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0157	0.0026
G-150388	Light-Duty	Drive Clean	EV Vehicle Rebate	0.005	0.0008
G-150402	Light-Duty	Drive Clean	EV Vehicle Rebate	0.005	0.0008
G-150405	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0106	0.0018
G-150407	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0069	0.0011
G-150409	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-150416	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-150418	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-150423	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0056	0.0009
G-150428	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-150430	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0101	0.0017
G-150431	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0093	0.0015

G-150433	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-150435	Light-Duty	Drive Clean	EV Vehicle Rebate	0.005	0.0008
G-150471	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0099	0.0017
G-150485	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-150486	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0056	0.0009
G-150512	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0119	0.002
G-150517	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0132	0.0022
G-150518	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-150525	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-150529	Light-Duty	Drive Clean	EV Vehicle Rebate	0.005	0.0008
G-150549	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-150561	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-150576	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0057	0.0009
G-150578	Light-Duty	Drive Clean	EV Vehicle Rebate	0.005	0.0008
G-150592	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0074	0.0012
G-150598	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0099	0.0017
G-150606	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0132	0.0022
G-150607	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0094	0.0016
G-150608	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-150609	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0094	0.0016
G-150610	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-150613	Light-Duty	Drive Clean	EV Vehicle Rebate	0.005	0.0008
G-150615	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0075	0.0013
G-150617	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0099	0.0017
G-150618	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0046	0.0008
G-150619	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-150630	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0099	0.0017
G-150639	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0149	0.0025
G-150642	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0119	0.002
G-150646	Light-Duty	Drive Clean	EV Vehicle Rebate	0.005	0.0008
G-150650	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0139	0.0023
G-150694	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-150704	Light-Duty	Drive Clean	EV Vehicle Rebate	0.005	0.0008
G-150705	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-150709	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0048	0.0008
G-150712	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-150736	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-150738	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-150741	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-150756	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0099	0.0017
G-150769	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-150775	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-150776	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-150781	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0067	0.0011

G-150824	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0048	0.0008
G-150826	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0052	0.0009
G-150827	Light-Duty	Drive Clean	EV Vehicle Rebate	0.005	0.0008
G-150829	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0089	0.0015
G-150832	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-150839	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-150845	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0005	0.0003
G-150847	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-150849	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0126	0.0021
G-150853	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0094	0.0016
G-150856	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-150861	Light-Duty	Drive Clean	EV Vehicle Rebate	0.033	0.0055
G-150864	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-150872	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-150882	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0069	0.0012
G-150886	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-150889	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-150896	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-150898	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-150907	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0095	0.0016
G-150913	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-150914	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0093	0.0015
G-150915	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0084	0.0014
G-150927	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-150929	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-150930	Light-Duty	Drive Clean	EV Vehicle Rebate	0.005	0.0008
G-150937	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-150948	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0074	0.0012
G-150953	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-150977	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-150989	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-150994	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0099	0.0017
G-151027	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0046	0.0008
G-151028	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0077	0.0013
G-151032	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-151049	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0069	0.0012
G-151058	Light-Duty	Drive Clean	EV Vehicle Rebate	0.005	0.0008
G-151060	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-151061	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-151066	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-151118	Light-Duty	Drive Clean	EV Vehicle Rebate	0.005	0.0008
G-151124	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.0011
G-151129	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0061	0.001
G-151132	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.001

G-151154	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-151155	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0084	0.0014
G-151157	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-151159	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-151163	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-151174	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-151191	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-151193	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0069	0.0012
G-151197	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-151200	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0085	0.0014
G-151203	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-151208	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0069	0.0012
G-151241	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.0011
G-151243	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0078	0.0013
G-151249	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-151258	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-151260	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-151268	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-151270	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-151275	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-151280	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0058	0.001
G-151282	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.0011
G-151285	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-151286	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-151303	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-151305	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-151306	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.0011
G-151307	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0198	0.0033
G-151309	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0077	0.0013
G-151315	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-151317	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-151318	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0118	0.002
G-151320	Light-Duty	Drive Clean	EV Vehicle Rebate	0.005	0.0008
G-151321	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0132	0.0022
G-151322	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-151323	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0058	0.001
G-151325	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-151335	Light-Duty	Drive Clean	EV Vehicle Rebate	0.005	0.0008
G-151336	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0007	0.0004
G-151337	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-151339	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0046	0.0008
G-151349	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0238	0.004
G-151352	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0006	0.0004
G-151362	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012

G-151364	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-151366	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.0011
G-151404	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0067	0.0011
G-151406	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0005	0.0003
G-151409	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-151423	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0106	0.0018
G-151430	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-151438	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-151462	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-151465	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0064	0.0011
G-151470	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-151478	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-151479	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0054	0.0009
G-151480	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0048	0.0008
G-151482	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-151542	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0047	0.0008
G-151546	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0132	0.0022
G-151556	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-151560	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-151564	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-151572	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-151573	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-151577	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.0011
G-151578	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0067	0.0011
G-151579	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-151581	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0099	0.0017
G-151636	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0065	0.0011
G-151638	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.0011
G-151640	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0112	0.0019
G-151647	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-151657	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.0079
G-151666	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0074	0.0012
G-151703	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.0011
G-151709	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0067	0.0011
G-151714	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0106	0.0018
G-151717	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0106	0.0018
G-151718	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-151740	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.0011
G-151742	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-151754	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0047	0.0008
G-151760	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-151762	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0075	0.0013
G-151766	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.001
G-151779	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001

G-151782	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0077	0.0013
G-151789	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-151803	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0084	0.0014
G-151818	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-151832	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-151844	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-151851	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.0011
G-151855	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-151864	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0086	0.0014
G-151868	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-151873	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-151877	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-151881	Light-Duty	Drive Clean	EV Vehicle Rebate	0.005	0.0008
G-151884	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0048	0.0008
G-151888	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.001
G-151889	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-151892	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-151894	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0006	0.0004
G-151900	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0056	0.0009
G-151903	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-151914	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-151919	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-151922	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0046	0.0008
G-151927	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-151928	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0169	0.0028
G-151931	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.0011
G-151932	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-151933	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-151949	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-151950	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0075	0.0013
G-151955	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0159	0.0026
G-151974	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-151976	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-151980	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0165	0.0028
G-151989	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.001
G-152000	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0046	0.0008
G-152008	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-152014	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0099	0.0017
G-152015	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-152018	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-152019	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-152022	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0132	0.0022
G-152025	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-152027	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0074	0.0012

G-152028	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0048	0.0008
G-152029	Light-Duty	Drive Clean	EV Vehicle Rebate	0.005	0.0008
G-152033	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-152036	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-152037	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-152044	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-152060	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.001
G-152091	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-152105	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-152108	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-152117	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-152119	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0119	0.002
G-152122	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-152171	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-152175	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0048	0.0008
G-152180	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-152190	Light-Duty	Drive Clean	EV Vehicle Rebate	0.01	0.0017
G-152194	Light-Duty	Drive Clean	EV Vehicle Rebate	0.005	0.0008
G-152200	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.001
G-152222	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.001
G-152226	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-152228	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-152232	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-152236	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0046	0.0008
G-152248	Light-Duty	Drive Clean	EV Vehicle Rebate	0.003	0.0005
G-152251	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0056	0.0009
G-152260	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0033	0.0006
G-152290	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0112	0.0019
G-152292	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-152297	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-152308	Light-Duty	Drive Clean	EV Vehicle Rebate	0.002	0.0003
G-152314	Light-Duty	Drive Clean	EV Vehicle Rebate	0.004	0.0007
G-152322	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.001
G-152323	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0077	0.0013
G-152325	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0067	0.0011
G-152331	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0106	0.0018
G-152334	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0084	0.0014
G-152335	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-152336	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-152337	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0026	0.0004
G-152341	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-152343	Light-Duty	Drive Clean	EV Vehicle Rebate	0.019	0.0022
G-152344	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-152346	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0033	0.0006

G-152347	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-152349	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-152350	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-152352	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-152356	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0106	0.0018
G-152359	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-152362	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-152364	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-152369	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0097	0.0016
G-152375	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-152379	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-152382	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-152383	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-152390	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0231	0.0039
G-152392	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0021	0.0004
G-152393	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0026	0.0004
G-152395	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.001
G-152396	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-152397	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0074	0.0012
G-152406	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0169	0.0028
G-152407	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-152413	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0192	0.0032
G-152417	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0057	0.0009
G-152420	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0092	0.0015
G-152424	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-152431	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0094	0.0016
G-152432	Light-Duty	Drive Clean	EV Vehicle Rebate	0.004	0.0007
G-152450	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0005	0.0003
G-152455	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0096	0.0016
G-152460	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0094	0.0016
G-152461	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0297	0.005
G-152462	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0017	0.0003
G-152465	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0045	0.0007
G-152472	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-152491	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0033	0.0006
G-152512	Light-Duty	Drive Clean	EV Vehicle Rebate	0.003	0.0005
G-152516	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-152518	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-152520	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-152521	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0021	0.0004
G-152534	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-152537	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0033	0.0006
G-152543	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0036	0.0006
G-152563	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0036	0.0006

G-152565	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0099	0.0017
G-152572	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0036	0.0006
G-152618	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-152623	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-152627	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0101	0.0017
G-152647	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-152657	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0089	0.0015
G-152665	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-152670	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0075	0.0013
G-152673	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0095	0.0016
G-152674	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0033	0.0006
G-152675	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0178	0.003
G-152678	Light-Duty	Drive Clean	EV Vehicle Rebate	0.004	0.0007
G-152679	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0446	0.0074
G-152680	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0165	0.0028
G-152681	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-152685	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-152686	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0126	0.0021
G-152738	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-152751	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-152752	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0099	0.0017
G-152785	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-152789	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-152795	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-152798	Light-Duty	Drive Clean	EV Vehicle Rebate	0.005	0.0008
G-152801	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-152805	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0057	0.0009
G-152808	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0008	0.0005
G-152815	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0099	0.0017
G-152820	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-152822	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-152825	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0099	0.0017
G-152826	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-152831	Light-Duty	Drive Clean	EV Vehicle Rebate	0.004	0.0007
G-152836	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-152837	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-152844	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-152845	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-152846	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-152848	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-152851	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-152852	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0003	0.0002
G-152854	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-152855	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0005	0.0003

G-152858	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0006	0.0004
G-152860	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-152861	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-152862	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0009	0.0006
G-152864	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0002
G-152866	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-152872	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-152874	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0005	0.0003
G-152875	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0005	0.0003
G-152881	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0013	0.0009
G-152890	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0002
G-152892	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-152894	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0009	0.0006
G-152898	Light-Duty	Drive Clean	EV Vehicle Rebate	0.001	0.0006
G-152904	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0005	0.0003
G-152905	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-152921	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0009	0.0006
G-152924	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-152926	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0009	0.0006
G-152933	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0005	0.0003
G-152936	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0005	0.0003
G-152949	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0002
G-152960	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0002
G-152965	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0006	0.0004
G-152966	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0005	0.0003
G-152967	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0001	0.0001
G-152970	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0007	0.0004
G-152971	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-152972	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0003	0.0002
G-152976	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0002	0.0001
G-152979	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0007	0.0004
G-152980	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0009	0.0006
G-153024	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0056	0.0009
G-153026	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.0011
G-153040	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0075	0.0013
G-153053	Light-Duty	Drive Clean	EV Vehicle Rebate	0.003	0.0005
G-153054	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-153055	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.001
G-153059	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0099	0.0017
G-153061	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0099	0.0017
G-153066	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-153073	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-153076	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-153084	Light-Duty	Drive Clean	EV Vehicle Rebate	0.005	0.0008

G-153101	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0005	0.0003
G-153105	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0005	0.0003
G-153111	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-153140	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0099	0.0017
G-153151	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0089	0.0015
G-153152	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-153153	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-153154	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0074	0.0012
G-153166	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0132	0.0022
G-153168	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0037	0.0006
G-153170	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0067	0.0011
G-153174	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0026	0.0004
G-153216	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-153217	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0056	0.0009
G-153223	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0023	0.0004
G-153227	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-153229	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0017	0.0003
G-153231	Light-Duty	Drive Clean	EV Vehicle Rebate	0.004	0.0007
G-153232	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0019	0.0003
G-153235	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0057	0.001
G-153240	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0033	0.0006
G-153244	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0065	0.0011
G-153260	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0032	0.0005
G-153262	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0026	0.0004
G-153273	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0062	0.001
G-153274	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-153278	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-153292	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-153298	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0099	0.0017
G-153306	Light-Duty	Drive Clean	EV Vehicle Rebate	0.004	0.0007
G-153307	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.0011
G-153314	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-153319	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.0011
G-153321	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0009	0.0006
G-153322	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-153325	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0046	0.0008
G-153340	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-153341	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0063	0.001
G-153359	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-153360	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-153364	Light-Duty	Drive Clean	EV Vehicle Rebate	0.005	0.0008
G-153367	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-153369	Light-Duty	Drive Clean	EV Vehicle Rebate	0.004	0.0007
G-153372	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0074	0.0012

G-153373	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0132	0.0022
G-153375	Light-Duty	Drive Clean	EV Vehicle Rebate	0.004	0.0007
G-153376	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-153377	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-153383	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0056	0.0009
G-153390	Light-Duty	Drive Clean	EV Vehicle Rebate	0.002	0.0003
G-153391	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0003	0.0002
G-153393	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-153395	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0026	0.0004
G-153396	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-153397	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-153401	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0025	0.0004
G-153402	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-153404	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-153405	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0075	0.0013
G-153406	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-153409	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-153410	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-153437	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-153450	Light-Duty	Drive Clean	EV Vehicle Rebate	0.005	0.0008
G-153460	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-153462	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0048	0.0008
G-153467	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0006	0.0004
G-153468	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0042	0.0007
G-153470	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-153471	Light-Duty	Drive Clean	EV Vehicle Rebate	0.005	0.0008
G-153483	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0037	0.0006
G-153485	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0056	0.0009
G-153491	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-153494	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-153498	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-153500	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0149	0.0025
G-153507	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0053	0.0009
G-153509	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-153512	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0039	0.0006
G-153513	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0071	0.0012
G-153515	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-153517	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0013	0.0009
G-153519	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0042	0.0007
G-153520	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011
G-153523	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0089	0.0015
G-153524	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0258	0.0043
G-153525	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-153529	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0066	0.0011

G-153530	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0028	
G-153531	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-153532	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0005	0.0003
G-153534	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-153536	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0079	0.0013
G-153538	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0059	0.001
G-153541	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0046	0.0008
G-153547	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0089	0.0015
G-153562	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-153570	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-153591	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0005	0.0003
G-153604	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-153608	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0007	0.0004
G-153619	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0002
G-153624	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-153632	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-153641	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0005	0.0003
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G-153655	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0001	0.0001
G-153660	Light-Duty	Drive Clean	EV Vehicle Rebate	0.005	0.0008
G-153665	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-153669	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0002	0.0001
G-153674	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0002
G-153684	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-153685	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0007	0.0004
G-153686	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0007	0.0004
G-153688	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0007	0.0004
G-153695	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0002	0.0002
G-153698	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0005	0.0003
G-153699	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-153701	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0003	0.0002
G-153709	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0084	0.0014
G-153758	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0006	0.0004
G-153761	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0007	0.0004
G-153762	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0002	0.0001
G-153784	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-153791	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-153793	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0003	0.0002
G-153806	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-153808	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0002	0.0001
G-153812	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0107	0.0018
G-153819	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0007	0.0004
G-153820	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0005	0.0003
G-153822	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0002

G-153830	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-153866	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0007	0.0004
G-153884	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0002
G-153898	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0003	0.0002
G-153901	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0003	0.0002
G-153904	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0009	0.0006
G-153905	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0007	0.0004
G-153906	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0002	0.0001
G-153915	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0006	0.0003
G-153916	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0016	0.001
G-153917	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0003	0.0002
G-153918	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0003	0.0002
G-153924	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0007	0.0005
G-153930	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0002
G-153932	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0002	0.0001
G-153933	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0005	0.0003
G-153934	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0003	0.0002
G-153936	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0009	0.0006
G-153938	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0005	0.0003
G-153941	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-153942	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0005	0.0003
G-153943	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0006	0.0004
G-153944	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0003	0.0002
G-153949	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0013	0.0009
G-153954	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-153956	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0005	0.0003
G-153959	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0022	0.0014
G-153961	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0009	0.0006
G-153963	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0003	0.0002
G-153964	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-153967	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0002
G-153983	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0005	0.0003
G-153984	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0011	0.0007
G-153987	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0005	0.0003
G-153989	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0005	0.0003
G-154002	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0005	0.0003
G-154005	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-154006	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0016	0.001
G-154009	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-154012	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0002	0.0001
G-154022	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0005	0.0003
G-154024	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0001	0.0001
G-154028	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-154030	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003

G-154039	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0005	0.0003
G-154048	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-154049	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0005	0.0003
G-154051	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0005	0.0003
G-154053	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-154054	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0002
G-154055	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0009	0.0006
G-154060	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0005	0.0003
G-154067	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0007	0.0004
G-154068	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-154073	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0005	0.0003
G-154094	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-154103	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0005	0.0003
G-154104	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0015	0.0009
G-154106	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0003	0.0002
G-154109	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0003	0.0002
G-154111	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0007	0.0004
G-154125	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0005	0.0003
G-154128	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0005	0.0003
G-154129	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0001	0.0001
G-154130	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0002
G-154136	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0002
G-154138	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-154139	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0005	0.0003
G-154142	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0002
G-154148	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0007	0.0004
G-154150	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-154154	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-154155	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-154157	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0009	0.0006
G-154159	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0002	0.0001
G-154177	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-154227	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-154284	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0007	0.0004
G-154313	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0007	0.0004
G-154333	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0007	0.0004
G-154360	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0003	0.0002
G-154478	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-154533	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0002	0.0001
G-154563	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-154726	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-155245	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0007	0.0004
G-155271	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0009	0.0006
G-155336	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0011	0.0007

G-155468	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0008	0.0005
G-155515	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-155561	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0005	0.0003
G-155700	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0007	0.0004
G-155738	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0003	0.0002
G-155744	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0005	0.0003
G-155830	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-155971	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0005	0.0003
G-156039	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0013	0.0009
G-156307	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-156314	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0007	0.0004
G-156322	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0005	0.0003
G-156323	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-156324	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0005	0.0003
G-156341	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0005	0.0003
G-156343	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-156374	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0007	0.0004
G-156385	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0006	0.0004

Appendix

San Joaquin Valley Air Pollution Control District and South Coast Air Quality Management District *Sierra Club v. County of Fresno* Amicus Curiae Briefs

SUPREME COURT COPY

CASE NO. S219783

IN THE SUPREME COURT OF CALIFORNIA

SIERRA CLUB, REVIVE THE SAN JOAQUIN, and
LEAGUE OF WOMEN VOTERS OF FRESNO,
Plaintiffs and Appellants

v.

COUNTY OF FRESNO,
Defendant and Respondent

FRIANT RANCH, L.P.,
Real Party in Interest and Respondent

SUPREME COURT
FILED
APR 13 2015
Frank A. McGuire Clerk
Deputy

After a Decision by the Court of Appeal, filed May 27, 2014
Fifth Appellate District Case No. F066798

Appeal from the Superior Court of California, County of Fresno
Case No. 11CECG00726

APPLICATION FOR LEAVE TO FILE AMICUS CURIAE BRIEF OF SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT IN SUPPORT OF DEFENDANT AND RESPONDENT, COUNTY OF FRESNO AND REAL PARTY IN INTEREST AND RESPONDENT, FRIANT RANCH, L.P.

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Counsel for San Joaquin Valley Unified Air Pollution Control District

CASE NO. S219783

IN THE SUPREME COURT OF CALIFORNIA

SIERRA CLUB, REVIVE THE SAN JOAQUIN, and
LEAGUE OF WOMEN VOTERS OF FRESNO,
Plaintiffs and Appellants

v.

COUNTY OF FRESNO,
Defendant and Respondent

FRIANT RANCH, L.P.,
Real Party in Interest and Respondent

After a Decision by the Court of Appeal, filed May 27, 2014
Fifth Appellate District Case No. F066798

Appeal from the Superior Court of California, County of Fresno
Case No. 11CECG00726

APPLICATION FOR LEAVE TO FILE AMICUS CURIAE BRIEF OF SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT IN SUPPORT OF DEFENDANT AND RESPONDENT, COUNTY OF FRESNO AND REAL PARTY IN INTEREST AND RESPONDENT, FRIANT RANCH, L.P.

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APPLICATION

Pursuant to California Rules of Court 8.520(f)(1), proposed Amicus Curiae San Joaquin Valley Unified Air Pollution Control District hereby requests permission from the Chief Justice to file an amicus brief in support of Defendant and Respondent, County of Fresno, and Defendant and Real Parties in Interest Friant Ranch, L.P. Pursuant to Rule 8.520(f)(5) of the California Rules of Court, the proposed amicus curiae brief is combined with this Application. The brief addresses the following issue certified by this Court for review:

> Is an EIR adequate when it identifies the health impacts of air pollution and quantifies a project's expected emissions, or does CEQA further require the EIR to *correlate* a project's air quality emissions to specific health impacts?

As of the date of this filing, the deadline for the final reply brief on the merits was March 5, 2015. Accordingly, under Rule 8.520(f)(2), this application and brief are timely.

1. Background and Interest of San Joaquin Valley Unified Air Pollution Control District

The San Joaquin Valley Unified Air Pollution Control District ("Air District") regulates air quality in the eight counties comprising the San Joaquin Valley ("Central Valley"): Kern, Tulare, Madera, Fresno, Merced, San Joaquin, Stanislaus, and Kings, and is primarily responsible for attaining air quality standards within its jurisdiction. After billions of dollars of investment by Central Valley businesses, pioneering air quality regulations, and consistent efforts by residents, the Central Valley air basin has made historic improvements in air quality.

The Central Valley's geographical, topographical and meteorological features create exceptionally challenging air quality

conditions. For example, it receives air pollution transported from the San Francisco Bay Area and northern Central Valley communities, and the southern portion of the Central Valley includes three mountain ranges (Sierra, Tehachapi, and Coastal) that, under some meteorological conditions, effectively trap air pollution. Central Valley air pollution is only a fraction of what the Bay Area and Los Angeles produce, but these natural conditions result in air quality conditions that are only marginally better than Los Angeles, even though about ten times more pollution is emitted in the Los Angeles region. Bay Area air quality is much better than the Central Valley's, even though the Bay Area produces about six times more pollution. The Central Valley also receives air pollution transported from the Bay Area and northern counties in the Central Valley, including Sacramento, and transboundary anthropogenic ozone from as far away as China.

Notwithstanding these challenges, the Central Valley has reduced emissions at the same or better rate than other areas in California and has achieved unparalleled milestones in protecting public health and the environment:

- In the last decade, the Central Valley became the first air basin classified by the federal government under the Clean Air Act as a "serious nonattainment" area to come into attainment of health-based National Ambient Air Quality Standard ("NAAQS") for coarse particulate matter (PM10), an achievement made even more notable given the Valley's extensive agricultural sector. Unhealthy levels of particulate matter can cause and exacerbate a range of chronic and acute illnesses.
- In 2013, the Central Valley became the first air basin in the country to improve from a federal designation of "extreme" nonattainment to

actually attain (and quality for an attainment designation) of the 1-hour ozone NAAQS; ozone creates "smog" and, like PM10, causes adverse health impacts.

- The Central Valley also is in full attainment of federal standards for lead, nitrogen dioxide, sulfur dioxide, and carbon monoxide.
- The Central Valley continues to make progress toward compliance with its last two attainment standards, with the number of exceedences for the 8-hour ozone NAAQS reduced by 74% (for the 1997 standard) and 38% (for the 2008 standard) since 1991, and for the small particulate matter (PM2.5) NAAQS reduced by 85% (for the 1997 standard) and 61% (for the 2006 standard).

Sustained improvement in Central Valley air quality requires a rigorous and comprehensive regulatory framework that includes prohibitions (e.g., on wood-burning fireplaces in new residences), mandates (e.g., requiring the installation of best available pollution reduction technologies on new and modified equipment and industrial operations), innovations (e.g., fees assessed against residential development to fund pollution reduction actions to "offset" vehicular emissions associated with new residences), incentive programs (e.g., funding replacements of older, more polluting heavy duty trucks and school buses)[1], ongoing planning for continued air quality improvements, and enforcement of Air District permits and regulations.

The Air District is also an expert air quality agency for the eight counties and cities in the San Joaquin Valley. In that capacity, the Air District has developed air quality emission guidelines for use by the Central

[1] San Joaquin's incentive program has been so successful that through 2012, it has awarded over $ 432 million in incentive funds and has achieved 93,349 tons of lifetime emissions reductions. *See* SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT, 2012 PM2.5 PLAN, 6-6 (2012) *available at* http://www.valleyair.org/Workshops/postings/2012/12-20-12PM25/FinalVersion/06%20Chapter%206%20Incentives.pdf.

Valley counties and cities that implement the California Environment Quality Act (CEQA).[2] In its guidance, the Air District has distinguished between toxic air contaminants and criteria air pollutants.[3] Recognizing this distinction, the Air District's CEQA Guidance has adopted distinct thresholds of significance for *criteria* pollutants (i.e., ozone, PM2.5 and their respective precursor pollutants) based upon scientific and factual data which demonstrates the level that can be accommodated on a cumulative basis in the San Joaquin Valley without affecting the attainment of the applicable NAAQS.[4] For *toxic air* pollutants, the District has adopted different thresholds of significance which scientific and factual data demonstrates has the potential to expose sensitive receptors (i.e., children, the elderly) to levels which may result in localized health impacts.[5]

The Air District's CEQA Guidance was followed by the County of Fresno in its environment review of the Friant Ranch project, for which the Air District also served as a commenting agency. The Court of Appeal's holding, however, requiring correlation between the project's criteria

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[2] *See, e.g.*, SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT, PLANNING DIVISION, GUIDE FOR ASSESSING AND MITIGATING AIR QUALITY IMPACTS (2015), *available at* http://www.valleyair.org/transportation/GAMAQI_3-19-15.pdf ("CEQA Guidance").

[3] Toxic air contaminants, also known as hazardous air pollutants, are those pollutants that are known or suspected to cause cancer or other serious health effects, such as birth defects. There are currently 189 toxic air contaminants regulated by the United States Environmental Protection Agency ("EPA") and the states pursuant to the Clean Air Act. 42 U.S.C. § 7412. Common TACs include benzene, perchloroethylene and asbestos. *Id.* at 7412(b).

In contrast, there are only six (6) criteria air pollutants: ozone, particulate matter, carbon monoxide, nitrogen oxides, sulfur dioxide and lead. Although criteria air pollutants can also be harmful to human health, they are distinguishable from toxic air contaminants and are regulated separately. For instance, while criteria pollutants are regulated by numerous sections throughout Title I of the Clean Air Act, the regulation of toxic air contaminants occurs solely under section 112 of the Act. Compare 42 U.S.C. §§ 7407 – 7411 & 7501 – 7515 with 42 U.S.C. § 7411.

[4] See, e.g., CEQA Guidance at http://www.valleyair.org/transportation/GAMAQI_3-19-15.pdf, pp. 64-66, 80.

[5] See, e.g., CEQA Guidance at http://www.valleyair.org/transportation/GAMAQI_3-19-15.pdf, pp. 66, 99-101.

pollutants and local health impacts, departs from the Air District's Guidance and approved methodology for assessing criteria pollutants. A close reading of the administrative record that gave rise to this issue demonstrates that the Court's holding is based on a misunderstanding of the distinction between toxic air contaminants (for which a local health risk assessment is feasible and routinely performed) and criteria air pollutants (for which a local health risk assessment is not feasible and would result in speculative results).[6] The Air District has a direct interest in ensuring the lawfulness and consistent application of its CEQA Guidance, and will explain how the Court of Appeal departed from the Air District's long-standing CEQA Guidance in addressing criteria pollutants and toxic air contaminants in this amicus brief.

2. How the Proposed Amicus Curiae Brief Will Assist the Court

As counsel for the proposed amicus curiae, we have reviewed the briefs filed in this action. In addition to serving as a "commentary agency" for CEQA purposes over the Friant Ranch project, the Air District has a strong interest in assuring that CEQA is used for its intended purpose, and believes that this Court would benefit from additional briefing explaining the distinction between criteria pollutants and toxic air contaminants and the different methodologies employed by local air pollution control agencies such as the Air District to analyze these two categories of air pollutants under CEQA. The Air District will also explain how the Court of Appeal's opinion is based upon a fundamental misunderstanding of these two different approaches by requiring the County of Fresno to correlate the project's *criteria* pollution emissions with *local* health impacts. In doing

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[6] CEQA does not require speculation. *See, e.g., Laurel Heights Improvement Ass'n v. Regents of Univ. of Cal.*, 6 Cal. 4th 1112, 1137 (1993) (upholding EIR that failed to evaluate cumulative toxic air emission increases given absence of any acceptable means for doing so).

so, the Air District will provide helpful analysis to support its position that at least insofar as criteria pollutants are concerned, CEQA does not require an EIR to correlate a project's air quality emissions to specific health impacts, because such an analysis is not reasonably feasible.

Rule 8.520 Disclosure

Pursuant to Cal. R. 8.520(f)(4), neither the Plaintiffs nor the Defendant or Real Party In Interest or their respective counsel authored this brief in whole or in part. Neither the Plaintiffs nor the Defendant or Real Party in Interest or their respective counsel made any monetary contribution towards or in support of the preparation of this brief.

CONCLUSION

On behalf of the San Joaquin Valley Unified Air Pollution Control District, we respectfully request that this Court accept the filing of the attached brief.

Dated: April 2, 2015

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SAN JOAQUIN VALLEY UNIFIED
AIR POLLUTION CONTROL
DISTRICT

CASE NO. S219783

IN THE SUPREME COURT OF CALIFORNIA

SIERRA CLUB, REVIVE THE SAN JOAQUIN, and
LEAGUE OF WOMEN VOTERS OF FRESNO,
Plaintiffs and Appellants

v.

COUNTY OF FRESNO,
Defendant and Respondent

FRIANT RANCH, L.P.,
Real Party in Interest and Respondent

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I. INTRODUCTION.

The San Joaquin Valley Unified Air Pollution Control District ("Air District") respectfully submits that the Court of Appeal erred when it held that the air quality analysis contained in the Environmental Impact Report ("EIR") for the Friant Ranch development project was inadequate under the California Environmental Quality Act ("CEQA") because it did not include an analysis of the correlation between the project's criteria air pollutants and the potential adverse human health impacts. A close reading of the portion of the administrative record that gave rise to this issue demonstrates that the Court's holding is based on a misunderstanding of the distinction between toxic air contaminants and criteria air pollutants.

Toxic air contaminants, also known as hazardous air pollutants, are those pollutants that are known or suspected to cause cancer or other serious health effects, such as birth defects. There are currently 189 toxic air contaminants (hereinafter referred to as "TACs") regulated by the United States Environmental Protection Agency ("EPA") and the states pursuant to the Clean Air Act. 42 U.S.C. § 7412. Common TACs include benzene, perchloroethylene and asbestos. *Id.* at 7412(b).

In contrast, there are only six (6) criteria air pollutants: ozone, particulate matter, carbon monoxide, nitrogen oxides, sulfur dioxide and lead. Although criteria air pollutants can also be harmful to human health,

they are distinguishable from TACs and are regulated separately. For instance, while criteria pollutants are regulated by numerous sections throughout Title I of the Clean Air Act, the regulation of TACs occurs solely under section 112 of the Act. *Compare* 42 U.S.C. §§ 7407 – 7411 & 7501 – 7515 *with* 42 U.S.C. § 7411.

The most relevant difference between criteria pollutants and TACs for purposes of this case is the manner in which human health impacts are accounted for. While it is common practice to analyze the correlation between an individual facility's TAC emissions and the expected localized human health impacts, such is not the case for criteria pollutants. Instead, the human health impacts associated with criteria air pollutants are analyzed and taken into consideration when EPA sets the national ambient air quality standard ("NAAQS") for each criteria pollutant. 42 U.S.C. § 7409(b)(1). The 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 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.

It is clear from a reading of both the administrative record and the Court of Appeal's decision that the Court did not have the expertise to fully

appreciate the difference between TACs and criteria air pollutants. As a result, the Court has ordered the County of Fresno to conduct an analysis that is not practicable and not likely yield valid information. The Air District respectfully requests that this portion of the Court of Appeal's decision be reversed.

II. THE COURT OF APPEAL ERRED IN FINDING THE FRIANT RANCH EIR INADEQUATE FOR FAILING TO ANALYZE THE SPECIFIC HUMAN HEALTH IMPACTS ASSOCIATED CRITERIA AIR POLLUTANTS.

Although the Air District does not take lightly the amount of air emissions at issue in this case, it submits that the Court of Appeal got it wrong when it required Fresno County to revise the Friant Ranch EIR to include an analysis correlating the criteria air pollutant emissions associated with the project with specific, localized health-impacts. The type of analysis the Court of Appeal has required will not yield reliable information because currently available modeling tools are not well suited for this task. Further, in reviewing this issue de novo, the Court of Appeal failed to appreciate that it lacked the scientific expertise to appreciate the significant differences between a health risk assessment commonly performed for toxic air contaminants and a similar type of analysis it felt should have been conducted for criteria air pollutants.

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A. Currently Available Modeling Tools are not Equipped to Provide a Meaningful Analysis of the Correlation between an Individual Development Project's Air Emissions and Specific Human Health Impacts.

In order to appreciate the problematic nature of the Court of Appeals' decision requiring a health risk type analysis for criteria air pollutants, it is important to understand how the relevant criteria pollutants (ozone and particulate matter) are formed, dispersed and regulated.

Ground level ozone (smog) is not directly emitted into the air, but is formed when precursor pollutants such as oxides of nitrogen (NOx) and volatile organic compounds (VOCs) are emitted into the atmosphere and undergo complex chemical reactions in the process of sunlight.[1] Once formed, ozone can be transported long distances by wind.[2] Because of the complexity of ozone formation, a specific tonnage amount of NOx or VOCs emitted in a particular area does not equate to a particular concentration of ozone in that area. In fact, even rural areas that have relatively low tonnages of emissions of NOx or VOCs can have high levels of ozone concentration simply due to wind transport.[3] Conversely, the San Francisco Bay Area has six times more NOx and VOC emissions per square mile than the San Joaquin Valley, but experiences lower

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[1] *See* United States Environmental Protection Agency, *Ground-level Ozone: Basic Information*, available at: http://www.epa.gov/airquality/ozonepollution/basic.html (visited March 10, 2015).
[2] *Id.*
[3] *Id.*

concentrations of ozone (and better air quality) simply because sea breezes disperse the emissions.[4]

Particulate matter ("PM") can be divided into two categories: directly emitted PM and secondary PM.[5] While directly emitted PM can have a localized impact, the tonnage emitted does not always equate to the local PM concentration because it can be transported long distances by wind.[6] Secondary PM, like ozone, is formed via complex chemical reactions in the atmosphere between precursor chemicals such as sulfur dioxides (SOx) and NOx.[7] Because of the complexity of secondary PM formation, the tonnage of PM-forming precursor emissions in an area does not necessarily result in an equivalent concentration of secondary PM in that area.

The disconnect between the *tonnage* of precursor pollutants (NOx, SOx and VOCs) and the *concentration* of ozone or PM formed is important because it is not necessarily the tonnage of precursor pollutants that causes human health effects, but the concentration of resulting ozone or PM. Indeed, the national ambient air quality standards ("NAAQS"), which are statutorily required to be set by the United States Environmental Protection

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[4] *San Joaquin Valley Air Pollution Control District 2007 Ozone Plan*, Executive Summary p. ES-6, available at: http://www.valleyair.org/Air_Quality_Plans/docs/AQ_Ozone_2007_Adopted/03%20Executive%20Summary.pdf (visited March 10, 2015).

[5] United States Environmental Protection Agency, *Particulate Matter: Basic Information*, available at: http://www.epa.gov/airquality/particlepollution/basic.html (visited March 10, 2015).

[6] *Id.*

[7] *Id.*

Agency ("EPA") at levels that are "requisite to protect the public health," 42 U.S.C. § 7409(b)(1), are established as concentrations of ozone or particulate matter and not as tonnages of their precursor pollutants.[8]

Attainment of a particular NAAQS occurs when the concentration of the relevant pollutant remains below a set threshold on a consistent basis throughout a particular region. For example, the San Joaquin Valley attained the 1-hour ozone NAAQS when ozone concentrations remained at or below 0.124 parts per million Valley-wide on 3 or fewer days over a 3-year period.[9] Because the NAAQS are focused on achieving a particular concentration of pollution region-wide, the Air District's tools and plans for attaining the NAAQS are regional in nature.

For instance, the computer models used to simulate and predict an attainment date for the ozone or particulate matter NAAQS in the San Joaquin Valley are based on regional inputs, such as regional inventories of precursor pollutants (NOx, SOx and VOCs) and the atmospheric chemistry and meteorology of the Valley.[10] At a very basic level, the models simulate future ozone or PM levels based on predicted changes in precursor

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[8] See, e.g., United States Environmental Protection Agency, *Table of National Ambient Air Quality Standards*, available at: http://www.epa.gov/air/criteria.html#3 (visited March 10, 2015).

[9] *San Joaquin Valley Unified Air Pollution Control District 2013 Plan for the Revoked 1-Hour Ozone Standard*, Ch. 2 p. 2-16, available at: http://www.valleyair.org/Air_Quality_Plans/OzoneOneHourPlan2013/02Chapter2ScienceTrendsModeling.pdf (visited March 10, 2015).

[10] *Id.* at Ch. 2 p. 2-19 (visited March 12, 2015); *San Joaquin Valley Unified Air Pollution Control District 2008 PM2.5 Plan*, Appendix F, pp. F-2 – F-5, available at: http://www.valleyair.org/Air_Quality_Plans/docs/AQ_Final_Adopted_PM2.5/20%20Appendix%20F.pdf (visited March 19, 2015).

emissions Valley wide.[11] Because the NAAQS are set levels necessary to protect human health, the closer a region is to attaining a particular NAAQS, the lower the human health impact is from that pollutant.

The goal of these modeling exercises is not to determine whether the emissions generated by a particular factory or development project will affect the date that the Valley attains the NAAQS. Rather, the Air District's modeling and planning strategy is regional in nature and based on the extent to which *all* of the emission-generating sources in the Valley (current and future) must be controlled in order to reach attainment.[12]

Accordingly, the Air District has based its thresholds of significance for CEQA purposes on the levels that scientific and factual data demonstrate that the Valley can accommodate without affecting the attainment date for the NAAQS.[13] The Air District has tied its CEQA significance thresholds to the level at which stationary pollution sources permitted by the Air District must "offset" their emissions.[14] This "offset"

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[11] *Id.*

[12] Although the Air District does have a dispersion modeling tool used during its air permitting process that is used to predict whether a particular project's directly emitted PM will either cause an exceedance of the PM NAAQS or contribute to an existing exceedance, this model bases the prediction on a worst case scenario of emissions and meteorology and has no provision for predicting any associated human health impacts. Further, this analysis is only performed for stationary sources (factories, oil refineries, etc.) that are required to obtain a New Source Review permit from the Air District and not for development projects such as Friant Ranch over which the Air District has no preconstruction permitting authority. *See* San Joaquin Valley Unified Air Pollution Control District Rule 2201 §§ 2.0; 3.3.9; 4.14.1, available at: http://www.valleyair.org/rules/currntrules/Rule2201041l.pdf (visited March 19, 2015).

[13] *San Joaquin Valley Unified Air Pollution Control District Guide to Assessing and Mitigating Air Quality Impacts*, (March 19, 2015) p. 22, available at: http://www.valleyair.org/transportation/CEQA%20Rules/GAMAQI%20Jan%202002%20Rev.pdf (visited March 30, 2015).

[14] *Id.* at pp. 22, 25.

level allows for growth while keeping the cumulative effects of all new sources at a level that will not impede attainment of the NAAQS.[15] In the Valley, these thresholds are 15 tons per year of PM, and 10 tons of NOx or VOC per year. *Sierra Club, supra*, 172 Cal.Rptr.3d at 303; AR 4554. Thus, the CEQA air quality analysis for criteria pollutants is not really a localized, project-level impact analysis but one of regional, "cumulative impacts."

Accordingly, the significance thresholds applied in the Friant Ranch EIR (15 tons per year of PM and 10 tons of NOx or VOCs) are not intended to be indicative of any localized human health impact that the project may have. While the health effects of air pollution are of primary concern to the Air District (indeed, the NAAQS are established to protect human health), the Air District is simply not equipped to analyze whether and to what extent the criteria pollutant emissions of an individual CEQA project directly impact human health in a particular area. This is true even for projects with relatively high levels of emissions of criteria pollutant precursor emissions.

For instance, according to the EIR, the Friant Ranch project is estimated to emit 109.52 tons per year of ROG (VOC), 102.19 tons per year of NOx, and 117.38 tons per year of PM. Although these levels well

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[15] [15] *San Joaquin Valley Unified Air Pollution Control District Environmental Review Guidelines* (Aug. 2000) p. 4-11, available at: http://www.valleyair.org/transportation/CEQA%20Rules/ERG%20Adopted%20_August%202000_.pdf (visited March 12, 2015).

exceed the Air District's CEQA significance thresholds, this does not mean that one can easily determine the concentration of ozone or PM that will be created at or near the Friant Ranch site on a particular day or month of the year, or what specific health impacts will occur. Meteorology, the presence of sunlight, and other complex chemical factors all combine to determine the ultimate concentration and location of ozone or PM. This is especially true for a project like Friant Ranch where most of the criteria pollutant emissions derive not from a single "point source," but from area wide sources (consumer products, paint, etc.) or mobile sources (cars and trucks) driving to, from and around the site.

In addition, it would be extremely difficult to model the impact on NAAQS attainment that the emissions from the Friant Ranch project may have. As discussed above, the currently available modeling tools are equipped to model the impact of *all* emission sources in the Valley on attainment. According to the most recent EPA-approved emission inventory, the NOx inventory for the Valley is for the year 2014 is 458.2 tons per day, or 167,243 tons per year and the VOC (or ROG) inventory is 361.7 tons per day, or 132,020.5 tons per year.[16] Running the photochemical grid model used for predicting ozone attainment with the

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[16] *San Joaquin Valley Unified Air Pollution Control District 2007 Ozone Plan*, Appendix B pp. B-6, B-9,
available at:
http://www.valleyair.org/Air_Quality_Plans/docs/AQ_Ozone_2007_Adopted/19%20Appendix%20B%20April%202007.pdf (visited March 12, 2015).

emissions solely from the Friant Ranch project (which equate to less than one-tenth of one percent of the total NOx and VOC in the Valley) is not likely to yield valid information given the relative scale involved.

Finally, even once a model is developed to accurately ascertain local increases in concentrations of photochemical pollutants like ozone and some particulates, it remains impossible, using today's models, to correlate that increase in concentration to a specific health impact. The reason is the same: such models are designed to determine regional, population-wide health impacts, and simply are not accurate when applied at the local level.

For these reasons, it is not the norm for CEQA practitioners, including the Air District, to conduct an analysis of the localized health impacts associated with a project's criteria air pollutant emissions as part of the EIR process. When the accepted scientific method precludes a certain type of analysis, "the court cannot impose a legal standard to the contrary." *Kings County Farm Bureau v. City of Hanford* (1990) 221 Cal.App.3d 692, 717 n. 8. However, that is exactly what the Court of Appeal has done in this case. Its decision upends the way CEQA air quality analysis of criteria pollutants occurs and should be reversed.

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B. The Court of Appeal Improperly Extrapolated a Request for a Health Risk Assessment for Toxic Air Contaminants into a Requirement that the EIR contain an Analysis of Localized Health Impacts Associated with Criteria Air Pollutants.

The Court of Appeal's error in requiring the new health impact analysis for criteria air pollutants clearly stems from a misunderstanding of terms of art commonly used in the air pollution field. More specifically, the Court of Appeal (and Appellants Sierra Club et al.) appear to have confused the health risk analysis ("HRA") performed to determine the health impacts associated with a project's toxic air contaminants ("TACs"), with an analysis correlating a project's criteria air pollutants (ozone, PM and the like) with specific localized health impacts.

The first type of analysis, the HRA, is commonly performed during the Air District's stationary source permitting process for projects that emit TACs and is, thus, incorporated into the CEQA review process. An HRA is a comprehensive analysis to evaluate and predict the dispersion of TACs emitted by a project and the potential for exposure of human populations. It also assesses and quantifies both the individual and population-wide health risks associated with those levels of exposure. There is no similar analysis conducted for criteria air pollutants. Thus, the second type of analysis (required by the Court of Appeal), is not currently part of the Air District's process because, as outlined above, the health risks associated

with exposure to criteria pollutants are evaluated on a regional level based on the region's attainment of the NAAQS.

The root of this confusion between the types of analyses conducted for TACs versus criteria air pollutants appears to stem from a comment that was presented to Fresno County by the City of Fresno during the administrative process.

In its comments on the draft EIR, the City of Fresno (the only party to raise this issue) stated:

> [t]he EIR must disclose the human health related effects of the Project's air pollution impacts. (CEQA Guidelines section 15126.2(a).) The EIR fails completely in this area. The EIR should be revised to disclose and determine the significance of TAC impacts, and of human health risks due to exposure to Project-related air emissions.

(AR 4602.)

In determining that the issue regarding the correlation between the Friant Ranch project's criteria air pollutants and adverse health impacts was adequately exhausted at the administrative level, the Court of Appeal improperly read the first two sentences of the City of Fresno's comment in isolation rather than in the context of the entire comment. *See Sierra Club v. County of Fresno* (2014) 172 Cal.Rptr.3d 271, 306. Although the comment first speaks generally in terms of "human health related effects" and "air pollution," it requests only that the EIR be revised to disclose "the significance of TACs" and the "human health risks due to exposure."

The language of this request in the third sentence of the comment is significant because, to an air pollution practitioner, the language would only have indicated only that a HRA for TACs was requested, and not a separate analysis of the health impacts associated with the project's criteria air pollutants. Fresno County clearly read the comment as a request to perform an HRA for TACs and limited its response accordingly. (AR 4602.)[17] The Air District submits that it would have read the City's comment in the same manner as the County because the City's use of the terms "human health risks" and "TACs" signal that an HRA for TACs is being requested. Indeed, the Air District was also concerned that an HRA be conducted, but understood that it was not possible to conduct such an analysis until the project entered the phase where detailed site specific information, such as the types of emission sources and the proximity of the sources to sensitive receptors became available. (AR 4553.)[18] The City of Fresno was apparently satisfied with the County's discussion of human health risks, as it did not raise the issue again when it commented on the final EIR. (AR 8944 – 8960.)

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[17] Appellants do not challenge the manner in which the County addressed TACs in the EIR. (Appellants' Answer Brief p. 28 fn. 7.)

[18] Appellants rely on the testimony of Air District employee, Dan Barber, as support for their position that the County should have conducted an analysis correlating the project's criteria air pollutant emissions with localized health impacts. (Appellants Answer Brief pp. 10-11; 28.) However, Mr. Barber's testimony simply reinforces the Air District's concern that a risk assessment (HRA) be conducted once the actual details of the project become available. (AR 8863.) As to criteria air pollutants, Mr. Barber's comments are aimed at the Air District's concern about the amount of emissions and the fact that the emissions will make it "more difficult for Fresno County and the Valley to reach attainment which means that the health of Valley residents maybe [sic] adversely impacted." Mr. Barber says nothing about conducting a separate analysis of the localized health impacts the project's emissions may have.

The Court of Appeal's holding, which incorrectly extrapolates a request for an HRA for TACs into a new analysis of the localized health impacts of the project's criteria air pollutants, highlights two additional errors in the Court's decision.

First, the Court of Appeal's holding illustrates why the Court should have applied the deferential substantial evidence standard of review to the issue of whether the EIR's air quality analysis was sufficient. The regulation of air pollution is a technical and complex field and the Court of Appeal lacked the expertise to fully appreciate the difference between TACs and criteria air pollutants and tools available for analyzing each type of pollutant.

Second, it illustrates that the Court likely got it wrong when it held that the issue regarding the criteria pollutant / localized health impact analysis was properly exhausted during the administrative process. In order to preserve an issue for the court, '[t]he "exact issue" must have been presented to the administrative agency....' [Citation.] *Citizens for Responsible Equitable Environmental Development v. City of San Diego*, (2011) 196 Cal.App.4th 515, 527 129 Cal.Rptr.3d 512, 521; *Sierra Club v. City of Orange* (2008) 163 Cal.App.4th 523, 535, 78 Cal.Rptr.3d 1, 13. "'[T]he objections must be sufficiently specific so that the agency has the

opportunity to evaluate and respond to them.' [Citation.]" *Sierra Club v. City of Orange*,163 Cal.App.4th at 536.[19]

As discussed above, the City's comment, while specific enough to request a commonly performed HRA for TACs, provided the County with no notice that it should perform a new type of analysis correlating criteria pollutant tonnages to specific human health effects. Although the parties have not directly addressed the issue of failure to exhaust administrative remedies in their briefs, the Air District submits that the Court should consider how it affects the issues briefed by the parties since "[e]xhaustion of administrative remedies is a jurisdictional prerequisite to maintenance of a CEQA action." *Bakersfield Citizens for Local Control v. City of Bakersfield* (2004) 124 Cal.App.4th 1184, 1199, 22 Cal.Rptr.3d 203.

III. CONCLUSION

For all of the foregoing reasons, the Air District respectfully requests that the portion of the Court of Appeal's decision requiring an analysis correlating the localized human health impacts associated with an individual project's criteria air pollutant emissions be reversed.

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[19] *Sierra Club v. City of Orange*, is illustrative here. In that case, the plaintiffs challenged an EIR approved for a large planned community on the basis that the EIR improperly broke up the various environmental impacts by separate project components or "piecemealed" the analysis in violation of CEQA. In evaluating the defense that the plaintiffs had failed to adequately raise the issue at the administrative level, the Court held that comments such as *"the use of a single document for both a project-level and a program-level EIR [is] 'confusing',"* and *"[t]he lead agency should identify any potential adverse air quality impacts that could occur from all phases of the project and all air pollutant sources related to the project,"* were too vague to fairly raise the argument of piecemealing before the agency. *Sierra Club v. City of Orange*, 163 Cal.App.4th at 537.

correlating the localized human health impacts associated with an individual project's criteria air pollutant emissions be reversed.

Respectfully submitted,

Dated: April 2, 2015

Catherine T. Redmond
Attorney for Proposed Amicus Curiae

SAN JOAQUIN VALLEY
UNIFIED
AIR POLLUTION CONTROL
DISTRICT

CERTIFICATE OF WORD COUNT

Pursuant to Rule 8.204 of the California Rules of Court, I hereby certify that this document, based on the Word County feature of the Microsoft Word software program used to compose and print this document, contains, exclusive of caption, tables, certificate of word count, signature block and certificate of service, 3806 words.

Dated: April 2, 2015

Annette A. Ballatore-Williamson
District Counsel (SBN 192176)

Sierra Club et al, v. County of Fresno, et al
Supreme Court of California Case No.: S219783
Fifth District Court of Appeal Case No.: F066798
Fresno County Superior Court Case No.: 11CECG00726

PROOF OF SERVICE

I am over the age of 18 years and not a p[arty to the above-captioned action; that my business address is San Joaquin Valley Unified Air Pollution Control District located at 1990 E. Gettysburg Avenue, Fresno, California 93726.

On April 2, 2015, I served the document described below:

APPLICATION FOR LEAVE TO FILE AMICUS CURIAE BRIEF OF SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT IN SUPPORT OF DEFENDANT AND RESPONDENT, COUNTY OF FRESNO

On all parties to this action at the following addresses and in the following manner:

PLEASE SEE ATTACHED SERVICE LIST

(XX) **(BY MAIL)** I caused a true copy of each document(s) to be laced in a sealed envelope with first-class postage affixed and placed the envelope for collection. Mail is collected daily at my office and placed in a United State Postal Service collection box for pick-up and delivery that same day.

( ) **(BY ELECTRONIC MAIL)** I caused a true and correct scanned image (.PDF file) copy to be transmitted via electronic mail transfer system in place at the San Joaquin Valley Unified Air Pollution Control District ("District"), originating from the undersigned at 1990 E. Gettysburg Avenue, Fresno, CA, to the address(es) indicated below.

( ) **(BY OVERNIGHT MAIL)** I caused a true and correct copy to be delivered via Federal Express to the following person(s) or their representative at the address(es) listed below.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct and that I executed this document on April 2, 2015, at Fresno, California.

Esthela Soto

SERVICE LIST

Sierra Club et al, v. County of Fresno, et al
Supreme Court of California Case No.: S219783
Fifth District Court of Appeal Case No.: F066798
Fresno County Superior Court Case No.: 11CECG00726

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S219783

IN THE SUPREME COURT OF C ALIFORNIA

SIERRA CLUB, REVIVE THE SAN JOAQUIN, and
LEAGUE OF WOMEN VOTERS OF FRESNO,

Plaintiffs and Appellants,

v.

COUNTY OF FRESNO,

Defendant and Respondent,

and,

FRIANT RANCH, L.P.,

Real Party in Interest and Respondent.

SUPREME COURT
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Deputy

After a Published Decision by the Court of Appeal, filed May 27, 2014
Fifth Appellate District Case No. F066798

Appeal from the Superior Court of California, County of Fresno
Case No. 11CECG00726
Honorable Rosendo A. Pena, Jr.

APPLICATION OF THE SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT FOR LEAVE TO FILE BRIEF OF *AMICUS CURIAE* IN SUPPORT OF NEITHER PARTY AND *[PROPOSED]* BRIEF OF *AMICUS CURIAE*

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TO THE HONORABLE CHIEF JUSTICE AND JUSTICES OF THE SUPREME COURT:

APPLICATION FOR LEAVE TO FILE *AMICUS CURIAE* BRIEF

Pursuant to Rule 8.520(f) of the California Rules of Court, the South Coast Air Quality Management District (SCAQMD) respectfully requests leave to file the attached *amicus curiae* brief. Because SCAQMD's position differs from that of either party, we request leave to submit this amicus brief in support of neither party.

HOW THIS BRIEF WILL ASSIST THE COURT

SCAQMD's proposed amicus brief takes a position on two of the issues in this case. In both instances, its position differs from that of either party. The issues are:

1) Does the California Environmental Quality Act (CEQA) require an environmental impact report (EIR) to correlate a project's air pollution emissions with specific levels of health impacts?
2) What is the proper standard of review for determining whether an EIR provides sufficient information on the health impacts caused by a project's emission of air pollutants?

This brief will assist the Court by discussing the practical realities of correlating identified air quality impacts with specific health outcomes. In short, CEQA requires agencies to provide detailed information about a project's air quality impacts that is sufficient for the public and decisionmakers to adequately evaluate the project and meaningfully understand its impacts. However, the level of analysis is governed by a rule of reason; CEQA only requires agencies to conduct analysis if it is reasonably feasible to do so.

With regard to health-related air quality impacts, an analysis that correlates a project's air pollution emissions with specific levels of health impacts will be feasible in some cases but not others. Whether it is feasible depends on a variety of factors, including the nature of the project and the nature of the analysis under consideration. The feasibility of analysis may also change over time as air districts and others develop new tools for measuring projects' air quality related health impacts. Because SCAQMD has among the most sophisticated air quality modeling and health impact evaluation capability of any of the air districts in the State, it is uniquely situated to express an opinion on the extent to which the Court should hold that CEQA requires lead agencies to correlate air quality impacts with specific health outcomes.

SCAQMD can also offer a unique perspective on the question of the appropriate standard of review. SCAQMD submits that the proper standard of review for determining whether an EIR is sufficient as an informational document is more nuanced than argued by either party. In our view, this is a mixed question of fact and law. It includes determining whether additional analysis is feasible, which is primarily a factual question that should be reviewed under the substantial evidence standard. However, it also involves determining whether the omission of a particular analysis renders an EIR insufficient to serve CEQA's purpose as a meaningful, informational document. If a lead agency has not determined that a requested analysis is infeasible, it is the court's role to determine whether the EIR nevertheless meets CEQA's purposes, and courts should not defer to the lead agency's conclusions regarding the legal sufficiency of an EIR's analysis. The ultimate question of whether an EIR's analysis is "sufficient" to serve CEQA's informational purposes is predominately a question of law that courts should review de novo.

This brief will explain the rationale for these arguments and may assist the Court in reaching a conclusion that accords proper respect to a lead agency's factual conclusions while maintaining judicial authority over the ultimate question of what level of analysis CEQA requires.

STATEMENT OF INTEREST OF *AMICUS CURIAE*

The SCAQMD is the regional agency primarily responsible for air pollution control in the South Coast Air Basin, which consists of all of Orange County and the non-desert portions of the Los Angeles, Riverside, and San Bernardino Counties. (Health & Saf. Code § 40410; Cal. Code Regs., tit. 17, § 60104.) The SCAQMD participates in the CEQA process in several ways. Sometimes it acts as a lead agency that prepares CEQA documents for projects. Other times it acts as a responsible agency when it has permit authority over some part of a project that is undergoing CEQA review by a different lead agency. Finally, SCAQMD also acts as a commenting agency for CEQA documents that it receives because it is a public agency with jurisdiction by law over natural resources affected by the project.

In all of these capacities, SCAQMD will be affected by the decision in this case. SCAQMD sometimes submits comments requesting that a lead agency perform an additional type of air quality or health impacts analysis. On the other hand, SCAQMD sometimes determines that a particular type of health impact analysis is not feasible or would not produce reliable and informative results. Thus, SCAQMD will be affected by the Court's resolution of the extent to which CEQA requires EIRs to correlate emissions and health impacts, and its resolution of the proper standard of review.

CERTIFICATION REGARDING AUTHORSHIP AND FUNDING

No party or counsel in the pending case authored the proposed amicus curiae brief in whole or in part, or made any monetary contribution intended to fund the preparation or submission of the brief. No person or entity other than the proposed *Amicus Curiae* made any monetary contribution intended to fund the preparation or submission of the brief.

Respectfully submitted,

DATED: April 3, 2015

SOUTH COAST AIR QUALITY
MANAGEMENT DISTRICT
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BRIEF OF AMICUS CURIAE

SUMMARY OF ARGUMENT

The South Coast Air Quality Management District (SCAQMD) submits that this Court should not try to establish a hard-and-fast rule concerning whether lead agencies are required to correlate emissions of air pollutants with specific health consequences in their environmental impact reports (EIR). The level of detail required in EIRs is governed by a few, core CEQA (California Environmental Quality Act) principles. As this Court has stated, "[a]n EIR must include detail sufficient to enable those who did not participate in its preparation to understand and to consider meaningfully the issues raised by the proposed project." (*Laurel Heights Improvement Assn. v. Regents of the Univ of Cal.* (1988) 47 Cal.3d 376, 405 ["*Laurel Heights I*"]) Accordingly, "an agency must use its best efforts to find out and disclose all that it reasonably can." (*Vineyard Area Citizens for Responsible Growth, Inc. v. City of Rancho Cordova* (2007) 40 Cal.4th 412, 428 (quoting CEQA Guidelines § 15144)[1].). However, "[a]nalysis of environmental effects need not be exhaustive, but will be judged in light of what is reasonably feasible." (*Association of Irritated Residents v. County of Madera* (2003) 107 Cal.App.4th 1383, 1390; CEQA Guidelines §§ 15151, 15204(a).)

With regard to analysis of air quality related health impacts, EIRs must generally quantify a project's pollutant emissions, but in some cases it is not feasible to correlate these emissions to specific, quantifiable health impacts (e.g., premature mortality; hospital admissions). In such cases, a general description of the adverse health impacts resulting from the pollutants at issue may be sufficient. In other cases, due to the magnitude

[1] The CEQA Guidelines are found at Cal. Code Regs., tit. 14 §§ 15000, *et seq.*

or nature of the pollution emissions, as well as the specificity of the project involved, it may be feasible to quantify health impacts. Or there may be a less exacting, but still meaningful analysis of health impacts that can feasibly be performed. In these instances, agencies should disclose those impacts.

SCAQMD also submits that whether or not an EIR complies with CEQA's informational mandates by providing sufficient, feasible analysis is a mixed question of fact and law. Pertinent here, the question of whether an EIR's discussion of health impacts from air pollution is sufficient to allow the public to understand and consider meaningfully the issues involves two inquiries: (1) Is it feasible to provide the information or analysis that a commenter is requesting or a petitioner is arguing should be required?; and (2) Even if it is feasible, is the agency relying on other policy or legal considerations to justify not preparing the requested analysis? The first question of whether an analysis is feasible is primarily a question of fact that should be judged by the substantial evidence standard. The second inquiry involves evaluating CEQA's information disclosure purposes against the asserted reasons to not perform the requested analysis. For example, an agency might believe that its EIR meets CEQA's informational disclosure standards even without a particular analysis, and therefore choose not to conduct that analysis. SCAQMD submits that this is more of a legal question, which should be reviewed de novo as a question of law.

ARGUMENT

I. RELEVANT FACTUAL AND LEGAL FRAMEWORK.

A. Air Quality Regulatory Background

The South Coast Air Quality Management District (SCAQMD) is one of the local and regional air pollution control districts and air quality

management districts in California. The SCAQMD is the regional air pollution agency for the South Coast Air Basin, which consists of all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties. (Health & Saf. Code § 40410, 17 Cal. Code Reg. § 60104.) The SCAQMD also includes the Coachella Valley in Riverside County (Palm Springs area to the Salton Sea). (SCAQMD, *Final 2012 AQMP (Feb. 2013)*, http://www.aqmd.gov/home/library/clean-air-plans/air-quality-mgt-plan/final-2012-air-quality-management-plan; then follow "chapter 7" hyperlink; pp 7-1, 7-3 (last visited Apr. 1, 2015).) The SCAQMD's jurisdiction includes over 16 million residents and has the worst or nearly the worst air pollution levels in the country for ozone and fine particulate matter. (SCAQMD, *Final 2012 AQMP (Feb. 2013)*, http://www.aqmd.gov/home/library/clean-air-plans/air-quality-mgt-plan/final-2012-air-quality-management-plan; then follow "Executive Summary" hyperlink p. ES-1 (last visited Apr. 1, 2015).)

Under California law, the local and regional districts are primarily responsible for controlling air pollution from all sources except motor vehicles. (Health & Saf. Code § 40000.) The California Air Resources Board (CARB), part of the California Environmental Protection Agency, is primarily responsible for controlling pollution from motor vehicles. (*Id.*) The air districts must adopt rules to achieve and maintain the state and federal ambient air quality standards within their jurisdictions. (Health & Saf. Code § 40001.)

The federal Clean Air Act (CAA) requires the United States Environmental Protection Agency (EPA) to identify pollutants that are widely distributed and pose a threat to human health, developing a so-called "criteria" document. (42 U.S.C. § 7408; CAA § 108.) These pollutants are frequently called "criteria pollutants." EPA must then establish "national ambient air quality standards" at levels "requisite to protect public health",

allowing "an adequate margin of safety." (42 U.S.C. § 7409; CAA § 109.) EPA has set standards for six identified pollutants: ozone, nitrogen dioxide, sulfur dioxide, carbon monoxide, particulate matter (PM), and lead. (U.S. EPA, National Ambient Air Quality Standards (NAAQS), http://www.epa.gov/air/criteria.html (last updated Oct. 21, 2014).)[2]

Under the Clean Air Act, EPA sets emission standards for motor vehicles and "nonroad engines" (mobile farm and construction equipment, marine vessels, locomotives, aircraft, etc.). (42 U.S.C. §§ 7521, 7547; CAA §§ 202, 213.) California is the only state allowed to establish emission standards for motor vehicles and most nonroad sources; however, it may only do so with EPA's approval. (42 U.S.C. §§ 7543(b), 7543(e); CAA §§ 209(b), 209(c).) Sources such as manufacturing facilities, power plants and refineries that are not mobile are often referred to as "stationary sources." The Clean Air Act charges state and local agencies with the primary responsibility to attain the national ambient air quality standards. (42 U.S.C. § 7401(a)(3); CAA § 101(a)(3).) Each state must adopt and implement a plan including enforceable measures to achieve and maintain the national ambient air quality standards. (42 U.S.C. § 7410; CAA § 110.) The SCAQMD and CARB jointly prepare portion of the plan for the South Coast Air Basin and submit it for approval by EPA. (Health & Saf. Code §§ 40460, et seq.)

The Clean Air Act also requires state and local agencies to adopt a permit program requiring, among other things, that new or modified "major" stationary sources use technology to achieve the "lowest achievable emission rate," and to control minor stationary sources as

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[2] Particulate matter (PM) is further divided into two categories: fine particulate or $PM_{2.5}$ (particles with a diameter of less than or equal to 2.5 microns) and coarse particulate (PM_{10}) (particles with a diameter of 10 microns or less). (U.S. EPA, Particulate Matter (PM), http://www.epa.gov/airquality/particlepollution/ (last visited Apr. 1, 2015).)

needed to help attain the standards. (42 U.S.C. §§ 7502(c)(5), 7503(a)(2), 7410(a)(2)(C); CAA §§ 172(c)(5), 173(a)(2), 110(a)(2)(C).) The air districts implement these permit programs in California. (Health & Saf. Code §§ 42300, et seq.)

The Clean Air Act also sets out a regulatory structure for over 100 so-called "hazardous air pollutants" calling for EPA to establish "maximum achievable control technology" (MACT) for sources of these pollutants. (42 U.S.C. § 7412(d)(2); CAA § 112(d)(2).) California refers to these pollutants as "toxic air contaminants" (TACs) which are subject to two state-required programs. The first program requires "air toxics control measures" for specific categories of sources. (Health & Saf. Code § 39666.) The other program requires larger stationary sources and sources identified by air districts to prepare "health risk assessments" for impacts of toxic air contaminants. (Health & Saf. Code §§ 44320(b), 44322, 44360.) If the health risk exceeds levels identified by the district as "significant," the facility must implement a "risk reduction plan" to bring its risk levels below "significant" levels. Air districts may adopt additional more stringent requirements than those required by state law, including requirements for toxic air contaminants. (Health & Saf. Code § 41508; *Western Oil & Gas Assn. v. Monterey Bay Unified APCD* (1989) 49 Cal.3d 408, 414.) For example, SCAQMD has adopted a rule requiring new or modified sources to keep their risks below specified levels and use best available control technology (BACT) for toxics. (SCAQMD, *Rule 1401-New Source Review of Toxic Air Contaminants*, http://www.aqmd.gov/home/regulations/rules/scaqmd-rule-book/regulation-xiv; then follow "Rule 1401" hyperlink (last visited Apr. 1, 2015).)

B. The SCAQMD's Role Under CEQA

The California Environmental Quality Act (CEQA) requires public agencies to perform an environmental review and appropriate analysis for projects that they implement or approve. (Pub. Resources Code § 21080(a).) The agency with primary approval authority for a particular project is generally the "lead agency" that prepares the appropriate CEQA document. (CEQA Guidelines §§ 15050, 15051.) Other agencies having a subsequent approval authority over all or part of a project are called "responsible" agencies that must determine whether the CEQA document is adequate for their use. (CEQA Guidelines §§ 15096(c), 15381.) Lead agencies must also consult with and circulate their environmental impact reports to "trustee agencies" and agencies "with jurisdiction by law" including "authority over resources which may be affected by the project." (Pub. Resources Code §§ 21104(a), 21153; CEQA Guidelines §§ 15086(a)(3), 15073(c).) The SCAQMD has a role in all these aspects of CEQA.

Fulfilling its responsibilities to implement its air quality plan and adopt rules to attain the national ambient air quality standards, SCAQMD adopts a dozen or more rules each year to require pollution reductions from a wide variety of sources. The SCAQMD staff evaluates each rule for any adverse environmental impact and prepares the appropriate CEQA document. Although most rules reduce air emissions, they may have secondary environmental impacts such as use of water or energy or disposal of waste—e.g., spent catalyst from control equipment.[3]

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[3] The SCAQMD's CEQA program for its rules is a "Certified Regulatory Program" under which it prepares a "functionally equivalent" document in lieu of a negative declaration or EIR. (Pub. Resources Code § 21080.5, CEQA Guidelines § 15251(l).)

The SCAQMD also approves a large number of permits every year to construct new, modified, or replacement facilities that emit regulated air pollutants. The majority of these air pollutant sources have already been included in an earlier CEQA evaluation for a larger project, are currently being evaluated by a local government as lead agency, or qualify for an exemption. However, the SCAQMD sometimes acts as lead agency for major projects where the local government does not have a discretionary approval. In such cases, SCAQMD prepares and certifies a negative declaration or environmental impact report (EIR) as appropriate.[4] SCAQMD evaluates perhaps a dozen such permit projects under CEQA each year. SCAQMD is often also a "responsible agency" for many projects since it must issue a permit for part of the projects (e.g., a boiler used to provide heat in a commercial building). For permit projects evaluated by another lead agency under CEQA, SCAQMD has the right to determine that the CEQA document is inadequate for its purposes as a responsible agency, but it may not do so because its permit program already requires all permitted sources to use the best available air pollution control technology. (SCAQMD, *Rule 1303(a)(1) – Requirements*, http://www.aqmd.gov/home/regulations/rules/scaqmd-rule-book/regulation-xiii; then follow "Rule 1303" hyperlink (last visited Apr. 1, 2015).)

Finally, SCAQMD receives as many as 60 or more CEQA documents each month (around 500 per year) in its role as commenting agency or an agency with "jurisdiction by law" over air quality—a natural resource affected by the project. (Pub. Resources Code §§ 21104(a), 21153; CEQA Guidelines § 15366(a)(3).) The SCAQMD staff provides comments on as many as 25 or 30 such documents each month.

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[4] The SCAQMD's permit projects are not included in its Certified Regulatory Program, and are evaluated under the traditional local government CEQA analysis. (Pub. Resources Code §§ 21150-21154.)

(SCAQMD Governing Board Agenda, Apr. 3, 2015, Agenda Item 16, Attachment A, http://www.aqmd.gov/home/library/meeting-agendas-minutes/agenda?title=governing-board-meeting-agenda-april-3-2015; then follow "16. Lead Agency Projects and Environmental Documents Received by SCAQMD" hyperlink (last visited Apr. 1, 2015).) Of course, SCAQMD focuses its commenting efforts on the more significant projects.

Typically, SCAQMD comments on the adequacy of air quality analysis, appropriateness of assumptions and methodology, and completeness of the recommended air quality mitigation measures. Staff may comment on the need to prepare a health risk assessment detailing the projected cancer and noncancer risks from toxic air contaminants resulting from the project, particularly the impacts of diesel particulate matter, which CARB has identified as a toxic air contaminant based on its carcinogenic effects. (California Air Resources Board, Resolution 98-35, Aug. 27, 1998, http://www.arb.ca.gov/regact/diesltac/diesltac.htm; then follow Resolution 98-35 hyperlink (last visited Apr. 1, 2015).) Because SCAQMD already requires new or modified stationary sources of toxic air contaminants to use the best available control technology for toxics and to keep their risks below specified levels, (SCAQMD Rule 1401, supra, note 15), the greatest opportunity to further mitigate toxic impacts through the CEQA process is by reducing emissions—particularly diesel emissions—from vehicles.

II. THIS COURT SHOULD NOT SET A HARD-AND-FAST RULE CONCERNING THE EXTENT TO WHICH AN EIR MUST CORRELATE A PROJECT'S EMISSION OF POLLUTANTS WITH RESULTING HEALTH IMPACTS.

Numerous cases hold that courts do not review the correctness of an EIR's conclusions but rather its sufficiency as an informative document. (*Laurel Heights 1, supra*, 47 Cal.3d at p. 392; *Citizens of Goleta Valley v.*

Bd. of Supervisors (1990) 52 Cal.3d 553, 569; *Bakersfield Citizens for Local Control v. City of Bakersfield* (2004) 124 Cal.App.4th 1184, 1197.)

As stated by the Court of Appeal in this case, where an EIR has addressed a topic, but the petitioner claims that the information provided about that topic is insufficient, courts must "draw[] a line that divides *sufficient* discussions from those that are *insufficient*." (*Sierra Club v. County of Fresno* (2014) 226 Cal.App.4th 704 (superseded by grant of review) 172 Cal.Rptr.3d 271, 290.) The Court of Appeal readily admitted that "[t]he terms themselves – sufficient and insufficient – provide little, if any, guidance as to where the line should be drawn. They are simply labels applied once the court has completed its analysis." (*Id.*)

The CEQA Guidelines, however, provide guidance regarding what constitutes a sufficient discussion of impacts. Section 15151 states that "the sufficiency of an EIR is to be reviewed in light of what is reasonably feasible." Case law reflects this: "Analysis of environmental effects need not be exhaustive, but will be judged in light of what was reasonably feasible." (*Association of Irritated Residents v. County of Madera, supra,* 107 Cal.App.4th at p. 1390; see also CEQA Guidelines § 15204(a).)

Applying this test, this Court cannot realistically establish a hard-and-fast rule that an analysis correlating air pollution impacts of a project to quantified resulting health impacts is always required, or indeed that it is never required. Simply put, in some cases such an analysis will be "feasible"; in some cases it will not.

For example, air pollution control districts often require a proposed new source of toxic air contaminants to prepare a "health risk assessment" before issuing a permit to construct. District rules often limit the allowable cancer risk the new source may cause to the "maximally exposed individual" (worker and residence exposures). (*See, e.g.*, SCAQMD Rule 1401(c)(8); 1401(d)(1), *supra* note 15.) In order to perform this analysis, it

is necessary to have data regarding the sources and types of air toxic contaminants, location of emission points, velocity of emissions, the meteorology and topography of the area, and the location of receptors (worker and residence). (SCAQMD, *Supplemental Guidelines for Preparing Risk Assessments for the Air Toxics "Hot Spots" Information and Assessment Act (AB2588), pp. 11-16*; (last visited Apr. 1, 2015) http://www.aqmd.gov/home/library/documents-support-material; "Guidelines" hyperlink; AB2588; then follow AB2588 Risk Assessment Guidelines hyperlink.)

Thus, it is feasible to determine the health risk posed by a new gas station locating at an intersection in a mixed use area, where receptor locations are known. On the other hand, it may not be feasible to perform a health risk assessment for airborne toxics that will be emitted by a generic industrial building that was built on "speculation" (i.e., without knowing the future tenant(s)). Even where a health risk assessment can be prepared, however, the resulting maximum health risk value is only a calculation of risk—it does not necessarily mean anyone will contract cancer as a result of the project.

In order to find the "cancer burden" or expected additional cases of cancer resulting from the project, it is also necessary to know the numbers and location of individuals living within the "zone of impact" of the project: i.e., those living in areas where the projected cancer risk from the project exceeds one in a million. (SCAQMD, Health Risk Assessment Summary form, http://www.aqmd.gov/home/forms ; filter by "AB2588" category; then "Health Risk Assessment" hyperlink (last visited Apr. 1, 2015).) The affected population is divided into bands of those exposed to at least 1 in a million risk, those exposed to at least 10 in a million risk, etc. up to those exposed at the highest levels. (*Id.*) This data allows agencies to calculate an approximate number of additional cancer cases expected from

the project. However, it is not possible to predict which particular individuals will be affected.

For the so-called criteria pollutants[5], such as ozone, it may be more difficult to quantify health impacts. Ozone is formed in the atmosphere from the chemical reaction of the nitrogen oxides (NO_x) and volatile organic compounds (VOC) in the presence of sunlight. (U.S. EPA, Ground Level Ozone, http://www.epa.gov/airquality/ozonepollution/ (last updated Mar. 25, 2015).) It takes time and the influence of meteorological conditions for these reactions to occur, so ozone may be formed at a distance downwind from the sources. (U.S. EPA, *Guideline on Ozone Monitoring Site Selection* (Aug. 1998) EPA-454/R-98-002 § 5.1.2, http://www.epa.gov/ttnamti1/archive/cpreldoc.html (last visited Apr. 1, 2015).) NO_x and VOC are known as "precursors" of ozone.

Scientifically, health effects from ozone are correlated with increases in the ambient level of ozone in the air a person breathes. (U.S. EPA, *Health Effects of Ozone in the General Population,* Figure 9, http://www.epa.gov/apti/ozonehealth/population.html#levels (last visited Apr. 1, 2015).) However, it takes a large amount of additional precursor emissions to cause a modeled increase in ambient ozone levels over an entire region. For example, the SCAQMD's 2012 AQMP showed that reducing NO_x by 432 tons per day (157,680 tons/year) and reducing VOC by 187 tons per day (68,255 tons/year) would reduce ozone levels at the SCAQMD's monitor site with the highest levels by only 9 parts per billion. (South Coast Air Quality Management District, *Final 2012 AQMP (February 2013)*, http://www.aqmd.gov/home/library/clean-air-plans/air-quality-mgt-plan/final-2012-air-quality-management-plan; then follow "Appendix V: Modeling & Attainment Demonstrations" hyperlink,

[5] See discussion of types of pollutants, supra, Part I.A.

pp. v-4-2, v-7-4, v-7-24.) SCAQMD staff does not currently know of a way to accurately quantify ozone-related health impacts caused by NO_x or VOC emissions from relatively small projects.

On the other hand, this type of analysis may be feasible for projects on a regional scale with very high emissions of NO_x and VOCs, where impacts are regional. For example, in 2011 the SCAQMD performed a health impact analysis in its CEQA document for proposed Rule 1315, which authorized various newly-permitted sources to use offsets from the districts "internal bank" of emission reductions. This CEQA analysis accounted for essentially *all* the increases in emissions due to new or modified sources in the District between 2010 and 2030.[6] The SCAQMD was able to correlate this very large emissions increase (e.g., 6,620 pounds per day NO_x (1,208 tons per year), 89,180 pounds per day VOC (16,275 tons per year)) to expected health outcomes from ozone and particulate matter (e.g., 20 premature deaths per year and 89,947 school absences in the year 2030 due to ozone).[7] (SCAQMD Governing Board Agenda, February 4, 2011, Agenda Item 26, *Assessment for: Re-adoption of Proposed Rule 1315 – Federal New Source Review Tracking System* (see hyperlink in fn 6*)* at p. 4.1-35, Table 4.1-29.)

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[6] (SCAQMD Governing Board Agenda, February 4, 2011, Agenda Item 26, Attachment G, *Assessment for: Re-adoption of Proposed Rule 1315 – Federal New Source Review Tracking System, Vol. 1, p.4.0-6,* http://www.aqmd.gov/home/library/meeting-agendas-minutes/agenda?title=governing-board-meeting-agenda-february-4-2011; the follow "26. Adopt Proposed Rule 1315 – Federal New Source Review Tracking System" (last visited April 1, 2015).)

[7] The SCAQMD was able to establish the location of future NO_x and VOC emissions by assuming that new projects would be built in the same locations and proportions as existing stationary sources. This CEQA document was upheld by the Los Angeles County Superior Court in *Natural Res. Def. Council v SCAQMD*, Los Angeles Superior Court No. BS110792).

However, a project emitting only 10 tons per year of NO_x or VOC is small enough that its regional impact on ambient ozone levels may not be detected in the regional air quality models that are currently used to determine ozone levels. Thus, in this case it would not be feasible to directly correlate project emissions of VOC or NO_x with specific health impacts from ozone. This is in part because ozone formation is not linearly related to emissions. Ozone impacts vary depending on the location of the emissions, the location of other precursor emissions, meteorology and seasonal impacts, and because ozone is formed some time later and downwind from the actual emission. (EPA Guideline on Ozone Monitoring Site Selection (Aug. 1998) EPA-454/R-98-002, § 5.1.2; https://www.epa.gov/ttnamti1/archive/cpreldoc.html; then search "Guideline on Ozone Monitoring Site Selection" click on pdf) (last viewed Apr. 1, 2015).)

SCAQMD has set its CEQA "significance" threshold for NO_x and VOC at 10 tons per year (expressed as 55 lb/day). (SCAQMD, *Air Quality Analysis Handbook*, http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook; then follow "SCAQMD Air Quality Significance Thresholds" hyperlink (last visited Apr. 1, 2015).) This is because the federal Clean Air Act defines a "major" stationary source for "extreme" ozone nonattainment areas such as SCAQMD as one emitting 10 tons/year. (42 U.S.C. §§ 7511a(e), 7511a(f); CAA §§ 182(e), 182(f).) Under the Clean Air Act, such sources are subject to enhanced control requirements (42 U.S.C. §§ 7502(c)(5), 7503; CAA §§ 172(c)(5), 173), so SCAQMD decided this was an appropriate threshold for making a CEQA "significance" finding and requiring feasible mitigation. Essentially, SCAQMD takes the position that a source that emits 10 tons/year of NO_x or VOC would contribute cumulatively to ozone formation. Therefore, lead agencies that use SCAQMD's thresholds of significance may determine

that many projects have "significant" air quality impacts and must apply all feasible mitigation measures, yet will not be able to precisely correlate the project to quantifiable health impacts, unless the emissions are sufficiently high to use a regional modeling program.

In the case of particulate matter ($PM_{2.5}$)[8], another "criteria" pollutant, SCAQMD staff is aware of two possible methods of analysis. SCAQMD used regional modeling to predict expected health impacts from its proposed Rule 1315, as mentioned above. Also, the California Air Resources Board (CARB) has developed a methodology that can predict expected mortality (premature deaths) from large amounts of $PM_{2.5}$. (California Air Resources Board, *Health Impacts Analysis: PM Premature Death Relationship*, http://www.arb.ca.gov/research/health/pm-mort/pm-mort_arch.htm (last reviewed Jan. 19, 2012).) SCAQMD used the CARB methodology to predict impacts from three very large power plants (e.g., 731-1837 lbs/day). (Final Environmental Assessment for Rule 1315, *supra*, pp 4.0-12, 4.1-13, 4.1-37 (e.g., 125 premature deaths in the entire SCAQMD in 2030), 4.1-39 (0.05 to 1.77 annual premature deaths from power plants.) Again, this project involved large amounts of additional $PM_{2.5}$ in the District, up to 2.82 tons/day (5,650 lbs/day of $PM_{2.5}$, or, or 1029 tons/year. (*Id.* at table 4.1-4, p. 4.1-10.)

However, the primary author of the CARB methodology has reported that this $PM_{2.5}$ health impact methodology is not suited for small projects and may yield unreliable results due to various uncertainties. [9] (SCAQMD, *Final Subsequent Mitigated Negative Declaration for: Warren*

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[8] SCAQMD has not attained the latest annual or 24-hour national ambient air quality standards for "$PM_{2.5}$" or particulate matter less than 2.5 microns in diameter.

[9] Among these uncertainties are the representativeness of the population used in the methodology, and the specific source of PM and the corresponding health impacts. (*Id.* at p. 2-24.)

E&P, Inc. WTU Central Facility, New Equipment Project (certified July 19, 2011), http://www.aqmd.gov/home/library/documents-support-material/lead-agency-permit-projects/permit-project-documents---year-2011; then follow "Final Subsequent Mitigated Negative Declaration for Warren E&P Inc. WTU Central Facility, New Equipment Project" hyperlink, pp. 2-22, 2-23 (last visited Apr. 1, 2015).) Therefore, when SCAQMD prepared a CEQA document for the expansion of an existing oil production facility, with very small $PM_{2.5}$ increases (3.8 lb/day) and a very small affected population, staff elected not to use the CARB methodology for using estimated $PM_{2.5}$ emissions to derive a projected premature mortality number and explained why it would be inappropriate to do so. (*Id.* at pp 2-22 to 2-24.) SCAQMD staff concluded that use of this methodology for such a small source could result in unreliable findings and would not provide meaningful information. (*Id.* at pp. 2-23, 2-25.) This CEQA document was not challenged in court.

In the above case, while it may have been technically possible to plug the data into the methodology, the results would not have been reliable or meaningful. SCAQMD believes that an agency should not be required to perform analyses that do not produce reliable or meaningful results. This Court has already held that an agency may decline to use even the "normal" "existing conditions" CEQA baseline where to do so would be misleading or without informational value. (*Neighbors for Smart Rail v. Exposition Metro Line* (2013) 57 Cal.4th 439, 448, 457.) The same should be true for a decision that a particular study or analysis would not provide reliable or meaningful results.[10]

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[10] Whether a particular study would result in "informational value" is a part of deciding whether it is "feasible." CEQA defines "feasible" as "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and

Therefore, it is not possible to set a hard-and-fast rule on whether a correlation of air quality impacts with specific quantifiable health impacts is required in all cases. Instead, the result turns on whether such an analysis is reasonably feasible in the particular case.[11] Moreover, what is reasonably feasible may change over time as scientists and regulatory agencies continually seek to improve their ability to predict health impacts. For example, CARB staff has been directed by its Governing Board to reassess and improve the methodology for estimating premature deaths. (California Air Resources Board, *Health Impacts Analysis: PM Mortality Relationship*, http://www.arb.ca.gov/research/health/pm-mort/pm-mort.htm (last reviewed Dec. 29, 2010).) This factor also counsels against setting any hard-and-fast rule in this case.

III. THE QUESTION OF WHETHER AN EIR CONTAINS SUFFICIENT ANALYSIS TO MEET CEQA'S REQUIREMENTS IS A MIXED QUESTION OF FACT AND LAW GOVERNED BY TWO DIFFERENT STANDARDS OF REVIEW.

A. Standard of Review for Feasibility Determination and Sufficiency as an Informative Document

A second issue in this case is whether courts should review an EIR's informational sufficiency under the "substantial evidence" test as argued by Friant Ranch or the "independent judgment" test as argued by Sierra Club.

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technological factors." (Pub. Resources Code § 21061.1.) A study cannot be "accomplished in a *successful* manner" if it produces unreliable or misleading results.

[11] In this case, the lead agency did not have an opportunity to determine whether the requested analysis was feasible because the comment was non-specific. Therefore, SCAQMD suggests that this Court, after resolving the legal issues in the case, direct the Court of Appeal to remand the case to the lead agency for a determination of whether the requested analysis is feasible. Because Fresno County, the lead agency, did not seek review in this Court, it seems likely that the County has concluded that at least some level of correlation of air pollution with health impacts is feasible.

As this Court has explained, "a reviewing court must adjust its scrutiny to the nature of the alleged defect, depending on whether the claim is predominantly one of improper procedure or a dispute over the facts." (*Vineyard Area Citizens v. City of Rancho Cordova, supra,* 40 Cal.4th at 435.) For questions regarding compliance with proper procedure or other legal questions, courts review an agency's action de novo under the "independent judgment" test. (*Id.*) On the other hand, courts review factual disputes only for substantial evidence, thereby "accord[ing] greater deference to the agency's substantive factual conclusions." (*Id.*)

Here, Friant Ranch and Sierra Club agree that the case involves the question of whether an EIR includes sufficient information regarding a project's impacts. However, they disagree on the proper standard of review for answering this question: Sierra Club contends that courts use the independent judgment standard to determine whether an EIR's analysis is sufficient to meet CEQA's informational purposes,[12] while Friant Ranch contends that the substantial evidence standard applies to this question.

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[12] Sierra Club acknowledges that courts use the substantial evidence standard when reviewing predicate factual issues, but argues that courts ultimately decide as a matter of law what CEQA requires. (Answering Brief, pp. 14, 23.)

SCAQMD submits that the issue is more nuanced than either party contends. We submit that, whether a CEQA document includes sufficient analysis to satisfy CEQA's informational mandates is a mixed question of fact and law,[13] containing two levels of inquiry that should be judged by different standards.[14]

The state CEQA Guidelines set forth standards for the adequacy of environmental analysis. Guidelines Section 15151 states:

> An EIR should be prepared with a sufficient degree of analysis to provide decision makers with information which enables them to make a decision which intelligently takes account of environmental consequences. An evaluation of the environmental effects of a proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in light of what is reasonably feasible. Disagreement among experts does not make an EIR inadequate, but the EIR should summarize the main points of disagreement among the experts. The courts have looked not for perfection, but for adequacy, completeness, and a good-faith effort at full disclosure.

In this case, the basic question is whether the underlying analysis of air quality impacts made the EIR "sufficient" as an informative document. However, whether the EIR's analysis was sufficient is judged in light of what was reasonably feasible. This represents a mixed question of fact and law that is governed by two different standards of review.

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[13] Friant Ranch actually states that the claim that an EIR lacks sufficient relevant information is, "most properly thought of as raising mixed questions of fact and law." (Opening Brief, p. 27.) However, the remainder of its argument claims that the court should apply the substantial evidence standard of review to all aspects of the issue.

[14] Mixed questions of fact and law issues may implicate predominantly factual subordinate questions that are reviewed under the substantial evidence test even though the ultimate question may be reviewed by the independent judgment test. *Crocker National Bank v. City and County of San Francisco* (1989) 49 Cal.3d 881, 888-889.

SCAQMD submits that an EIR's sufficiency as an informational document is ultimately a legal question that courts should determine using their independent judgment. This Court's language in *Laurel Heights I* supports this position. As this Court explained: "The court does not pass upon the correctness of the EIR's environmental conclusions, but only upon its *sufficiency as an informative document.*" (*Laurel Heights I, supra,* 47 Cal.3d at 392-393) (emphasis added.) As described above, the Court in *Vineyard Area Citizens v. City of Rancho Cordova, supra,* 40 Cal.4th at 431, also used its independent judgment to determine what level of analysis CEQA requires for water supply impacts. The Court did not defer to the lead agency's opinion regarding the law's requirements; rather, it determined for itself what level of analysis was necessary to meet "[t]he law's informational demands." (*Id.* at p. 432.) Further, existing case law also holds that where an agency fails to comply with CEQA's information disclosure requirements, the agency has "failed to proceed in the manner required by law." (*Save Our Peninsula Comm. v. Monterey County Bd. of Supervisors* (2001) 87 Cal.App.4th 99, 118.)

However, whether an EIR satisfies CEQA's requirements depends in part on whether it was reasonably feasible for an agency to conduct additional or more thorough analysis. EIRs must contain "a detailed statement" of a project's impacts (Pub. Res. Code § 21061), and an agency must "use its best efforts to find out and disclose all that it reasonably can." (CEQA Guidelines § 15144.) Nevertheless, "the sufficiency of an EIR is to be reviewed in light of what is reasonably feasible." (CEQA Guidelines § 15151.)

SCAQMD submits that the question of whether additional analysis or a particular study suggested by a commenter is "feasible" is generally a question of fact. Courts have already held that whether a particular alternative is "feasible" is reviewed by the substantial evidence test.

(*Uphold Our Heritage v. Town of Woodside* (2007) 147 Cal.App.4th 587, 598-99; *Center for Biological Diversity v. County of San Bernardino* (2010) 185 Cal.App.4th 866, 883.) Thus, if a lead agency determines that a particular study or analysis is infeasible, that decision should generally be judged by the substantial evidence standard. However, SCAQMD urges this Court to hold that lead agencies must explain the basis of any determination that a particular analysis is infeasible in the EIR itself. An EIR must discuss information, including issues related to the feasibility of particular analyses "in sufficient detail to enable meaningful participation and criticism by the public. '[W]hatever is required to be considered in an EIR must be in that formal report; what any official might have known from other writings or oral presentations cannot supply what is lacking in the report.'" (*Laurel Heights I, supra*, 47 Cal.3d at p. 405 (quoting *Santiago County Water District v. County of Orange* (1981) 118 Cal.App.3d 818, 831) (discussing analysis of alternatives).) The evidence on which the determination is based should also be summarized in the EIR itself, with appropriate citations to reference materials if necessary. Otherwise commenting agencies such as SCAQMD would be forced to guess where the lead agency's evidence might be located, thus thwarting effective public participation.

Moreover, if a lead agency determines that a particular study or analysis would not result in reliable or useful information and for that reason is not feasible, that determination should be judged by the substantial evidence test. (See *Neighbors for Smart Rail v. Exposition Metro Line Construction Authority, supra*, 57 Cal.4th 439, 448, 457:

whether "existing conditions" baseline would be misleading or uninformative judged by substantial evidence standard.[15])

If the lead agency's determination that a particular analysis or study is not feasible is supported by substantial evidence, then the agency has not violated CEQA's information disclosure provisions, since it would be infeasible to provide additional information. This Court's decisions provide precedent for such a result. For example, this Court determined that the issue of whether the EIR should have included a more detailed discussion of future herbicide use was resolved because substantial evidence supported the agency's finding that "the precise parameters of future herbicide use could not be predicted." *Ebbetts Pass Forest Watch v. California Dept. of Forestry & Fire Protection* (2008) 43 Cal.4th 936, 955.

Of course, SCAQMD expects that courts will continue to hold lead agencies to their obligations to consult with, and not to ignore or misrepresent, the views of sister agencies having special expertise in the area of air quality. (*Berkeley Keep Jets Over the Bay v. Board of Port Commissioners* (2007) 91 Cal.App.4th 1344, 1364 n.11.) In some cases, information provided by such expert agencies may establish that the purported evidence relied on by the lead agency is not in fact "substantial". (*Id.* at pp. 1369-1371.)

In sum, courts retain ultimate responsibility to determine what CEQA requires. However, the law does not require exhaustive analysis, but only what is reasonably feasible. Agencies deserve deference for their factual determinations regarding what type of analysis is reasonably feasible. On the other hand, if a commenter requests more information, and the lead agency declines to provide it but does *not* determine that the

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[15] The substantial evidence standard recognizes that the courts "have neither the resources nor the scientific expertise" to weigh conflicting evidence on technical issues. (*Laurel Heights I, supra,* 47 Cal.3d 376, 393.)

requested study or analysis would be infeasible, misleading or uninformative, the question becomes whether the omission of that analysis renders the EIR inadequate to satisfy CEQA's informational purposes. (*Id.* at pp. 1370-71.) Again, this is predominantly a question of law and should be judged by the de novo or independent judgment standard of review. Of course, this Court has recognized that a "project opponent or reviewing court can always imagine some additional study or analysis that might provide helpful information. It is not for them to design the EIR. That further study...might be helpful does not make it necessary." (*Laurel Heights I, supra,* 47 Cal.3d 376, 415 – see also CEQA Guidelines § 15204(a) [CEQA "does not require a lead agency to conduct every test. . . recommended or demanded by commenters."].) Courts, then, must adjudicate whether an omission of particular information renders an EIR inadequate to serve CEQA's informational purposes.[16]

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[16] We recognize that there is case law stating that the substantial evidence standard applies to "challenges to the scope of an EIR's analysis of a topic" as well as the methodology used and the accuracy of the data relied on in the document "because these types of challenges involve factual questions." (*Bakersfield Citizens for Local Control v. City of Bakersfield, supra,* 124 Cal.App.4th 1184, 1198, and cases relied on therein.) However, we interpret this language to refer to situations where the question of the scope of the analysis really is factual—that is, where it involves whether further analysis is feasible, as discussed above. This interpretation is supported by the fact that the *Bakersfield* court expressly rejected an argument that a claimed "omission of information from the EIR should be treated as inquiries whether there is substantial evidence supporting the decision approving the project. " *Bakersfield, supra,* 124 Cal.App.4th at p. 1208. And the *Bakersfield* court ultimately decided that the lead agency must analyze the connection between the identified air pollution impacts and resulting health impacts, even though the EIR already included some discussion of air-pollution-related respiratory illnesses. *Bakersfield, supra,* 124 Cal.App.4th at p. 1220. Therefore, the court must not have interpreted this question as one of the "scope of the analysis" to be judged by the substantial evidence standard.

B. Friant Ranch's Rationale for Rejecting the Independent Judgment Standard of Review is Unsupported by Case Law.

In its brief, Friant Ranch makes a distinction between cases where a required CEQA topic is not discussed at all (to be reviewed by independent judgment as a failure to proceed in the manner required by law) and cases where a topic is discussed, but the commenter claims the information provided is insufficient (to be judged by the substantial evidence test). (Opening Brief, pp. 13-17.) The Court of Appeal recognized these two types of cases, but concluded that both raised questions of law. (*Sierra Club v. County of Fresno* (2014) 226 Cal.App.4th 704 (superseded by grant of review) 172 Cal.Rptr.3d 271, 290.) We believe the distinction drawn by Friant Ranch is unduly narrow, and inconsistent with cases which have concluded that CEQA documents are insufficient. In many instances, CEQA's requirements are stated broadly, and the courts must interpret the law to determine what level of analysis satisfies CEQA's mandate for providing meaningful information, even though the EIR discusses the issue to some extent.

For example, the CEQA Guidelines require discussion of the existing environmental baseline. In *County of Amador v. El Dorado County Water Agency* (1999) 76 Cal.App.4th 931, 954-955, the lead agency had discussed the environmental baseline by describing historic month-end water levels in the affected lakes. However, the court held that this was not an adequate baseline discussion because it failed to discuss the timing and amounts of past actual water releases, to allow comparison with the proposed project. The court evidently applied the independent judgment test to its decision, even though the agency discussed the issue to some extent.

Likewise, in *Vineyard Area Citizens* (2007) 40 Cal.4th 412, this Court addressed the question of whether an EIR's analysis of water supply impacts complied with CEQA. The parties agreed that the EIR was required to analyze the effects of providing water to the development project, "and that in order to do so the EIR had, in some manner, to identify the planned sources of that water." (*Vineyard Area Citizens, supra,* at p. 428.) However, the parties disagreed as to the level of detail required for this analysis and "what level of uncertainty regarding the availability of water supplies can be tolerated in an EIR . . . ." (*Id.*) In other words, the EIR had analyzed water supply impacts for the project, but the petitioner claimed that the analysis was insufficient.

This Court noted that neither CEQA's statutory language or the CEQA Guidelines specifically addressed the question of how precisely an EIR must discuss water supply impacts. (*Id.*) However, it explained that CEQA "states that '[w]hile foreseeing the unforeseeable is not possible, an agency must use its best efforts to find out and disclose all that it reasonably can.'" (*Id.*, [Guidelines § 15144].) The Court used this general principle, along with prior precedent, to elucidate four "principles for analytical adequacy" that are necessary in order to satisfy "CEQA's informational purposes." (*Vineyard Area Citizens, supra,* at p. 430.) The Court did not defer to the agency's determination that the EIR's analysis of water supply impacts was sufficient. Rather, this Court used its independent judgment to determine for itself the level of analysis required to satisfy CEQA's fundamental purposes. (*Vineyard Area Citizens, supra,* at p. 441: an EIR does not serve its purposes where it neglects to explain likely sources of water and "... leaves long term water supply considerations to later stages of the project.")

Similarly, the CEQA Guidelines require an analysis of noise impacts of the project. (Appendix G, "Environmental Checklist Form."[17]) In *Gray v. County of Madera* (2008) 167 Cal.App.4th 1099, 1123, the court held that the lead agency's noise impact analysis was inadequate even though it had addressed the issue and concluded that the increase would not be noticeable. If the court had been using the substantial evidence standard, it likely would have upheld this discussion.

Therefore, we do not agree that the issue can be resolved on the basis suggested by Friant Ranch, which would apply the substantial evidence standard to *every* challenge to an analysis that addresses a required CEQA topic. This interpretation would subvert the courts' proper role in interpreting CEQA and determining what the law requires.

Nor do we agree that the Court of Appeal in this case violated CEQA's prohibition on courts interpreting its provisions "in a manner which imposes procedural or substantive requirements beyond those explicitly stated in this division or in the state guidelines." (Pub. Resources Code § 21083.1.) CEQA requires an EIR to describe *all* significant impacts of the project on the environment. (Pub. Resources Code § 21100(b)(2); *Vineyard Area Citizens, supra,* at p. 428.) Human beings are part of the environment, so CEQA requires EIRs to discuss a project's significant impacts on human health. However, except in certain particular circumstances,[18] neither the CEQA statute nor Guidelines specify the precise level of analysis that agencies must undertake to satisfy the law's requirements. (see, e.g., CEQA Guidelines § 15126.2(a) [EIRs must describe "health and safety problems caused by {a project's} physical changes"].) Accordingly, courts must interpret CEQA as a whole to

[17] Association of Environmental Professionals, 2015 CEQA Statute and Guidelines (2015) p.287.

[18] E.g., Pub. Resources Code § 21151.8(C)(3)(B)(iii) (requiring specific type of health risk analysis for siting schools).

determine whether a particular EIR is sufficient as an informational document. A court determining whether an EIR's discussion of human health impacts is legally sufficient does not constitute imposing a new substantive requirement.[19] Under Friant Ranch's theory, the above-referenced cases holding a CEQA analysis inadequate would have violated the law. This is not a reasonable interpretation.

IV. COURTS MUST SCRUPULOUSLY ENFORCE THE REQUIREMENTS THAT LEAD AGENCIES CONSULT WITH AND OBTAIN COMMENTS FROM AIR DISTRICTS

Courts must "scrupulously enforce" CEQA's legislatively mandated requirements. (*Vineyard Area Citizens, supra*, 40 Cal.4th 412, 435.) Case law has firmly established that lead agencies must consult with the relevant air pollution control district before conducting an initial study, and must provide the districts with notice of the intention to adopt a negative declaration (or EIR). (*Schenck v. County of Sonoma* (2011) 198 Cal.App.4th 949, 958.) As *Schenck* held, neither publishing the notice nor providing it to the State Clearinghouse was a sufficient substitute for sending notice directly to the air district. (*Id.*) Rather, courts "must be satisfied that [administrative] agencies have fully complied with the procedural requirements of CEQA, since only in this way can the important public purposes of CEQA be protected from subversion." *Schenck,* 198 Cal.App.4th at p. 959 (citations omitted).[20]

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[19] We submit that Public Resources Code Section 21083.1 was intended to prevent courts from, for example, holding that an agency must analyze economic impacts of a project where there are no resulting environmental impacts (see CEQA Guidelines § 15131) , or imposing new procedural requirements, such as imposing additional public notice requirements not set forth in CEQA or the Guidelines.

[20] Lead agencies must consult air districts, as public agencies with jurisdiction by law over resources affected by the project, *before* releasing an EIR. (Pub. Resources Code §§ 21104(a); 21153.) Moreover, air

Lead agencies should be aware, therefore, that failure to properly seek and consider input from the relevant air district constitutes legal error which may jeopardize their project approvals. For example, the court in *Fall River Wild Trout Foundation v. County of Shasta,* (1999) 70 Cal.App.4th 482, 492 held that the failure to give notice to a trustee agency (Department of Fish and Game) was prejudicial error requiring reversal. The court explained that the lack of notice prevented the Department from providing any response to the CEQA document. (*Id.* at p. 492.) It therefore prevented relevant information from being presented to the lead agency, which was prejudicial error because it precluded informed decision-making. (*Id.*)[21]

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districts should be considered "state agencies" for purposes of the requirement to consult with "trustee agencies" as set forth in Public Resources Code § 20180.3(a). This Court has long ago held that the districts are not mere "local agencies" whose regulations are superseded by those of a state agency regarding matters of statewide concern, but rather have concurrent jurisdiction over such issues. (*Orange County Air Pollution Control District v. Public Util. Com.* (1971) 4 Cal.3d 945, 951, 954.) Since air pollution is a matter of statewide concern, *Id* at 952, air districts should be entitled to trustee agency status in order to ensure that this vital concern is adequately protected during the CEQA process.

[21] In *Schenck,* the court concluded that failure to give notice to the air district was not prejudicial, but this was partly because the trial court had already corrected the error before the case arrived at the Court of Appeal. The trial court issued a writ of mandate requiring the lead agency to give notice to the air district. The air district responded by concurring with the lead agency that air impacts were not significant. (*Schenck,* 198 Cal.App.4th 949, 960.) We disagree with the *Schenck* court that the failure to give notice to the air district would not have been prejudicial (even in the absence of the trial court writ) merely because the lead agency purported to follow the air district's published CEQA guidelines for significance. (*Id.*, 198 Cal.App.4th at p. 960.) In the first place, absent notice to the air district, it is uncertain whether the lead agency properly followed those guidelines. Moreover, it is not realistic to expect that an air district's published guidelines would necessarily fully address all possible air-quality related issues that can arise with a CEQA project, or that those

Similarly, lead agencies must obtain additional information requested by expert agencies, including those with jurisdiction by law, if that information is necessary to determine a project's impacts. (*Sierra Club v. State Bd. Of Forestry* (1994) 7 Cal.4th 1215, 1236-37.) Approving a project without obtaining that information constitutes a failure to proceed in the manner prescribed by CEQA. (*Id.* at p. 1236.)

Moreover, a lead agency can save significant time and money by consulting with the air district early in the process. For example, the lead agency can learn what the air district recommends as an appropriate analysis on the facts of its case, including what kinds of health impacts analysis may be available, and what models are appropriate for use. This saves the lead agency from the need to do its analysis all over again and possibly needing to recirculate the document after errors are corrected, if new significant impacts are identified. (CEQA Guidelines § 15088.5(a).) At the same time, the air district's expert input can help the lead agency properly determine whether another commenter's request for additional analysis or studies is reasonable or feasible. Finally, the air district can provide input on what mitigation measures would be feasible and effective.

Therefore, we suggest that this Court provide guidance to lead agencies reminding them of the importance of consulting with the relevant air districts regarding these issues. Otherwise, their feasibility decisions may be vulnerable to air district evidence that establishes that there is no substantial evidence to support the lead agency decision not to provide specific analysis. (*See Berkeley Keep Jets Over the Bay, supra,* 91 Cal.App.4th 1344, 1369-1371.)

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guidelines would necessarily be continually modified to reflect new developments. Therefore we believe that, had the trial court not already ordered the lead agency to obtain the air district's views, the failure to give notice would have been prejudicial, as in *Fall River, supra,* 70 Cal.App.4th 482, 492.

CONCLUSION

The SCAQMD respectfully requests this Court *not* to establish a hard-and-fast rule concerning whether CEQA requires a lead agency to correlate identified air quality impacts of a project with resulting health outcomes. Moreover, the question of whether an EIR is "sufficient as an informational document" is a mixed question of fact and law containing two levels of inquiry. Whether a particular proposed analysis is feasible is predominantly a question of fact to be judged by the substantial evidence standard of review. Where the requested analysis is feasible, but the lead agency relies on legal or policy reasons not to provide it, the question of whether the EIR is nevertheless sufficient as an informational document is predominantly a question of law to be judged by the independent judgment standard of review.

Respectfully submitted,

DATED: April 3, 2015

SOUTH COAST AIR QUALITY
MANAGEMENT DISTRICT
KURT R. WIESE, GENERAL COUNSEL
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SOUTH COAST AIR QUALITY MANAGEMENT DISTICT

CERTIFICATE OF WORD COUNT

Pursuant to Rule 8.520(c)(1) of the California Rules of Court, I hereby certify that this brief contains 8,476 words, including footnotes, but excluding the Application, Table of Contents, Table of Authorities, Certificate of Service, this Certificate of Word Count, and signature blocks. I have relied on the word count of the Microsoft Word Vista program used to prepare this Certificate.

DATED: April 3, 2015 Respectfully submitted,

Barbara Baird

PROOF OF SERVICE

I am employed in the County of Los Angeles, California. I am over the age of 18 years and not a party to the within action. My business address is 21865 Copley Drive, Diamond Bar, California 91765.

On April 3, 2015 I served true copies of the following document(s) described as **APPLICATION OF THE SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT FOR LEAVE TO FILE BRIEF OF *AMICUS CURIAE* IN SUPPORT OF NEITHER PARTY AND *[PROPOSED]* BRIEF OF *AMICUS CURIAE*** by placing a true copy of the foregoing document(s) in a sealed envelope addressed as set forth on the attached service list as follows:

BY MAIL: I enclosed the document(s) in a sealed envelope or package addressed to the persons at the addresses listed in the Service List and placed the envelope for collection and mailing following our ordinary business practices. I am readily familiar with this District's practice for collection and processing of correspondence for mailing. Under that practice, the correspondence would be deposited with the United States Postal Service, with postage thereon fully prepaid at Diamond Bar, California, in the ordinary course of business. I am aware that on motion of the party served, service is presumed invalid if postal cancellation date or postage meter date is more than one day after date of deposit for mailing in affidavit.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

Executed on April 3, 2015 at Diamond Bar, California.

Patricia Anderson

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AIR QUALITY EMISSION REDUCTION AGREEMENT

This Air Quality Emission Reduction Agreement ("Agreement") is entered into as of _____, 2007 by and between Developer Name ("Developer") and the SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT, an air pollution control district formed pursuant to California Health and Safety Code section 40150, et seq. ("District").

RECITALS

WHEREAS, Developer is presently seeking governmental approval of land use entitlements ("Entitlements") which will permit the development of a Project located in the City/County, California, as more particularly described on Exhibit A attached hereto (the "Project"); and

WHEREAS, the Project incorporates the design features specified on Exhibit B attached hereto ("Emission Reduction Design Features"), in order to significantly reduce the air quality impacts associated with the Project; and

WHEREAS, despite incorporation of the Emission Reduction Design Features, without additional emission reductions, the Project would cause impacts on air quality within the geographical boundaries of the San Joaquin Valley Unified Air Pollution Control District, as depicted on Exhibit C attached hereto (the "District Boundaries"); and

WHEREAS, Developer anticipates that mitigation of impacts on air quality resulting from the Project will be either required as a condition to the approval of Developer's Entitlements, or voluntarily imposed by Developer as a means of reducing such impacts; and

WHEREAS, Developer desires to fully comply with all requirements of the California Environmental Quality Act codified at California Public Resources Code section 21000, et seq. ("CEQA"), including all requirements relating to the mitigation of air quality impacts arising from or in connection with the Project; and

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WHEREAS, District is an air pollution control district formed by the counties of Fresno, Kern, Kings, Madera, Merced, San Joaquin, Stanislaus and Tulare, pursuant to California Health and Safety Code section 40150, et seq.; and

WHEREAS, District is responsible for developing and implementing air quality control measures within the District Boundaries, including air quality control measures for stationary sources, transportation sources, and indirect sources; and

WHEREAS, District has determined that with appropriate funding, District can bring about a reduction of emissions from certain projects in types and in sufficient quantities to fully mitigate the net air quality criteria pollutant impacts of the Project as quantified in the Verified Air Quality Assessment (as defined in Section 2.2 below) ("Project's Air Impact"); and

WHEREAS, Developer and District desire to enter into this Agreement in order to develop and implement air quality control measures which will fully mitigate the Project's Air Impact to the extent that the development of such Project will result in no net increase in criteria pollutant emissions over the criteria pollutant emissions which would otherwise exist without the development thereof.

AGREEMENT

NOW THEREFORE, in exchange of the mutual covenants herein contained, Developer and District hereby agree as follows:

1. **Emission Reduction by Developer and District.**

1.1. **Emission Reduction Proposals.** Developer shall identify and propose to District opportunities to reduce emissions to fully mitigate Project's Air Impact, including but not limited to opportunities for removal or retrofitting of stationary, transportation, indirect, and/or mobile pollution source equipment, and/or other opportunities therefore (each, an "**Emission Reduction Proposal**"). Each Emission Reduction Proposal shall be submitted in writing to District, using District approved forms, and shall contain a representation by Developer that the owner/operator of the identified Pollution Source Equipment has expressed interest in entering into a written funding agreement with

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District in District's then standard form ("**Funding Agreement**") requiring removal or replacement of the identified equipment with new equipment under District's "Heavy Duty Engine Emission Reduction Incentive Program", or another emission reduction program adopted by District ("**District Emission Reduction Program**"). Developer shall submit Emission Reduction Proposals to District in sufficient amounts to fully mitigate emissions from each distinct phase of the project. For each phase of the project, Developer shall submit Emission Reduction Proposals to District no later than application for grading permits for, and before generating emissions from, that phase. Any Emission Reduction Shortfall for a given phase shall be addressed according to Section 1.7.2 of this Agreement.

1.2. **District's Verification of Emission Reduction.** As quickly as practicable upon Developer's submission to District of an Emission Reduction Proposal, District shall determine the types and quantities of permanent reduction in emissions which would be realized by the proposed removal or retrofit and shall advise Developer of such determination in writing ("**Emission Reduction Verification**") thereby verifying that in District's considered opinion the removal or retrofit proposed in the Emission Reduction Proposal would result in permanent emission reduction in the locality of the Project in the types and quantities so determined by District.

1.3. **Emission Reduction Proposal Advance.** Developer shall advance to District, on the date of submittal of each Developer's Emission Reduction Proposal, a monetary sum equal to the total estimated cost (as specified in each Developer's Emission Reduction Proposal), until sufficient advance is received by District to fully mitigate the Project's Air Impact ("**Emission Reduction Proposal Advance**").

1.4. **Funding Agreements.** As soon as practicable after District's receipt of Developer's Emission Reduction Proposal Advance, District shall use diligent efforts to enter into Funding Agreements with the owners and/or operators of the pollution source equipment identified in Developer's Emission Reduction Proposal, thereby providing for the removal and/or retrofit of all of such Pollution Source Equipment, and

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providing for District's payment (from the Emission Reduction Proposal Advance) t such owner or operator, of an amount equal to the estimated cost of such opportunity, as specified in Developer's Emission Reduction Proposals. District shall use diligent efforts to enter into Funding Agreements with all of the owners or operators identified in Developer's Emission Reduction Proposals within one hundred eighty (180) days following District's receipt of a complete Emission Reduction Proposal and the Emission Reduction Proposal Advance from Developer.

1.5. **Use of Emission Reduction Proposal Advance.** District shall use the Emission Reduction Proposal Advance to meet its monetary obligations under the Funding Agreements that District shall enter into with the owners of the Pollution Source Equipment identified in Developer's Emission Reduction Proposals.

1.6. **Use of Unused Portions of Emission Reduction Proposal Advance.** In the event Developer is unable to submit to District Emission Reduction Proposals providing for emission reduction in the types and quantities necessary to fully mitigate the Project's Air Impact, or in the event District is unable to enter into Funding Agreements with any of the owners or operators identified in Developer's Emission Reduction Proposals, District shall notify Developer in writing of the additional emission reductions needed to fully mitigate the Project's Air Impact, and Developer shall have a reasonable time, not to exceed one hundred eighty (180) days within which to submit to District additional or supplemental Emission Reduction Proposals in order to provide the necessary additional emission reduction.

1.7. **Unused Advance / Emission Reduction Shortfall / Additional Payment.**

1.7.1. **Unused Advance.** If, despite District's diligent efforts to enter into Funding Agreements with all of the owners or operators identified in Developer's Emission Reduction Proposals (and, if applicable, supplemental Emission Reduction Proposals submitted by Developer), District is unable to enter into Funding Agreements sufficient to fully mitigate the Project's Air Impact, then District shall use any unused portion of Developer's Emission Reduction Proposal Advance to fund emission

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reduction opportunities to mitigate the balance of the Project's Air Impact at District's actual cost of doing so, provided that such actual costs shall not exceed the costs set forth in the following Emission Reduction Cost Schedule:

Emission Reduction Cost Schedule		
Year Paid	NOx or ROG ($/ton)	PM10 ($/ton)
2007	$49,700	$55,940
2008	$65,450	$90,110
Beyond	Prevailing Costs	Prevailing Costs

District is of the considered opinion that the emission reductions listed in the above schedule can be achieved at the corresponding times and costs shown in said schedule. If, at the time of invoicing, the District has not identified Prevailing Costs for post-2008 payments, 2008 costs shall apply.

1.7.2. **Emission Reduction Shortfall/Additional Payment.** In the event the emission reduction brought about by the Funding Agreements entered into between District and the owners or operators identified in Developer's Emission Reduction Proposals (and, if applicable supplemental Emission Reduction Proposals), and that brought about pursuant to Section 1.7.1 above, are not sufficient to fully mitigate the Project's Air Impact ("**Emission Reduction Shortfall**"), then Developer shall be credited for the emission reduction brought about as a result of Funding Agreements entered into between District and the owners or operators identified in Developer's Emission Reduction Proposals and for the emission reduction brought about pursuant to Section 1.7.1 above, and Developer thereafter shall deposit with District, within 30 days of receiving notice of the Emission Reduction Shortfall from District, an additional amount equal to the product of (i) District's cost per ton of emission reduction as shown in the Emission Reduction Cost Schedule set forth in Section 1.7.1 above, multiplied by (ii) the total number of tons of emission reduction necessary to fully mitigate the Project's Air Impact less the total number of tons of emission reduction so credited to Developer. However, in no case shall the amount paid to District and the

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amount of emission reductions achieved per this agreement be less than the amount that would be paid to District or the amount of emission reductions that would be required for this Project according to District Rule 9510 (Indirect Source Review). To allow verification of equivalency of emission reductions and off-site mitigation fee amounts, according to District Rule 9510, Developer shall submit to District an ISR Air Impact Assessment Application, using District forms, no later than concurrent with the Developer's submission of the air quality assessment, as set forth in Section 2.2.

1.8. **Surplus Mitigation.** In addition to the amounts payable under paragraph 1.3, Developer shall deliver to District an additional sum equal to five percent (5%) of the Emission Reduction Proposal Advance. Said additional sum shall be paid under the same schedule as set forth in paragraph 1.3. District shall utilize such additional sum to fund further localized emission reduction opportunities in quantities consistent with the schedule set forth in paragraph 1.7.1.

1.9 **Time of Use.** Any emission reductions brought about by this Agreement prior to the date Developer receives final approval of the Project from all applicable Governmental Authorities shall be credited to the total amount of emission reductions achieved per this agreement.

1.10. **District's Obligation.** The monies paid by Developer under this Agreement shall be used by District to obtain localized emission reductions in the types and quantities necessary to fully mitigate the Project's Air Impact as quantified in the Verified Air Quality Assessment. If necessary, District shall assist Developer in securing emission reductions, consistent with the provisions established in Section 1.7.2.

1.11. **Developer's Obligation.** District acknowledges that, if the Project is not finally approved so that such development is allowed to proceed, Developer has no obligations under this Agreement relative to the respective Project. Developer acknowledges that it must satisfy the terms of this Agreement in order to develop the Project.

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2. **CEQA Compliance/Full Mitigation.** For and in exchange of Developer's payment of funds pursuant to Section 1 above, District shall ensure, by way of entering into, funding and enforcing the Funding Agreements in accordance with the provisions of Section 1.4 above, that the Project's Air Impact is fully mitigated, such that the Project, combined with the emission reductions brought about in accordance with Section 1 above, shall result in no net increase in air quality impacts over those air quality impacts which would otherwise exist without the development of such Project. For the purpose of this agreement, full mitigation means the sum of all NOx, ROG, and PM10 emission reductions achieved by the Emission Reductions Proposals equals, or is greater than, the sum of all NOx, ROG, and PM10 emissions increases calculated as the average annual construction and the peak annual area source and mobile source emissions of NOx, ROG, and PM10 less the average annual emissions that have occurred at the project site during the three years prior to release of the Notice of Preparation. In addition to entering into, funding and enforcing the Funding Agreements in accordance with the provisions of Section 1.4 above, District shall do all of the following:

2.1. **District's Verification of Air Assessment Protocol.** Within ten (10) business days following the date of this Agreement, Developer shall submit to District an air assessment protocol prepared by Developer's air quality consultant reflecting the methodology, including air quality impact modeling, to be utilized in the preparation of the air quality assessment for the Project. Within twenty-one (21) business days following District's receipt of Developer's air assessment protocol, District shall review and comment upon such air assessment protocol, and, after Developer's incorporation of any revisions suggested by District, District shall verify in writing to Developer the correctness of the air assessment protocol which will be utilized in the preparation of the air quality assessment for the Project.

2.2 **District's Verification of Air Quality Assessment.** Following District's Verification of Air Assessment Protocol, Developer shall submit to District an air quality

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assessment prepared by Developer's air quality consultant assessing the air quality impacts of the Project. District shall use its best efforts to review and comment upon Developer's air quality assessment within thirty (30) days following District's receipt of Developer's complete air quality assessment, and, after Developer's incorporation of any and all revisions suggested by District, District shall verify in writing to Developer the correctness of the air quality assessment to be utilized in connection with the CEQA documents for the Project, including (i) the methodology utilized in the preparation of the CEQA document, (ii) the types and quantities of any net air quality impacts associated with the Project, (iii) the appropriateness of the mitigation measures proposed in the CEQA document, and (iv) any other matters which may pertain to such CEQA document and/or any air quality impacts or air quality mitigation measures referenced therein (the "**Verified Air Quality Assessment**").

2.3. **District's Verification of Administrative Draft Environmental Impact Report**. Upon request by Developer, and submission by Developer to District of any administrative Draft Environmental Impact Report, or other applicable CEQA documents for the Project, District shall review, comment upon and, after incorporation of any and all revisions made by District, verify in writing to Developer the correctness of all portions thereof which pertain to air quality impacts, including, (i) the methodology utilized in the preparation of the CEQA document, (ii) the types and quantities of any net air quality impacts associated with the Project, (iii) the appropriateness of the mitigation measures proposed in the CEQA document, and (iv) any other matters which may pertain to such CEQA document and/or any air quality impacts or air quality mitigation measures referenced therein.

2.4 **District's Acknowledgment Regarding Full Mitigation.** At such time as District is provided an opportunity as a commenting agency to comment upon the Draft Environmental Impact Report and Final Environmental Impact Report for the Project, District shall comment in writing as to the correctness of all portions thereof which pertain to air quality impacts, including (i) the methodology utilized in the

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preparation of the CEQA document, (ii) the types and quantities of any net air quality impacts associated with the Project, (iii) the appropriateness of the mitigation measures proposed in the CEQA document, and (iv) any other matters which may pertain to such CEQA document and/or any air quality impacts or air quality mitigation measures referenced therein. District shall at all times fully perform its duties and obligations as a commenting agency, and the provisions of this Section 2.4 shall not be interpreted to the contrary. At such time as District has entered into Funding Agreements pursuant to Section 1.4 above and the owners/operators of equipment to be removed and/or replaced under such agreements have removed and replaced such equipment in accordance with the provisions thereof, District shall verify in writing to Developer and to the lead agency that full mitigation of the Project's Air Impact has been achieved, upon successful fulfillment of all Funding Agreements. District shall ensure that the owners/operators of equipment to be removed and/or replaced pursuant to such Funding Agreements perform all obligations to be performed on the part of such parties under said Funding Agreements. District acknowledges that the Verified Air Quality Assessment and its quantification of the Project's Air Impact will be based on the pending applications for development of the Project and that actual approvals may be for a lesser amount of development. District agrees that Developer's obligations under this Agreement shall be based on the amount of development actually approved, and the final quantification of the Project's Air Impact will be revised accordingly.

2.5. **District's Oversight of Air Quality Mitigation Monitoring Plan.** Upon request of the lead agency having jurisdiction over the Project, District shall oversee that portion of the mitigation monitoring plan adopted by the lead agency for the Project which relates to the mitigation brought about by Section 1 of this Agreement. Alternatively, upon request of that lead agency, District shall cooperate with the lead agency in the oversight of that portion of the mitigation monitoring plan adopted by the lead agency for the Project which relates to the mitigation brought about by Section 1

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of this Agreement.

2.6. **District's Documentation, Record Keeping and Monitoring.** District shall document, keep adequate records on and monitor the emission reduction brought about as a result of this Agreement, and shall from time to time, upon written request by Developer or by the lead agency for the Project, provide to Developer or to the lead agency written reports verifying that emission reduction has been and/or is being brought about so as to fully mitigate the Project's Air Impact.

3. **Subsequent Litigation, Legislation and/or Administrative Action / Credit to Developer.**

3.1. **Subsequent Litigation.** In the event that despite this Agreement, Developer is required as a result of a final judgment or District Approved Settlement (as defined below) in any subsequent third party litigation, to pay monies in addition to the monies to be paid by Developer pursuant to Section 1 above, then, provided that the project total emissions are the same as quantified in the Verified Air Quality Assessment, District shall acknowledge and credit Developer with mitigation of the air quality impacts of the Project in such types and quantities that Developer can establish, to the reasonable satisfaction of District, will result from Developer's payment of such additional monies, and shall reduce any amounts thereafter payable by Developer under this Agreement by an amount equal to the additional monies so paid by Developer. This requirement shall not apply if the additional monies are required to mitigate emissions that exceed those set forth in the Verified Air Quality Assessment. For purposes of this Section 3.1.1, a **"District Approved Settlement"** shall mean a settlement of a lawsuit filed pursuant to CEQA, the National Environmental Protection Act or other applicable environmental law which (i) provides for Developer's payment of monies in exchange for a dismissal of such lawsuit, (ii) provides for the use of such monies by the petitioner in such lawsuit in such a manner as to mitigate adverse air quality impacts of the Project, and (iii) is approved in writing by District.

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3.2. **District Rule 9510.** The performance of Developer's and District's obligations under this Agreement will fully mitigate the Project's Air Impact. Inasmuch as the mitigation provided under this Agreement exceeds the mitigation which would otherwise have been provided under Sections 6.0 and 7.0 of District's Rule 9510, and the Project's mitigated baseline (being zero emissions) is less than the threshold stated in Section 4.3 of said Rule 9510, the Project is exempt from Sections 6.0 and 7.0 of District's Rule 9510. Accordingly, no off-site Emission Reduction Fee will be required in connection with the approval or development of the Project. For each individual project developed at the project site requiring a discretionary approval by the lead agency, Developer shall provide District with a map or diagram indicating its location within the area covered by this Agreement.

4. **Term of Agreement.** This Agreement shall be effective upon the date first written above, and shall terminate upon District's meeting its obligation to implement projects that provide necessary emissions reductions to fully mitigate the Project's Air Impact (the "**Term**"). Developer may, at any time by written notice to District, terminate this Agreement, whereupon, (i) District shall acknowledge in writing to the lead agency that Developer has mitigated air quality impacts of the Project to the extent and in the types and quantities brought about by Funding Agreements theretofore funded by Developer's Emission Reduction Proposal Advance (and if applicable pursuant to Section 1.7.1 above), (ii) District shall refund to Developer any unused portion of Developer's Emission Reduction Proposal Advance less any unpaid administrative fees incurred; and (iii) neither Developer nor District shall have any further rights or obligations under this Agreement. Developer acknowledges that in the absence of this Agreement, the project is subject to all applicable provisions of District Rule 9510 (Indirect Source Review).

5. **Payment of Administrative Fees to District.** Developer agrees to pay to District, in order to reimburse District for its general overhead required for the administration of this Agreement, an administrative fee ("***ERIP Fee***") in an amount

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equal to four percent (4%) of the Emission Reduction Proposal Advance. Such ERIP Fee shall be due and payable upon Developer's delivery of the Emission Reduction Proposal Advance pursuant to Section 1.3 above. In addition to the ERIP Fee, Developer agrees to pay to District, within thirty (30) days following Developer's receipt of District's invoice, administrative fees to reimburse District for staff time spent and materials used by District in the administration of this Agreement, other than that time associated with the ERIP program covered by the ERIP Fee above, including review, verification and preparation of documents, and staff time relating to the performance of District's obligations hereunder, based on a time and materials basis at District's average weighted labor rates.

6. **Representations, Covenants and Warranties.**

6.1. **Developer's Representations, Covenants and Warranties.** Developer represents, covenants and warrants to District, as of the date of this Agreement, and as of the date of Developer's submission to District of any documents contemplated hereunder, as follows:

6.1.1. The undersigned representatives of Developer are duly authorized to execute, deliver and perform this Agreement, and upon Developer's execution and delivery of this Agreement, this Agreement will have been duly authorized by Developer.

6.1.2. Upon execution and delivery of this Agreement by Developer, Developer's obligations under this Agreement shall be legal, valid and binding obligations of Developer, duly enforceable at law and in equity in accordance with the terms and conditions of this Agreement.

6.1.3. There is no lawsuit, legal action, arbitration, legal or administrative proceeding, legislative or quasi-legislative action or claim existing, pending, threatened or anticipated which would render all or any portion of this Agreement invalid, void or unenforceable in accordance with the terms and conditions thereof.

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6.1.4. Other than the execution and delivery of this Agreement by the undersigned representatives of Developer, there are no approvals, consents, confirmations, proceedings, or other actions required by Developer or any third party, entity or agency in order to enter into and carry out the terms, conditions and intent of the parties with respect to this Agreement.

6.2. **District's Representations, Covenants and Warranties.** District represents, covenants and warrants to Developer, as of the date of this Agreement, and as of the date of District's delivery to Developer of any documents contemplated hereunder, as follows:

6.2.1. The undersigned representatives of District are duly authorized to execute, deliver and perform this Agreement, and upon District's execution and delivery of this Agreement, this Agreement will have been duly authorized by District.

6.2.2. Upon execution and delivery of this Agreement by District, District's obligations under this Agreement shall be legal, valid and binding obligations of District, duly enforceable at law and in equity in accordance with the terms and conditions of this Agreement.

6.2.3. There is no lawsuit, legal action, arbitration, legal or administrative proceeding, legislative, quasi-legislative or administrative action or claim existing, pending, threatened or anticipated which would render all or any portion of this Agreement invalid, void or unenforceable in accordance with the terms and conditions thereof.

6.2.4. Other than the execution and delivery of this Agreement by the undersigned representatives of District, there are no approvals, consents, confirmations, proceedings, or other actions required by District or any third party, entity or agency in order to enter into and carry out the terms, conditions and intent of the parties with respect to this Agreement.

6.2.5. No lawsuit, legal action, arbitration, legal or administrative proceeding, legislative or quasi-legislative action or claim existing, pending, threatened or

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anticipated will render invalid, void or unenforceable any right or benefit Developer is to receive under the terms and conditions of this Agreement.

6.2.6. The monies paid by Developer under this Agreement shall be sufficient to ensure that the emission reduction contemplated by this Agreement shall occur, and District shall utilize such monies in such a manner as to ensure that such emission reduction shall occur.

6.2.7. Upon the approval of this Agreement by the governing board of District, the Air Pollution Control Officer of District, or equivalent representative, or a delegee of such officer, shall have the authority to approve, deliver, verify, enter into, acknowledge and/or accept any communication, notice, notification, verification, agreement and/or other document to be issued or entered into by District under the terms and conditions of this Agreement, without further approval of the governing board of District.

7. **Indemnification**. Developer agrees to indemnify, defend and hold harmless District for, from and in connection with any third party claims, losses and/or liabilities arising from or in connection with District's performance of this Agreement, excluding only such claims, losses and/or liabilities which result from or in connection with District's sole negligence, act or omission.

8. **Inurnment**. Developer's rights and obligations under this Agreement, or applicable portions thereof, shall run with the land encompassed by the Project, and shall inure to the benefit of and be binding upon the heirs, successors and assigns of Developer who take title to such lands or applicable portions thereof. Upon Developer's conveyance of all or any portion of the lands encompassed by the Project, the rights and obligations of Developer under this Agreement shall, to the extent applicable to the lands so conveyed, be transferred to the transferee thereof, and Developer shall thereupon be released by District from, all obligations and liabilities so assigned, except for such obligations and liabilities arising prior to such transfer.

9. **Assignment**. Developer shall have the right to assign all or any part of its rights and/or obligations under this Agreement. Upon any such assignment, Developer shall

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deliver to District a written assignment and assumption agreement specifying the fact and extent of the assignment, the name and address of the assignee, and the assignee's assumption of all obligations of Developer thereby assigned. Developer shall have the right to assign all or any part of its rights and/or obligations under this Agreement to a third party for use in connection with the mitigation of air quality impacts resulting from one or more projects other than the Project, so long as (i) the project is located within the District Boundaries, (ii) the air quality impacts of such project(s) will in fact be mitigated, as verified by District, by the emission reductions brought about by this Agreement, and (iii) the project(s) consist of residential, commercial, industrial and/or mixed use real estate projects which incorporate the Emission Reduction Design Features. Upon any such assignment by Developer, District shall enter into an amendment of this Agreement which acknowledges the assignment and conforms the various provisions of this Agreement as may be required to be conformed in order to provide to the assignee the rights and benefits of this Agreement as if such assignee and its project were the original party and project contemplated in this Agreement.

10. **Recitals Incorporated.** The recitals set forth hereinabove are hereby incorporated into this Agreement and acknowledged, agreed to and adopted by the parties to this Agreement.

11. **Further Assurances.** Developer and District agree to execute and deliver any documents and/or perform any acts, which are reasonably necessary in order to carry out the intent of the parties with respect to this Agreement.

12. **No Joint Venture or Partnership.** District and Developer agree that nothing contained in this Agreement or in any document executed in connection with this Agreement shall be construed as making District and Developer joint ventures or partners.

13. **Notices.** Any notices or communications relating to this Agreement shall be given in writing and shall be deemed sufficiently given and served for all purposes

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when delivered, if (a) in person, (b) by facsimile (with the original delivered by other means set forth in this Section 13), (c) by generally recognized overnight courier or (d) by United States Mail, certified or registered mail, return receipt requested, postage prepaid, to the respective addresses set forth below, or to such other addresses as the parties may designate from time to time by providing written notice of the change to the other party.

To Developer: Address & Contact Name	To District: San Joaquin Valley APCD 1990 E. Gettysburg Avenue Fresno, CA 93726 Fax: (559) 230-6061 Attn: Seyed Sadredin Executive Director/APCO
With a copy to: Address & Contact Name	with a copy to:San Joaquin Valley APCD 1990 E. Gettysburg Avenue Fresno, CA 93726 Fax: (559) 230-6061 Attn: Dave Warner Director of Permit Services with a copy to: San Joaquin Valley APCD 1990 E. Gettysburg Avenue Fresno, CA 93726 Fax: (559) 230-6061 Attn: Philip M. Jay District Counsel

14. **Entire Agreement.** The terms of this Agreement, together with all attached exhibits, are intended by the parties as the complete and final expression of their agreement with respect to such terms and exhibits and may not be contradicted by evidence of any prior or contemporaneous agreement. This Agreement specifically supersedes any prior written or oral agreements between the parties with respect to

the subject matter of this Agreement.

15. **Amendments and Waivers.** No addition to or modification of this Agreement shall be effective unless set forth in writing and signed by the party against whom the addition or modification is sought to be enforced. The party benefited by any condition or obligation may waive the same, but such waiver shall not be enforceable by another party unless made in writing and signed by the waiving party.

16. **Invalidity of Provisions.** If any provision of this Agreement as applied to either party or to any circumstance shall be adjudged by a court of competent jurisdiction to be void or unenforceable for any reason, the same shall in no way affect (to the maximum extent permissible by law) any other provision of this Agreement, the application of any such provision under circumstances different from those adjudicated by the court, or the validity or enforceability of this Agreement as a whole. The parties further agree to replace any such invalid, illegal or unenforceable portion with a valid and enforceable provision which will achieve, to the maximum extent legally possible, the economic, business or other purposes of the invalid, illegal or unenforceable portion.

17. **Construction.** Unless otherwise indicated, all Section references are to the sections of this Agreement and all references to days are to calendar days. Whenever, under the terms of this Agreement the time for performance of a covenant or condition falls upon a Saturday, Sunday or California state holiday, the time for performance shall be extended to the next business day. The headings used in this Agreement are provided for convenience only and this Agreement shall be interpreted without reference to any headings. Wherever required by the context, the singular shall include the plural and vice versa, and the masculine gender shall include the feminine or neuter genders, or vice versa. This Agreement may be executed in one or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument. The language in all parts of this Agreement shall be construed as a whole in accordance with its fair meaning, and shall not be

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construed against any party solely by virtue of the fact that such party or its counsel was primarily responsible for its preparation.

18. **Governing Law.** This Agreement shall be governed by the laws of the State of California applicable to contracts made and to be performed in California.

19. **No Third-party Beneficiaries.** Nothing in this Agreement, express or implied, is intended to confer any rights or remedies under or by reason of this Agreement on any person other than the parties to it and their respective permitted successors and assigns, nor is anything in this Agreement intended to relieve or discharge any obligation of any third person to any party hereto or give any third person any right of subrogation or action over or against any party to this Agreement.

20. **Exhibits.** The exhibits attached to this Agreement shall be deemed to be a part of this Agreement and are fully incorporated herein by reference.

21. **Force Majeure.** The time within which any party shall be required to perform under this Agreement shall be extended on a day-per-day basis for each day during which such performance is prevented or delayed by reason of events reasonably outside of the control of the performing party, including, without limitation, acts of God, events of destruction, acts of war, civil insurrection, strikes, shortages, governmental delays, moratoria, civil litigation and the like, and/or delays caused by the non-performing party's act or omission.

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IN WITNESS WHEREOF, Developer and District have executed this Agreement and agree that it shall be effective as of the date first written above.

DEVELOPER: Developer Name,

a California limited liability company

By:_____

Name:_____

Title:_____

DISTRICT: **SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT**, an air pollution control district formed pursuant to California Health and Safety Code section 40150, et seq.

///

DISTRICT

San Joaquin Valley Unified Air Pollution Control District

///

By:_____

Councilmember J. Steven Worthley, Chair

Governing Board

///

Recommended for approval:

San Joaquin Valley Unified Air Pollution Control District

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_____

Seyed Sadredin

Executive Director/APCO

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Approved as to legal form:

San Joaquin Valley Unified Air Pollution Control District

_____

Philip M. Jay

District Counsel

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Approved as to accounting form:

San Joaquin Valley Unified Air

Pollution Control District

///

_____

Roger W. McCoy

Director of Administrative Service

For accounting use only:

Program:_____

Account No.:_____

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EXHIBIT A

DESCRIPTION OF THE PROJECT

[INSERT MAP.]

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EXHIBIT B

EMISSION REDUCTION DESIGN FEATURES

The project shall incorporate the following Emission Reduction Design Features:

The project will incorporate the following on-site features:

1. Utilization of land use designs which create walkable communities and encourage pedestrian travel.
2. Utilization of interconnecting sidewalks, walking paths and/or bike paths in order to encourage travel by means other than motor vehicle.
3. Utilization of appropriate landscaping to create reasonable shade canopies for streets, parkways and parking areas.
4. Utilization of roadway designs, which enhance pedestrian safety by appropriate signaling, signage and separation from traffic.
5. Design requirements, which incorporate natural gas hookups and electrical outlets on patios.
6. Design requirements, which prohibit the installation and use of wood burning stoves and wood burning fireplaces.

Prior to issuance of grading permits for the Project, Developer shall prepare and submit to District dust control plans for the areas to be graded, in accordance with District Regulation VIII. The plan shall be prepared consistent with District Regulation VIII and must be reviewed and approved by the District prior to commencement of grading activities. Each contractor working on the Project site shall implement the dust control measures outlined in the approved dust control plan. The dust control measures selected shall be incorporated as a note on each grading plan.

District maintains New Source Review requirements that direct owners/operators of certain types of stationary equipment to obtain an Authority to Construct ("ATC") and Permits to Operate ("PTO") from the District. As part of this process, the need for emission control equipment is assessed and the District determines whether a Health Risk Assessment ("HRA") must be prepared.

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Owners/operators of all stationary sources for which such approvals are required should show proof of compliance with District Rules and Regulations prior to issuance of certificates of occupancy.

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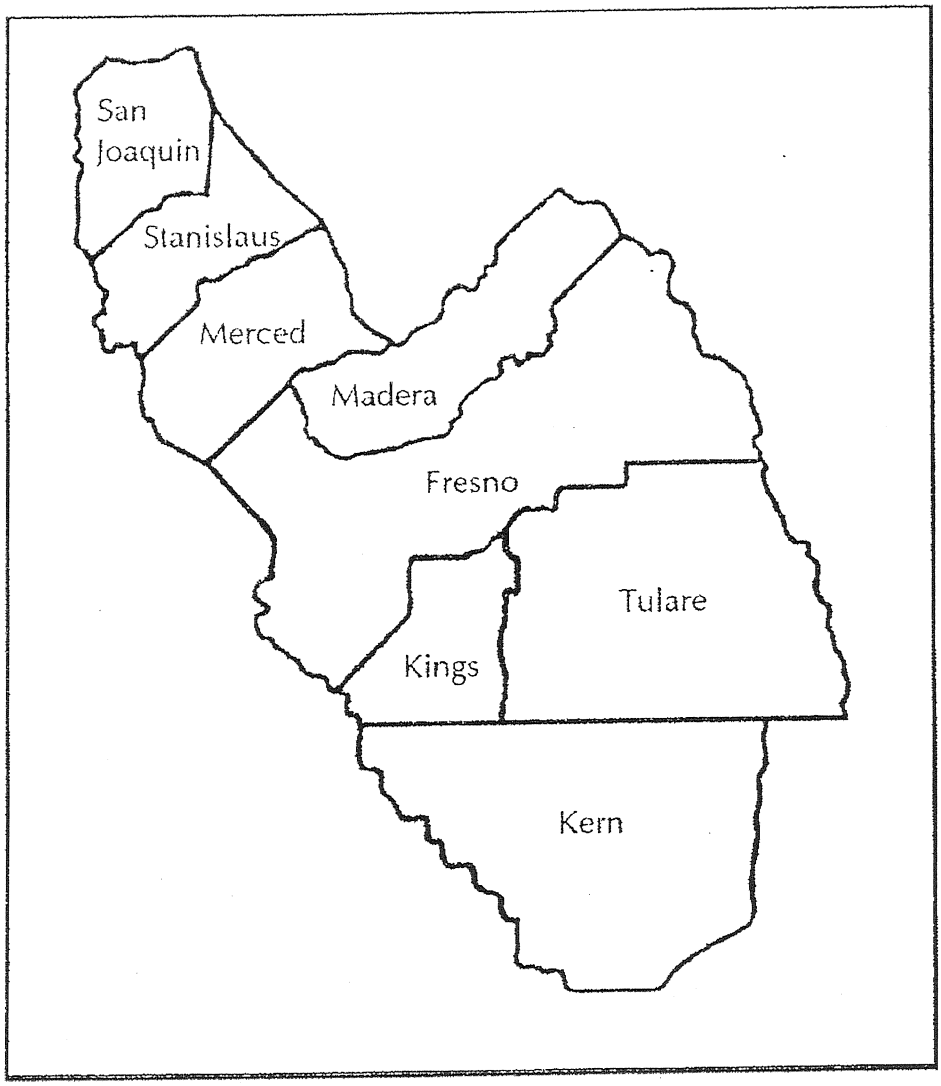
EXHIBIT C

DISTRICT BOUNDARIES



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San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT.

AIR TOXICS

2022 Annual Report

March 16, 2023

SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT
GOVERNING BOARD 2022

CHAIR: VITO CHIESA
Supervisor, Stanislaus County

VICE CHAIR: DEBORAH LEWIS
Councilmember, City of Los Banos

MEMBERS:

DREW M. BESSINGER
Councilmember, City of Clovis

DAVID COUCH
Supervisor, Kern County

ROBERT MACAULAY
Supervisor, Madera County

BUDDY MENDES
Supervisor, Fresno County

TANIA PACHECO-WERNER, PHD
Appointed by Governor

LLOYD PAREIRA
Supervisor, Merced County

VACANT
Small City

ALVARO PRECIADO
Mayor, City of Avenal

ROBERT RICKMAN
Supervisor, San Joaquin County

RUSTY ROBINSON
Supervisor, Kings County

ALEXANDER C. SHERRIFFS, M.D.
Appointed by Governor

AMY SHUKLIAN
Supervisor, Tulare County

VACANT
Large City

EXECUTIVE DIRECTOR/AIR POLLUTION CONTROL OFFICER:

SAMIR SHEIKH

Executive Summary

The San Joaquin Valley Air Pollution Control District (District) is a public health agency whose mission is to improve the health and quality of life for all Valley residents through efficient, effective and entrepreneurial air quality-management strategies. The District has spent nearly three decades implementing and integrating a wide variety of methods reducing toxic air contaminant emissions in the San Joaquin Valley. Based on the latest California Toxics Inventory (CTI) available from CARB, 14% of all air toxics in the Valley are now emitted from stationary sources of pollution under the direct control and regulation of the District, while 52% comes from mobile sources such as cars and trucks, and the remaining 34% is emitted from area-wide sources like road dust, paints, solvents, and other consumer products. Mobile and area-wide sources of emissions are generally under the regulatory authority of the State of California and the federal government.

The District's integrated approach to addressing and reducing risks from toxic air contaminants has taken three main paths: reducing air toxic emissions from existing stationary sources of emissions; preventing the creation of new or modified stationary sources of significant risk; and finding creative and cooperative methods of reducing risk from emissions sources that the District does not typically regulate. This approach has resulted in dramatic reductions in emissions of air toxics from sources in the San Joaquin Valley.

Under Assembly Bill (AB) 2588 (Air Toxics Hot Spots Information and Assessment Act), the District works with facilities to quantify emissions of air toxics, determines the health risk caused by those emissions, reports emissions and any significant risks through written public reports and neighborhood public meetings, and as required, takes steps to reduce such risks. As a result of these ongoing efforts, and the resulting emissions reductions, no Valley facility currently poses a significant risk under this program.

The State's Hot Spots Act, however, is only one part of the District's comprehensive program to regulate air toxics. To achieve maximum efficiency and effectiveness, the District operates an integrated air toxics program that harmonizes local, state, and federal mandates wherever possible.

A number of regulations have also been adopted by the District, the state, and the federal government, and implemented through the District's integrated air toxics program, to directly reduce existing emissions from specific types of facilities and sources of air toxic contaminants. For example, the toxic air contaminant emissions from emissions sources like dry cleaners, chrome platers, gas stations, and diesel internal combustion engines have drastically decreased in the San Joaquin Valley since the implementation of the District's air toxic program.

In addition to the above efforts to minimize emissions, the District also performs comprehensive and conservative toxic emission evaluations and air dispersion modeling before issuing permits to new and modified stationary sources of emissions. This assures the District minimizes the increase those sources add to the existing toxic load and any

potentially significant public health impacts associated with the release of those airborne toxic emissions.

Under its integrated air toxics program, the District has also implemented numerous methods of reducing emissions from mobile sources and other sources of emissions that the District does not have the authority to regulate. For instance, the District developed the first Indirect Source Review rule in the nation, designed to reduce emissions from construction equipment and mobile sources associated with new land use development projects. The District also provides assistance and guidance to the cities and counties in the San Joaquin Valley so that they can be assured that land-use decisions are based on a full understanding of the potential for increasing emissions of air toxics, and new air toxics risks can be avoided. One of the most effective methods of reducing emissions of air toxics from emissions sources not directly regulated by the District has been the incentive grant programs that have leveraged billions of dollars in reducing emissions from diesel internal combustion engines on trucks, tractors and agricultural irrigation operations.

This 2022 Annual Air Toxics Report describes the District's ongoing efforts to regulate and minimize air toxic emissions. An electronic version of this report may be found at: http://www.valleyair.org/busind/pto/air_toxics_annual_reports.htm.

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Summary of Toxic Air Contaminants in the San Joaquin Valley

The United States Environmental Protection Agency (EPA) and the California Air Resources Board (CARB) have identified over 700 substances that are emitted into the air that may affect human health. Some of these substances are considered to be carcinogens, while others are known to have short-term acute or long-term chronic health impacts. As part of ongoing efforts to identify and assess potential health risks to the public, the District has collected and compiled air toxics emissions data from industrial and commercial sources of air pollution throughout the Valley. The State has developed similar inventories for mobile sources of air pollution. These District and State inventories have been combined into the CARB's California Toxic Inventory (CTI), which provides the latest emission estimates available for hazardous air pollutants of concern from all sources. A summary of the latest available CTI data for key pollutants is presented in Table 1 below.

Table 1. Primary San Joaquin Valley Hazardous Air Pollutant Emissions

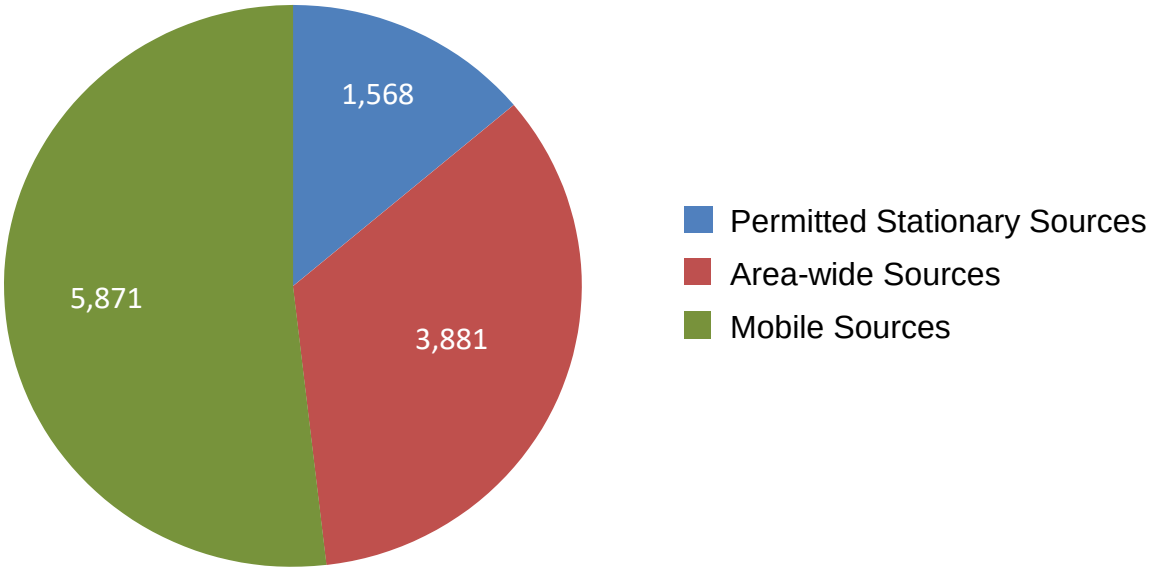
Pollutant	Inventory (tons/yr)
Acetaldehyde	3,512
Diesel Particulate Matter	2,520
Formaldehyde	2,318
Benzene	1,020
Perchloroethylene	448
1,3-Butadiene	269
Methylene Chloride	247
p-Dichlorobenzene	130
Carbon Tetrachloride	0
Chromium, Hexavalent	0

A more detailed summary of CTI emission estimates for the San Joaquin Valley is provided in Table B1 in Appendix B.

Toxic Air Contaminants (TACs), otherwise known as air toxics, are emitted from mobile sources (e.g., cars, trucks, buses, tractors, etc.), which are primarily regulated by the State and EPA; area sources (e.g., consumer products), which are regulated by the State, EPA, and the District; and from stationary sources regulated primarily by the District. Figure 1 below shows a comparison of mobile, area, and stationary source emissions of hazardous air pollutants in the San Joaquin Valley. Of these sources, approximately 86% of hazardous air pollutant emissions occurring in the Valley are from mobile sources and area sources.

Stationary sources include point source emissions provided by facility operators and/or air districts and aggregated point source emissions estimated by CARB and/or air districts. This stationary source information is included in the CTI pursuant to the Air Toxics "Hot Spots" Act of 1987 (AB 2588). Area-wide sources are those that emit over an unspecified area. This could include paved roads, unpaved roads, or consumer product emitting sources.

Figure 1. Mobile, Area-wide, and Stationary Source Air Toxics Emissions (tons) in the San Joaquin Valley



Air Toxics Screening Assessment

EPA's Air Toxics Screening Assessment (AirToxScreen), formerly known as The National Air Toxics Assessment (NATA), is a screening tool to provide communities with information about health risks from air toxics. AirToxScreen is part of EPA's approach to air toxics that provides updated data and risk analyses on an annual basis, helping state, local and tribal air agencies, EPA, and the public more easily identify existing and emerging air toxics issues. State and air district toxic emissions inventory data are compiled to create a national emissions inventory of air toxic sources, which is used by EPA to generate the AirToxScreen Mapping Tool. The AirToxScreen Mapping Tool can be found at: https://www.epa.gov/AirToxScreen/airtoxscreen-mapping-tool.

Assembly Bill (AB) 617 - Community Air Protection Program

The implementation of AB 617 (C. Garcia, 2017) has brought additional clean air resources and strategies to Valley communities. Despite the significant reductions in emissions of criteria and toxic air pollutants that have already been achieved across the Valley, there remain many Valley communities that are disproportionately burdened by the cumulative

effects of various environmental and socioeconomic factors. AB 617 requires the expedited implementation of advanced control technologies for existing stationary source facilities; development and implementation of community-specific air quality monitoring networks; development and implementation of community emission reduction programs; enhanced reporting of facility emissions inventory data, and the creation of publically accessible online clearinghouses of emission control technology determinations. Resources available through this legislation have allowed the District and Community Steering Committees, through a comprehensive public outreach and community engagement process, to develop programs for community protection and develop a robust plan for reducing local exposure to fine particulate matter and toxic air contaminants in Valley communities.

Criteria Air Pollutant and Toxics Air Contaminants Reporting Regulation

AB 617 requires CARB to develop a uniform statewide system of annual reporting of emissions of criteria air pollutants and toxic air contaminants for certain categories of stationary sources. The bill requires stationary sources to report their annual emissions of criteria air pollutants and toxic air contaminants. In order to implement these reporting requirements, CARB developed the "Regulation for the Reporting of Criteria Air Pollutants and Toxic Air Contaminants" (CTR) to implement statewide annual reporting of criteria air pollutant and toxic air contaminant emissions data from facilities, and was adopted in support of mandates under AB 617, AB 197, and AB 2588. For Valley permitted facilities, the District will implement this regulation on behalf of the state through the District's existing annual emission inventory and air toxics processes. Emissions inventory data is critical to understanding the sources of emissions that may contribute to adverse health risks or other impacts at the local, regional, and statewide level. In 2022, 221 facilities were required to report their criteria and toxic emissions under the CTR regulation for the 2021 inventory reporting year. Facility emissions reported under CTR regulation are visualized in CARB's Pollution Mapping tool. The tool provides an interactive platform where users can select facilities by name, location, or industrial sector; view their reported emissions using maps, charts and tabular formats; and download data. It can be found at: https://ww3.arb.ca.gov/ei/tools/pollution_map/.

Summary of California's Air Toxics "Hot Spots" Information and Assessment Act

Background

The *Air Toxics "Hot Spots" Information and Assessment Act* (AB 2588, 1987, Connelly) was enacted in September 1987 and later strengthened in 1992. Under this act, stationary sources are required to report the types and quantities of certain toxic substances their facilities routinely release into the air. The goals of AB 2588 are:

- to identify Valley facilities that release toxic air contaminants as a result of their day to day operations
- to collect and quantify emission data
- to identify facilities causing localized impacts
- to determine facility-wide health risks
- to notify nearby residents and businesses of significant risk facilities in their vicinity
- to require that significant-risk facilities reduce their risks below the level of significance in accordance with the provisions of the "Emissions Inventory Criteria and Guidelines Report" adopted by the Air Resources Board

The District's implementation of AB 2588 has minimized health risks to the public associated with the release of air toxic emission from sources located within the San Joaquin Valley. Under this right-to-know law, the District has worked with facilities to quantify air toxic emissions, determine the potential health risk associated with those emissions, and report any risk determined to be significant by the District through written public reports and neighborhood public meetings. A flowchart summarizing the AB 2588 implementation process is provided in Appendix C.

Assessing the Risk to the Public

The State Air Toxics "Hot Spots" Act requires the District to compile an inventory of toxic emissions from Valley facilities, prioritize facilities for health risk, evaluate public health risks for facilities ranked as high priority, and notify individuals who may be impacted by any significant health risks. Although Hot Spots is primarily a public right-to-know and notification program, the public awareness achieved through the Hot Spots program has led many Valley businesses to voluntarily reduce their toxic emissions to ease community concerns.

Implementation

The District utilizes the applicability criteria outlined in CARB's Emission Inventory Criteria and Guidelines Regulation (EICGR) to determine which facilities are evaluated under the program. Facilities are subject to quantifying and reporting their toxic emissions if one or more of the criteria below is met:

- Emit 10 or more tons per year of criteria pollutants (particulate matter, oxides of nitrogen, oxides of sulfur, or organic gasses)
- Emit less than 10 tons per year of criteria pollutants, but meet one or more of the classes listed in Appendix E of the EICGR
- Emit toxic substances that have been added to Appendix A of the EICGR
- Emit toxic substances that have new health risk values published by the state's Office of Environmental Health Hazard Assessment (OEHHA)

The risk evaluation processes were revised in 2015 as the District implemented the state Office of Environmental Health Hazard Assessment's (OEHHA's) revised *Guidance on Preparation of Health Risk Assessments* that was adopted by OEHHA in early March 2015. The District's health risk assessment processes and policies were updated accordingly and implemented July 1, 2015. This revised guidance was designed to incorporate the Governing Board's guidance to implement OEHHA's revisions to provide enhanced protection of children, and the public overall, while preventing unreasonable restrictions on permitting actions.

OEHHA's revised guidance has been incorporated into the District's implementation of the AB 2588 Hot Spots Program. Since the calculated health risk under the new methodologies is higher than previous estimates, Valley facilities are being reassessed under AB 2588. Under this health risk reassessment process, facilities are first evaluated to determine applicability to the Air Toxics "Hot Spots" program. Facilities determined to be subject to the Air Toxics "Hot Spots" program are required to prepare a Toxic Emission Inventory Plan (Plan) and a Toxic Emission Inventory Report (Report) in order to provide site-specific inventories of air emissions of toxic substances.

In 2016, the District began the outreach and reassessment of facilities by following the phased processing schedule outlined in AB 2588, which was originally implemented in the late 80's and early 90's. AB 2588 subjected three major categories (or phases) of facilities to the regulation based upon their level of annual emissions. The AB 2588 regulation also allows for "Industry-wide" toxics emissions inventory, which consist of facilities that are small businesses where emissions can be generally characterized such as gasoline dispensing facilities, auto body coating facilities, etc. These industry-wide facilities are being addressed under the fourth assessment phase. Similar to industry-wide facilities, small single source facilities, such those with only diesel internal combustion engines (DICE), are also being assessed in the fourth phase of the implementation schedule. The following summary outlines each phase within the District's implementation plan:

First phase:	Phase I Facilities (≥ 25 tons emissions per year)
Second phase:	Phase II Facilities (10 ≤ tons emissions per year < 25)
Third phase:	Phase III Facilities (< 10 tons emissions per year)
Fourth phase:	Phase IV Facilities (Industry-wide such as Gas Stations, Auto Body Shops, etc.; DICE only, Ag facilities)

AB 2588 Evaluation Process

Toxic Emission Inventory Plans and Reports

Under this act, facilities are required to prepare Toxic Emission Inventory Plans and Reports to develop site-specific inventories of air emissions from toxic substances. Plans provide an outline and methodology for calculating toxic emissions for all permitted and non-permitted stationary sources operated at the facility. This is reviewed and approved by the District prior to emission quantification. Reports include calculations of facility's toxic emissions using site-specific process rates and emission factors in order to perform a "Prioritization" of the facility's air toxic emissions.

Prioritization

AB 2588 requires air districts to prioritize facilities to determine a facility's status within the program. In establishing priorities, the air districts are to consider the potency, toxicity, quantity, and volume of hazardous materials released from the facility, the proximity of the facility to potential receptors, and any other factors that the district determines may indicate that the facility may pose a significant health risk. The District uses the prioritization methodology outlined in the California Air Pollution Control Officers Association (CAPCOA) *Facility Prioritization Guidelines* to prioritize facilities under AB 2588. Utilizing the facility's approved Plan and Report, a facility's priority status is determined using the prioritization thresholds listed in District Policy APR 1906, as identified in Table 2 below.

Table 2: AB 2588 Prioritization Thresholds and Categories

Prioritization Thresholds	Priority Category	Category Requirements
≤ 1	Low Priority	Facility is conditionally exempt from further AB 2588 requirements
>1 and ≤ 10	Intermediate Priority	Facility is required to provide an update summary on a quadrennial basis
> 10	High Priority	Facility is required to perform a Health Risk Assessment

Health Risk Assessment

Facilities that classify as "High" priority are required to perform a Health Risk Assessment (HRA) to determine whether its toxic emissions are expected to pose a significant risk to nearby residents and workers. Under AB 2588, the District and the Office of Environmental Health Hazard Assessment's (OEHHA) review each HRA. HRAs performed under the program are required to use the methodologies and procedures outlined in District guidelines and OEHHA's 2015 Air Toxic Hot Spots Program "*Guidance Manual for Preparation of Health Risk Assessments*". A facility's status under the program is determined using established health risk thresholds as identified in Table 3 below:

Table 3: AB 2588 Health Risk Assessment Thresholds

Health Risk Thresholds	Risk Category	Category Requirements
Cancer risk < 1 in a million, and Total hazard index of < 0.1	Low Risk	Facility is conditionally exempt from further AB 2588 requirements
1 ≤ Cancer risk <10 in a million, or 0.1 ≤ Total hazard index ≤ 1.0	Intermediate Risk	Facility is required to provide an update summary on a quadrennial basis
Cancer risk ≥ 10 in a million, or Total hazard index of > 1.0	High Risk	Facility is required to go through the public notification process
Cancer risk > 100 in a million, or Total hazard index of > 5.0	Risk Reduction	Facility is required to go through the public notification process and prepare a Risk Reduction Plan

Public Notification

Facilities that are determined to be high risk to nearby residents or workers are required to notify those exposed persons, through the District's Public Notification process. This process allows the District to inform the public of their potential exposure to toxic substances routinely released into the air from facilities and the potential health risks associated with those exposures. Additionally, this process allows any public questions or concerns regarding exposure and health risk associated with the facility's toxic emissions to be heard and discussed. As of 2022, no District permitted facilities have been determined to pose risks in excess of these public notification levels.

Risk Reduction Audit and Plan

Facilities that pose health risks above District action levels are required to submit risk reduction audits and plans (RRAP) to reduce their risk. The District's review of completeness of any facility RRAP includes a substantive analysis of the emission reduction measures included in the plan, and the ability of those measures to achieve emission reduction goals as quickly as feasible. If the District determines that the RRAP does not meet those requirements, the District shall return the audit and plan to the facility to remedy the deficiencies identified by the District. No District permitted facilities have been determined to pose risks in excess of the risk reduction action levels.

Update Summary Facilities

Intermediate Priority and Intermediate Risk facilities are subject to the regulation's Update Summary reporting process. At least once every four years, these facilities must provide their annual activity and resulting emissions inventory in order to provide the District with updated facility information and to determine whether any operational changes at the facility have the potential to affect the facility's health risk status under the program. Operational changes could consist of increasing process rates, or by operating new or modified stationary sources at the facility. However, it is important to note that changes to the facility that require a District permit or permit modification must be approved by the District prior to being implemented. Based on the information submittal, the District determines if an updated AB 2588 assessment is required.

Industry-wide and Small Single Source Facilities

Under the state's regulation, common types of smaller commercial facilities where the air toxics emissions from individual facilities can easily and generically be characterized and calculated, qualify for a more streamlined assessment process referred to as "industry-wide". These facility industry-wide classes include gasoline dispensing facilities, dry cleaning operations, and automotive coating facilities.

Similar in concept to the industry-wide facilities, smaller operations operating only a single type of emission unit, cannot qualify as industry-wide, and where the emissions can easily and generically be characterized and calculated, qualify for a more streamlined assessment process referred to as "small single source" facilities. Small single sources include facilities only operating a diesel-fired emergency IC engine.

CARB's Updates to AB 2588 Guidance in 2022

2022 Amendments to the Emission Inventory Criteria and Guidelines Regulation

Amendments were made to the Emission Inventory Criteria and Guidelines Regulation (EICGR) and approved by the Office of Administrative Law on March 21, 2022. CARB amended the EICGR to collect more comprehensive emission data across the state. The primary amendments to the EICGR include:

- Updated reporting requirements for diesel engines
- Added factors in determining facility exemptions, reinstatements, and update reporting provisions
- Increased the number of reportable substances in Appendix A from approximately 700 to over 1,700 substances
- Established a phase-in schedule for evaluating newly added substances, consistent with the CTR Regulation's emissions inventory schedule
- Added new source test requirements for certain source types

2022 Gasoline Service Station Industrywide Risk Assessment Guidance

To assist air districts in assessing Gasoline Dispensing Facilities (GDF) as required under AB 2588, CARB and California Air Pollution Control Officers Association (CAPCOA) prepared an updated standardized Gasoline Service Station Industrywide Risk Assessment Guidance in 2022. This guidance provides a framework for air districts to use when evaluating the public health risks from GDFs. This guidance replaces the 1997 Gasoline Service Station Industrywide Risk Assessment Guidelines that was previously used by air districts for their health risk evaluations. Changes in the 2022 technical guidance include new health risk methodologies, updated emission factors for gas stations, and new information on the toxic chemicals in gasoline. Due to the significant changes in the methodology and the state-wide effort to evaluate GDFs under AB 2588, in 2022 the District expeditiously evaluated the Valley's permitted GDF facilities (approximately 1,500 facilities).

Air Toxics Hot Spot Assessments Summary

The District has finalized 6,926 AB 2588 facility assessments from 2016 - 2022. Table 4 below identifies the number of facilities assessed in 2022 through a prioritization analysis (after completion of a Plan and Report), applicability exemption determination, or a health risk assessment (after completion of a prioritization).

Table 4: Summary of Facilities Assessed Under AB 2588 in 2022

AB 2588 Category	Number of Facilities Assessed in 2022
Low/Exempt Priority	938
Low/Exempt Risk	3
Intermediate Priority	646
Intermediate Risk	18
High Priority	8
High Risk	0
Total	**1,613**

Of the facilities evaluated under AB 2588 in 2022, approximately 1,500 were GDFs evaluated under CARB and CAPCOA's updated standardized Gasoline Service Station Industry-wide Risk Assessment Guidance that was finalized in 2022. A detailed list of the facilities evaluated in 2022 and their current status under AB 2588 can be found in Appendix A.

Preventing Creation of Significant Health Risk

The overall goal of the District's integrated approach to air toxics emissions in the San Joaquin Valley aims to maximize public health improvements and minimize public exposure to air toxic emissions. The integrated air toxics program assists in preventing, minimizing, and reducing health risks through a variety of programs.

New or Modified Stationary Source Evaluations

One goal of District risk management review efforts is to minimize the increase that new and modified stationary sources add to the existing toxic load and any potentially significant public health impacts associated with the release of those airborne toxic emissions. In order to achieve this goal, the District evaluates the health risk of stationary sources as part of the District's permitting process and engineering evaluation.

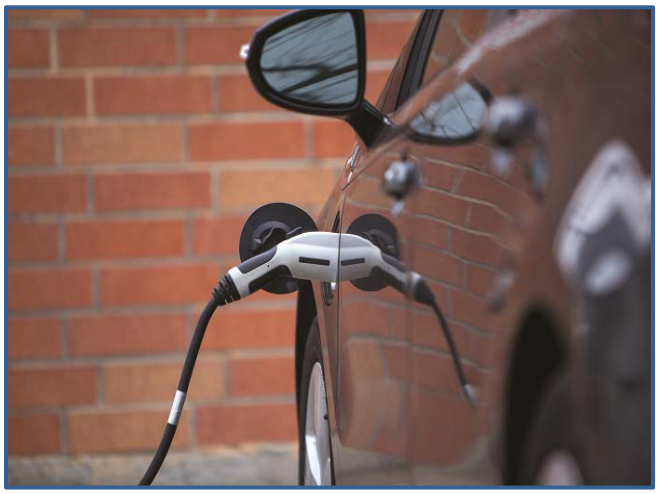
Under the District's risk management policy, Toxic Best Available Control Technology must be applied to all units that may pose greater than de minimis levels of risk (i.e., a cancer risk greater than one in one million). Projects that would pose significant impacts to nearby residences or businesses (i.e., by causing an increased cumulative facility cancer risk of 20-in-a-million or greater) are not approvable. When a project is determined not to be approvable as proposed, District staff will work with the applicant to find approvable low-risk alternatives, such as installing air toxic emissions control devices or limiting the operation of the proposed equipment. Under this program, the District has performed over 16,000 Risk Management Reviews for facilities throughout the District. As a consequence, no permit for a new or modified operation has been approved since the program was initiated in 1995 that would have created a significant health impact through increases in air toxic emissions.

Air Toxics "Hot Spots" Information and Assessment Act

As noted earlier in this report, this law is designed to provide information on the extent of emissions from existing stationary sources and the potential public health impacts of those emissions. Facilities are required to calculate and report to the District their actual emissions of air toxic emissions. "Significant Risk" facilities must disclose their impacts to the nearby residents that may be impacted. Facilities that exceed a higher risk reduction action threshold must go even further and reduce emissions of air toxics. No Valley facility currently poses a significant risk under the "Hot Spots" program, while at the beginning of the implementation of the program, in 1989, 16 facilities were classified "Significant Risk Facilities." As discussed above, the District has begun a significant risk reassessment process that incorporates the revised OEHHA guidance.

Incentive-Based Programs

To assist in reducing air toxic emissions throughout the Valley, more than $5 billion in public and private funding has been invested in clean-air projects through the District's voluntary incentive programs. In total, these programs have reduced more than 240,000 tons of harmful emissions. For example, more than 30,800 older, high-polluting heavy-duty diesel engines have been replaced with zero emission electric motors or cleaner burning engines equipped with the latest in emission control technology. These replacements have resulted in the reduction of nearly 17,000 total tons of carcinogenic diesel particulate matter emissions. In addition, the District's voluntary incentive programs provide critical funding to replace old, higher-polluting school buses, light-duty passenger vehicles, residential wood burning devices, and numerous others. Through the District's first-of-its-kind Ag Burn Alternatives Grant program, the District provides funding to support the Valley's ongoing phase-out of agricultural open burning and the development of innovative alternatives to open burning.



In 2017, AB 617 initiated a statewide effort to monitor and reduce localized air pollution, and highly improve public health, in communities that experience disproportionate burdens from exposure to air pollutants through new community-focused and community-driven actions. The communities of Shafter, South Central Fresno, Stockton and Arvin/Lamont were selected to receive clean air resources available under AB 617 through the Community Air Protection Program. This program includes a substantial investment of community-level funding through a wide variety of voluntary incentive funding measures, including the Tune-In & Tune-Up program and the Fireplace & Woodstove Change-Out Program. The Tune-In & Tune-Up program provides incentives for primarily low-income

District residents to perform much-needed smog related repairs to their personal vehicles. In some cases, the District is even able to offer greater incentives for residents to replace their old, high polluting vehicle with a much cleaner and much newer vehicle. Through the Fireplace & Woodstove Change-Out Program, the District is able to provide funding for District residents to replace, older, high polluting residential wood burning devices with new, clean burning devices or natural gas inserts. Through this program, the District offers a higher incentive for the District's low-income population.

Attainment Plans and Control Strategies

Within the District's *2018 $PM_{2.5}$ Plan*, the District prioritized strategies achieving the greatest public health benefits while satisfying applicable attainment planning requirements. The District also analyzed the health benefits that would result from implementation of the plan. Several examples of prioritized control strategies included in the *2018 $PM_{2.5}$ Plan* include new measures to further reduce emissions from commercial cooking (Rule 4692) and residential wood burning (Rule 4901). These measures will reduce some of the most harmful types of particulate matter when and where those reductions are most needed in urban, highly populated areas. The District has prioritized commitments to strengthen these programs due to the significant and well-researched public health benefits.

Indirect Source Review Rule

The District's Indirect Source Review (ISR) rule, in place since 2005, achieves combustion-related NOx and PM10 emission reductions from the construction and operation of new development projects through the incorporation of design features and on-site mitigation measures. The focus of these emissions reductions are from mobile source heavy duty off-road diesel equipment and heavy duty on-road diesel trucks, which emit diesel particulate matter, one of the most potent carcinogens.

California Environmental Quality Act and Health Risk Assessments

The California Environmental Quality Act (CEQA) requires public agencies to evaluate environmental impacts from a development project and all feasible alternatives or mitigation measures that can substantially reduce or avoid those impacts. Generally, the main responsibility for satisfying CEQA requirements, or "lead agency" role, falls under the responsibility of city or county planning agencies.

From a health risk perspective, land use decisions are critical to improving and preventing degradation of air quality within the San Joaquin Valley, as land use patterns greatly influence potential exposure of sensitive receptors to sources of air pollution. Under CEQA, land use agencies must evaluate the potential significance of health risks associated with development projects. The District provides support to land use agencies when making air quality impact determinations by assisting in the review of health risk assessments performed for the project.

Outreach and Education

As we move forward in achieving our mission, the District shall continue its ongoing efforts to educate the public about air quality, and the significant clean air investments and air quality progress that have been made in the Valley.

The District's information and educational programs include the Real-Time Air Quality Advisory Network (RAAN), Web-based Archived Air Quality (WAAQ) System, and Healthy Air Living Schools program.

RAAN uses real-time data from air monitoring stations throughout the Valley to provide hour-by-hour air quality updates to schools and other subscribers. WAAQS was implemented in 2015 and takes RAAN a step further by providing neighborhood-by-neighborhood historical air quality data for any address in the Valley air basin. Valley residents can use this information to make informed decisions and plan outdoor activities for times with the best air quality, reducing potential air quality health risks. As a high priority area of focus, the District has continued working to expand the Healthy Air Living Schools initiative to deliver an extensive set of tools and information, including the recent launch of school-based Real-Time Electronic Air-quality Displays (READ), to enable Valley schools to understand and respond to air quality conditions and protect the health of students.

Air Toxics Regulations

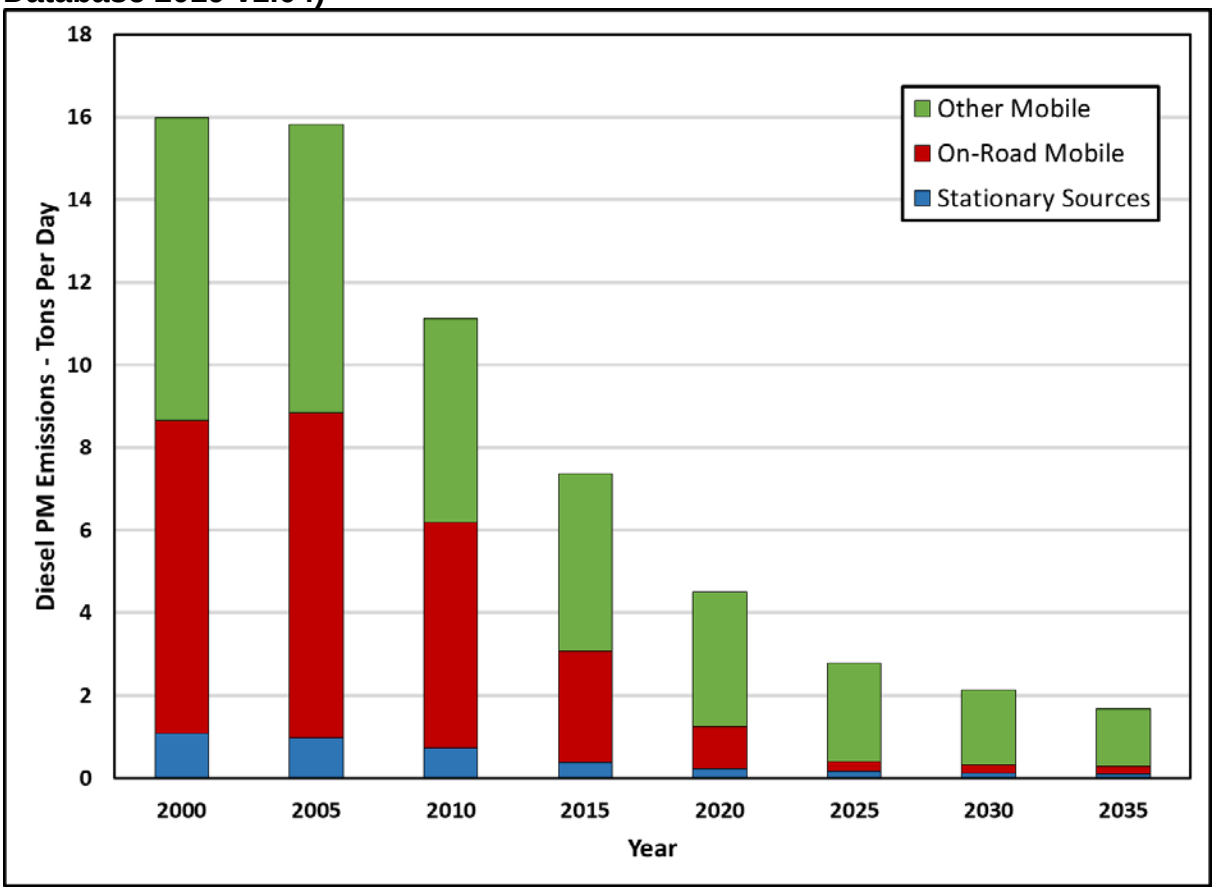
In addition, the District implements a variety of state, federal, and District rules reducing and regulating the emissions of toxic air pollutants. Such regulations have generated significant reductions in air toxics from a wide variety of sources, from requiring the gradual phase-out of perchloroethylene used at dry cleaners and mandating emissions controls at chrome platers, to a large number of rules aimed at reducing particulate emissions from diesel internal combustion engines.

Due to this diverse set of risk reduction efforts, approximately 14% of all air toxics in the San Joaquin Valley are now emitted from stationary sources of pollution under the direct control and regulation of the District, while 52% comes from mobile sources such as cars and trucks, and the remaining 34% is emitted from area-wide sources like road dust, paints, solvents, and other consumer products (per CTI). Mobile and area-wide sources of emissions are generally under the regulatory authority of the State of California and the federal government.

Diesel Exhaust Risk Reduction

CARB identified particulate matter emissions from diesel-fueled engines as a toxic air contaminant with the potential to pose a significant cancer risk to the public. Historically the cancer risk from the exhaust of diesel internal combustion engines has been determined to be far higher than the estimated cancer risk from all other sources of air pollution combined. Because of the high level of risk associated with diesel exhaust, and because of the prevalence of the engines, the State chose not to address diesel exhaust using the existing risk management guidance. Instead, the State decided to establish an advisory committee of interested parties, and developed a comprehensive risk management plan that would result in significant reductions in emissions of diesel particulate matter. CARB adopted the Risk Reduction Plan to Reduce Particulate Matter Emissions from mobile and stationary Diesel-fueled Engines. The figure below shows the trend and forecast of diesel PM emissions in the San Joaquin Valley through the year 2035.

Figure 2. Diesel PM Emissions Trend, San Joaquin Valley (CARB CEPAM Database 2019 v1.04)



Several of the following Air Toxic Control Measures (ATCMs) were developed as a part of ARB's diesel exhaust risk reduction efforts, which continue to be developed. Related information is available on CARB's ATCM website at: https://ww2.arb.ca.gov/resources/documents/airborne-toxic-control-measures.

ATCM Portable Diesel-Fueled Engines

The purpose of the CARB adopted Portable Diesel ATCM is to protect public health by controlling particulate matter (PM) emissions from diesel fueled portable engines rated at 50 horsepower and greater operating in California. All existing portable diesel engines were required to be certified by January 1, 2010, and all new portable engines were required to meet the latest certification standards. In addition, the ATCM contains stringent diesel PM fleet standards that apply after 2010.

The latest version of the ATCM became effective on November 30, 2018 and contains stringent emissions standards and operational requirements that impact new and existing portable diesel engines. The District has been implementing the requirements of the Portable ATCM in the review of applications for District Portable Registrations and permits for portable diesel engines. This ATCM is expected to continue to result in a substantial reduction in Valley diesel PM emissions over the next several years.

ATCM Stationary Diesel-Fueled Engines

The purpose of the CARB adopted Stationary Diesel ATCM is to protect public health by controlling particulate matter (PM) and criteria pollutant emissions from stationary diesel fueled portable engines rated at 50 horsepower and greater operating in California.

This ATCM is satisfied via Rule 4702 (Internal Combustion Engines) in combination with the District's permitting or Permit-Exempt Equipment Registration (PEER) program. These District programs have collectively been found by the CARB to be equivalent to the Stationary ATCM for stationary agricultural engines. This ATCM and District Rule 4702 are expected to continue to result in a substantial reduction in Valley diesel PM emissions over the next several years.

CARB Control Measure for In Use Off-road Diesel Vehicle Rule

The purpose of the CARB adopted an off-road diesel vehicle rule is to reduce diesel PM and oxides of nitrogen (NO_X) emissions from in-use (existing) off-road heavy-duty diesel vehicles. The regulation applies to self-propelled diesel-fueled vehicles that cannot be registered and licensed to drive on-road. Examples include loaders, crawler tractors, skid steers, backhoes, forklifts, and airport ground support equipment. Vehicles with engines less than 25 horsepower are exempt. The regulation is expected to reduce diesel exhaust emissions by over 1,600 tons per year statewide between 2010 and 2030.

Diesel Particulate Matter Control Measure for On-road Heavy-duty Diesel-fueled Vehicles Owned or Operated by Public Agencies and Utilities

The purpose of the CARB adopted control measure will reduce emissions from on-road heavy duty vehicles over several deadlines, with the first groups of vehicles required to be in compliance by December 31, 2007. This control measure is particularly effective because it reduces diesel PM emissions in the heart of residential communities where municipal and utility vehicles frequently conduct business, and where the public is significantly impacted by diesel PM emissions.

ATCM to Limit Diesel-Fueled Commercial Motor Vehicle Idling

CARB initially adopted an ATCM to reduce emissions of toxics and criteria pollutants by limiting idling of new and in-use sleeper berth-equipped diesel trucks. The emission performance requirements require technologies used as alternatives to idling the truck's main engine. The new engine requirements required 2008 and newer model year heavy-duty diesel engines to be equipped with non-programmable engine shutdown systems that automatically shut down the engine after five minutes of idling or, alternatively, meet a more stringent NO_X idling emission standard. Beginning January 1, 2008, in-use truck requirements require operators of both in-state and out-of-state registered sleeper berth equipped trucks to manually shut down their engine when idling more than five minutes at any location within California. Each year heavy-duty diesel truck idling contributes to hundreds of pounds of PM as well as other pollutants to the Valley. The District Incentive Program has subsidized truck stop support equipment to reduce diesel truck idling along the main goods movement corridors. Tests conducted by the District and CARB have determined that an idling truck can consume up to a gallon of diesel fuel an hour. The idling of heavy-duty trucks, at the time of delivery, represents a high percentage of emissions around developed areas in the Valley.

ATCM for Transport Refrigeration Units

The purpose of the CARB adopted ATCM is to reduce emissions of diesel PM from Transport Refrigeration Units (TRUs). TRUs are refrigeration systems powered by diesel internal combustion engines designed to refrigerate or heat perishable products that are transported in various containers, including semi-trailers, truck vans, shipping containers, and rail cars. Although TRU engines are relatively small, ranging from 9 to 36 horsepower, significant numbers of these engines congregate at distribution centers, truck stops, and other facilities, resulting in the potential for health risks to those that live and work nearby. CARB estimated that diesel PM emissions from TRUs will be reduced by 83% by 2040. CARB has recently developed amendments to this ATCM. Related information is available on their TRU ATCM website at https://ww2.arb.ca.gov/our-work/programs/transport-refrigeration-unit.

ATCM for Hexavalent Chromium for Decorative and Hard Chrome Plating and Chromic Acid Anodizing Facilities

The purpose of the CARB adopted ATCM is to established new, more stringent emission limitations that depend upon size and nearness to sensitive receptors, limited the use of chemical fume suppressants, and adopted new housekeeping, education, monitoring, recordkeeping, and reporting requirements. The District chose to implement this ATCM by revising Rule 7011 to incorporate the revised ATCM by reference. The District also required submission of a compliance plan and applications for Authorities to Construct (ATCs). A compliance workshop was held on November 17, 2007 to assist facility owners and operators in complying with the ATCM. The District's Governing Board adopted the rule on January 17, 2008.

CARB has recently begun a process to amend the ATCM to establish enhanced best management practices (e.g. building enclosures, limits, source testing, etc.) for all chrome plating facilities using hexavalent chrome. On November 29, 2022, CARB released a staff

report with the initial statement of reasons for the proposed amendments, with the stated goal of eliminating toxic hexavalent chromium emissions from the chrome plating industry in California over time. The amendments propose phasing out the use of hexavalent chromium from chrome plating operations for all new chrome plating facilities in California as early as January 2024. Subsequently, CARB staff presented the proposed amendments as a Board item during a public hearing in January of 2023. The hearing was the first of two hearings for the proposed amendments, the second hearing scheduled for a later date, at which time the chrome plating ATCM amendments will be voted on for approval.

There are numerous expected benefits from the proposed amendments, including eliminating hexavalent chromium emissions from California's chrome plating industry, reducing the potential cancer risk to individual residents and off-site workers near chrome plating facilities, and reducing occupational exposures for on-site workers.

ATCM for Perchloroethylene Emissions from Dry Cleaning Operations

The purpose of the CARB adopted ATCM is to phase out the use of perc dry cleaning machines and related equipment by January 1, 2023. In addition, the amendments will put in place revisions to the Curriculum for the Environmental Training Program for Perc Dry Cleaning Operations (Training Curriculum). There were changes to the operational requirements for dry cleaners as well. For example, the revised ATCM requires that owners/operators maintain a spare set of gaskets on-site. Also, the trained operator must now be on-site whenever the machine is operated. These amendments became effective upon final approval by the Office of Administrative Law on December 27, 2007. The District adopted the revised ATCM in 2008 by reference.

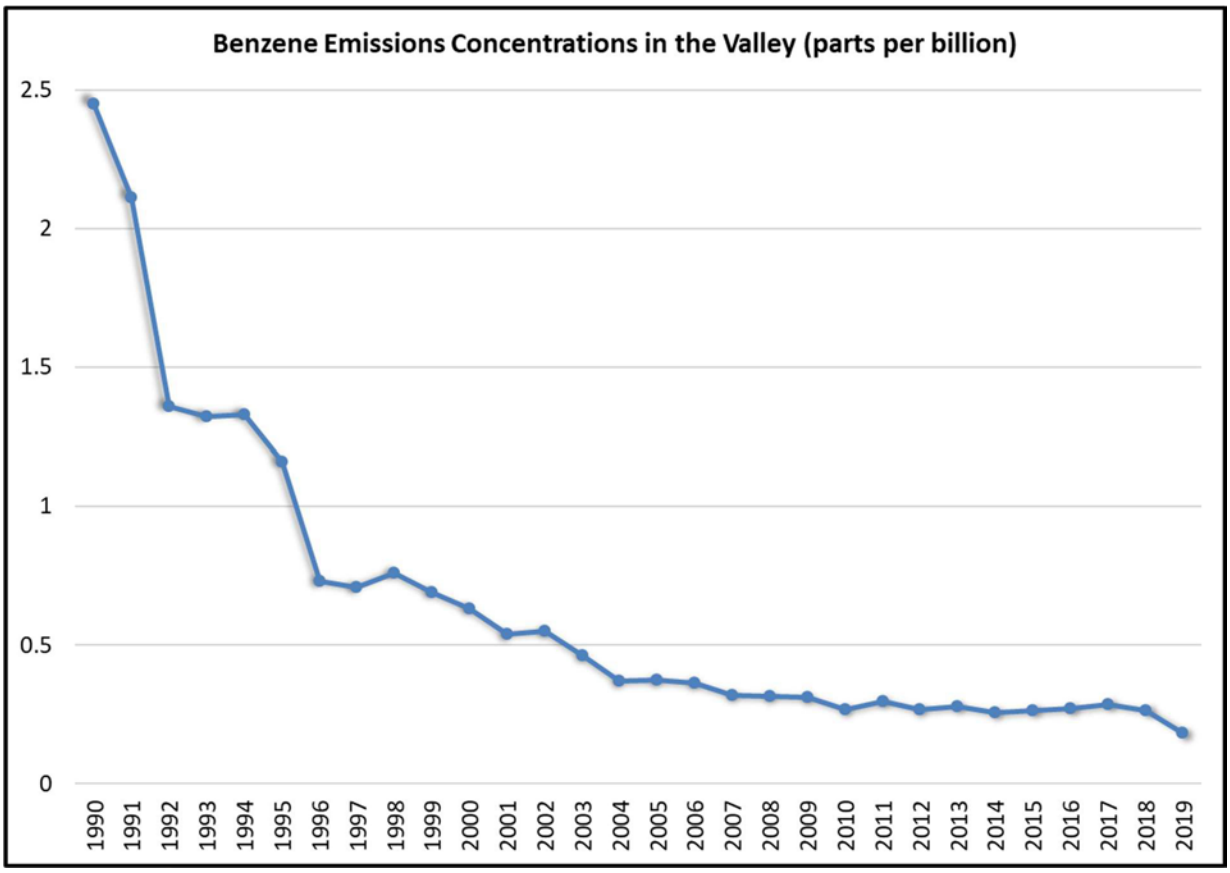
ATCM for Composite Wood Products

The purpose of the CARB approved ATCM is to reduce formaldehyde emissions from composite wood products including hardwood plywood, particleboard, medium density fiberboard, thin medium density fiberboard, and also furniture and other finished products made with composite wood products Formaldehyde is produced on a large scale worldwide. One major use includes the production of wood binding adhesives and resins. CARB developed a modified version of the Composite Wood Product ATCM that was released for a 15-day public comment period on January 31, 2008, and was approved April 18, 2008, by the Office of Administrative Law. Further amendments to this ATCM were approved in May of 2012.

ATCM for Benzene from Retail Service Stations

CARB adopted the ATCM for Emissions of Benzene from Retail Service Stations. The ATCM reflects the use of best available control technology, which requires the installation of CARB-certified Phase I and II vapor recovery control equipment at all retail service stations. The ATCM is designed to reduce benzene and total hydrocarbon emissions from uncontrolled stations by 95 percent. Figure 3 shows the trend of benzene emissions in the Valley.

Figure 3. Benzene Emissions Trend, San Joaquin Valley (CARB Annual Toxics Monitoring Data)



ATCMs Adopted by the District as Regulations:

- District Rule 7011: Chromium Plating And Chromic Acid Anodizing Facilities
- District Rule 7012: Hexavalent Chromium - Cooling Towers
- District Rule 7021: Ethylene Oxide - Sterilizers and Aerators
- District Rule 7031: Dioxin - Medical Waste Incinerators
- District Rule 7041: Fluorides - Phosphoric Acid Plants
- District Rule 7050: Asbestos - Containing Material for Surfacing Applications
- District Rule 7060: Toxic Metals from Non-Ferrous Metal Melting
- District Rule 7070: Perchloroethylene from Dry Cleaning Operations

Other ATCMs are implemented primarily through the permitting process. These include the ATCM for Stationary Compression Ignition Engines and the ATCM for Diesel Particulate Matter from Portable Engines Rated at 50 Horsepower and Greater.

Reducing Health Risk through Enforcement Delegation

On July 1, 2008, the District began enforcing California Air Resources Board's ATCM to Limit School Bus Idling and Idling at Schools and ATCM to Limit Diesel-Fueled Commercial Motor Vehicle Idling, during timeframes in which state funding is available to

support these efforts. The purpose of these ATCMs is to reduce toxic and criteria air pollutants by limiting idling time. By enforcing these requirements in the Valley, the District is able to directly reduce public exposure from toxic emissions, especially in sensitive areas.

The District was delegated the responsibility of enforcing the U.S. EPA's NESHAP for asbestos, a known carcinogen, and as a result performs hundreds of inspections of construction projects that have the possibility of disturbing asbestos containing materials. By ensuring that these materials are removed and handled correctly, the probability of harmful releases of asbestos is significantly reduced.

Implementation of Federal Air Toxics Mandates

EPA has issued NESHAPs through Part 61 and Part 63 of Title 40 of the Code of Federal Regulations (CFR). The Part 61 NESHAPs were issued prior to the adoption of the Federal Clean Air Act Amendments of 1990. Those NESHAPs are specific to a particular hazardous air pollutant (HAP). Due to little activity in adopting NESHAPs, the 1990 amendments to the Federal Clean Air Act established a new procedure for developing NESHAPs. A list of 189 HAPs was established. EPA identified industries that emitted those HAPs and established a prioritized list of over 70 source categories for which Maximum Achievable Control Technology (MACT) standards would be promulgated. These MACT standards apply to major sources of HAPs, defined as sources with emissions greater than 10 tons per year of a single HAP, or 25 tons per year of combined HAPs. Many of these source categories are already subject to state and local regulation, which have traditionally been more stringent than the federal regulations. EPA has already adopted MACT standards to address the majority of the source categories identified.

In addition to the MACT standards for major sources, EPA is also required to adopt NESHAPs standards to reduce the health risk associated with area (non-major) sources of HAPs. As the result of a lawsuit, EPA was under court order to promulgate area source NESHAPs for 4 categories of sources by December 15, 2006; for 6 categories by June 15, 2007; and for 10 categories each 6 months thereafter until June 15, 2009. Similar to the MACT standards for major sources, many of the area sources subject to these standards are already subject to state and local regulation. Area source NESHAPs have already been promulgated for Oil and Natural Gas Production Facilities; Polyvinyl Chloride and Copolymers Production, Primary Copper Smelting, Secondary Copper Smelting, and Primary Nonferrous Metals - Zinc, Cadmium, and Beryllium; Acrylic and Modacrylic Fibers Production, Carbon Black Production, Chemical Manufacturing: Chromium Compounds, Flexible Polyurethane Foam Production and Fabrication, Lead Acid Battery Manufacturing, and Wood Preserving; Clay Ceramics Manufacturing, Glass Manufacturing, and Secondary Nonferrous Metals Processing; Electric Arc Furnace Steelmaking Facilities; and Hospital Ethylene Oxide Sterilizers. See Appendix D for the current status of the District's implementation of NESHAPs.

An amendment to 40 CFR part 63, subpart ZZZZ (control of HAPs from reciprocating internal combustion engines) was proposed on June 6, 2012, and was finalized by EPA

on January 14, 2013. This regulation requires reductions in hazardous air pollutants from stationary internal combustion engines over the next several years, and requires significant recordkeeping and monitoring of the engines affected. The District is currently developing processes and policies to assist those facilities affected to comply with the new requirements.

Many other amendments to existing NESHAPs were finalized in 2012: Chemical Manufacturing, Hard & Decorative Chrome electroplating and HCL supplements, Polyvinyl Chloride, Nitric Acid Plants, Petroleum Refineries process heaters and flares, etc. While these NESHAPs have lesser applicability in California and the San Joaquin Valley then the engine NESHAP discussed above, the District will identify, notify, and assist those facilities affected.

In December 2021, EPA issued a decision extending Toxic Release Inventory (TRI) reporting for ethylene oxide to 29 facilities across the country. These facilities were required to begin tracking their chemical activities, releases and other waste management quantities starting in January 2022 and submit TRI data to EPA in 2023. None of these facilities are located within the San Joaquin Valley.

The District currently is delegated authority by EPA to implement and enforce NESHAPs through two mechanisms. First, all major sources of HAPs are required to obtain Title V operating permits. The NESHAP requirements for these major sources are included in the Title V permits for which the District is delegated authority by EPA. Second, the District is delegated authority to implement and enforce all area source NESHAPs that are included in District Rule 4002, most recently amended on May 20, 2004. Under the District's Air Toxics Program and federal regulations, there are several options for implementing new NESHAP requirements. These options are discussed in more detail below. The District will choose the most appropriate option for implementing each Federal standard, and will hold public workshops to obtain public input on the implementation of these additional standards.

- Straight Delegation: Accepting delegation of the federal standard as written by amending Rule 4002 or by agreeing to automatic delegation with an option of opting-out for specific NESHAPs using an approach developed by the (CAPCOA);
- Rule Adjustment: Proposing minor changes to the federal MACT rule that make the adjusted rule no less stringent than the federal standard;
- Rule Substitution: Substituting one or more existing, new, or amended District rules for the federal standard (It should be noted that California Districts have been delegated authority for the chrome plating and dry cleaning NESHAPs because EPA has agreed that the ATCMs for those source categories are equivalent to the NESHAPs.);
- Streamlining Multiple Applicable Requirements: Minimizing duplicative requirements by placing the more stringent emission limit or workplace practice standard on the permit along with the corresponding monitoring, recordkeeping, and reporting requirements;
- Program Substitution: Using existing programs to assure compliance with the

requirements of federal standards;

- No Delegation: Using existing programs to reduce the emissions of hazardous air pollutants without delegation of federal standards.

The NESHAPs for which the District has received delegation through Rule 4002 are listed in Table D1 in Appendix D. All current NESHAPs for which the District has not received delegation through Rule 4002 are listed in Table D2 in Appendix D.

Regardless of the status and type of delegation, the District believes strongly in working with the affected sources to make them aware of the requirements in a timely manner, and then help them understand and comply with these public health protective regulations.

Air Dispersion Modeling

Air quality models use mathematical techniques to simulate the physical and chemical processes that affect air pollutants as they disperse and react in the atmosphere. These models form the backbone of the air toxics management process, as they are used to assess the potential exposure of the public to various toxic emissions. Using inputs of meteorological data and source parameter information such as emission rates and stack height, models predict ambient concentrations of primary pollutants that are emitted. Models are also important to the air quality management process because they determine compliance with National/State Ambient Air Quality Standards (NAAQS/SAAQS), and other regulatory requirements such as New Source Review (NSR).

EPA Regulatory Model (AERMOD)

The American Meteorological Society/Environmental Protection Agency Regulatory Model Improvement Committee (AERMIC) was formed to introduce state-of-the-art modeling concepts into the EPA's air quality models. Through AERMIC, a modeling system, AERMOD, was developed to incorporate air dispersion based on planetary boundary layer turbulence structure and scaling concepts, including treatment of both surface and elevated sources, and both simple and complex terrain.

With the promulgation of AERMOD as the preferred air dispersion model in EPA's *Guideline on Air Quality Models* (signed by the EPA Administrator on October 21, 2005 and published November 9, 2005 in the *Federal Register*), AERMOD is used for appropriate application as a replacement for ISCST3 since November 9, 2006.

Meteorological Data

The District makes available meteorological data from both the National Climatological Data Center (NCDC) and the Fifth-Generation Penn State/National Center for Atmospheric Research Mesoscale Model (MM5). The NCDC data were collected at major airports in the San Joaquin Valley. The MM5 data were derived from a numerical model for locations in the valley where there are no airports. These locations are primarily in the western part of the Valley. All processed data is freely available for download on the District's web page at:
https://www.valleyair.org/busind/pto/Tox_Resources/AirQualityMonitoring.htm

Appendices

Appendix A: Facilities Assessed Under AB 2588 in 2022
Appendix B: Toxic Emissions Summary
Appendix C: AB 2588 District Implementation Flow Chart
Appendix D: Current Status of NESHAP Delegation

Appendix A. Facilities Assessed under AB 2588 in 2022

Appendix A includes a detailed list of the facilities assessed under AB 2588 in 2022. Table A1 includes gasoline dispensing facilities prioritized, Table A2 includes other types of facilities prioritized, and Table A3 includes the facilities with completed health risk assessments.

Table A1. Gasoline Dispensing Facilities Prioritized in 2022

Region	Facility ID	Facility Name	City	Prioritization Score	Prioritization Category
C	1123	1 Star Mini Mart	Fresno	1.04	Intermediate
C	1782	1 Stop Liquor & Gas	Madera	0.51	Exempt/Low
C	284	11th Street Chevron Inc.	Hanford	0.80	Exempt/Low
S	750	24/7 Food & Fuel LLC	Bakersfield	0.51	Exempt/Low
S	5587	2nd Generation	Visalia	0.81	Exempt/Low
C	1351	3j's Market	Kingsburg	0.51	Exempt/Low
S	1834	3way Market And Gas	Bakersfield	0.51	Exempt/Low
S	2066	4010 Arco Am/Pm	Bakersfield	2.04	Intermediate
C	1786	41 Gas & Liquor	Madera	1.23	Intermediate
S	100	4b Market & Gas	Tulare	0.60	Exempt/Low
S	8347	4ever Limited Inc. Dba Gasko Mart	Bakersfield	0.91	Exempt/Low
S	2184	51 Crown Enterprise Inc. Dba Lucky 7 Food	Delano	0.51	Exempt/Low
N	993	620 West Charter Way LLC	Stockton	0.93	Exempt/Low
S	2101	7 - Eleven Inc.	Bakersfield	0.51	Exempt/Low
S	9500	7 Eleven Facility #38628	Bakersfield	0.69	Exempt/Low
S	9280	7 Eleven Inc.	Bakersfield	0.51	Exempt/Low
S	2237	7- Eleven Inc.	Bakersfield	0.51	Exempt/Low
C	102	7- Eleven Inc.	Clovis	0.59	Exempt/Low
C	1266	7- Eleven Inc.	Fresno	0.62	Exempt/Low
S	2221	7- Eleven Inc.	Visalia	0.62	Exempt/Low
C	104	7- Eleven Inc.	Clovis	0.73	Exempt/Low
N	1407	7- Eleven Inc.	Merced	0.81	Exempt/Low
C	1943	7- Eleven Inc.	Clovis	0.83	Exempt/Low
N	1408	7- Eleven Inc.	Merced	0.84	Exempt/Low
C	1794	7- Eleven Inc.	Oakhurst	0.86	Exempt/Low
S	2225	7- Eleven Inc.	Visalia	0.92	Exempt/Low
C	91	7- Eleven Inc.	Fresno	1.00	Exempt/Low
C	100	7- Eleven Inc.	Hanford	1.08	Intermediate
C	1795	7- Eleven Inc.	Chowchilla	1.11	Intermediate
N	1403	7- Eleven Inc.	Atwater	1.16	Intermediate
C	96	7- Eleven Inc.	Hanford	1.18	Intermediate
C	79	7- Eleven Inc.	Mendota	1.23	Intermediate

Region	Facility ID	Facility Name	City	Prioritization Score	Prioritization Category
C	2936	7- Eleven Inc.	Madera	1.38	Intermediate
C	1263	7- Eleven Inc.	Kettleman City	1.45	Intermediate
S	2235	7- Eleven Inc.	Lost Hills	1.46	Intermediate
N	1406	7- Eleven Inc.	Los Banos	1.49	Intermediate
N	1409	7- Eleven Inc.	Merced	1.69	Intermediate
C	105	7- Eleven Inc.	Reedley	1.75	Intermediate
C	83	7- Eleven Inc.	Selma	1.83	Intermediate
C	1232	7- Eleven Inc.	Fresno	1.91	Intermediate
N	1392	7- Eleven Inc.	Merced	1.93	Intermediate
C	1944	7- Eleven Inc.	Kerman	2.00	Intermediate
N	1404	7- Eleven Inc.	Santa Nella	2.11	Intermediate
N	1753	7- Eleven Inc.	Oakdale	2.82	Intermediate
N	3520	76 Express Tiger No 1	Stockton	0.47	Exempt/Low
S	3256	7-Eleven #32241	Bakersfield	1.38	Intermediate
N	9759	7-Eleven #38877	Stockton	0.51	Exempt/Low
C	9572	7-Eleven 38756	Clovis	0.76	Exempt/Low
C	1168	7-Eleven Inc.	Hanford	0.51	Exempt/Low
N	3514	7-Eleven Inc.	Stockton	0.51	Exempt/Low
S	161	7-Eleven Inc.	Visalia	0.51	Exempt/Low
S	2155	7-Eleven Inc.	Bakersfield	0.51	Exempt/Low
S	2136	7-Eleven Inc.	Oildale	0.51	Exempt/Low
C	9587	7-Eleven Inc.	Fresno	0.51	Exempt/Low
S	2093	7-Eleven Inc.	Visalia	0.51	Exempt/Low
S	2128	7-Eleven Inc.	Bakersfield	0.51	Exempt/Low
S	2138	7-Eleven Inc.	Bakersfield	0.51	Exempt/Low
S	9289	7-Eleven Inc.	Bakersfield	0.51	Exempt/Low
C	1167	7-Eleven Inc.	Lemoore	0.55	Exempt/Low
S	3268	7-Eleven Inc.	Bakersfield	0.57	Exempt/Low
S	2137	7-Eleven Inc.	Arvin	0.58	Exempt/Low
C	1114	7-Eleven Inc.	Fresno	0.87	Exempt/Low
C	3526	7-Eleven Inc.	Fresno	0.88	Exempt/Low
C	9586	7-Eleven Inc.	Fresno	0.92	Exempt/Low
S	3292	7-Eleven Inc.	Bakersfield	1.12	Intermediate
N	136	7-Eleven Inc.	Stockton	1.40	Intermediate
N	7529	7-Eleven Inc.	Ceres	1.50	Intermediate
C	3167	7-Eleven Inc. 35068	Lemoore	0.63	Exempt/Low
N	9768	7-Eleven Inc.	Ceres	0.66	Exempt/Low
N	9496	7-Eleven Inc.	Stockton	1.11	Intermediate
N	5010	7-Eleven Incorporated	Stockton	1.36	Intermediate
N	747	7-Eleven, Inc.	Stockton	0.51	Exempt/Low

Region	Facility ID	Facility Name	City	Prioritization Score	Prioritization Category
N	1370	7-Eleven, Inc.	Los Banos	0.51	Exempt/Low
N	745	7-Eleven, Inc.	Manteca	0.51	Exempt/Low
N	748	7-Eleven, Inc.	Stockton	0.80	Exempt/Low
N	3940	7-Eleven, Inc.	Tracy	1.38	Intermediate
N	3810	7-Eleven, Inc.	Stockton	2.24	Intermediate
S	9298	7-Eleven, Inc.	Bakersfield	0.51	Exempt/Low
N	9781	7-Eleven, Inc. Store #38704	Los Banos	1.03	Intermediate
N	744	7-Eleven, Store #17647	Manteca	0.51	Exempt/Low
S	593	8 And 10 Market	Porterville	0.51	Exempt/Low
S	2002	9700 Rosedale LLC	Bakersfield	1.32	Intermediate
S	3003	99 Food Mart	Tulare	0.51	Exempt/Low
S	2082	99 Gas & Food Mart Inc.	Kingsburg	1.00	Exempt/Low
S	3250	A & A Express	Maricopa	0.51	Exempt/Low
N	70	A & G Gas Inc.	Stockton	2.32	Intermediate
N	365	A & S Partnership Dba Fast& Easy Mart103	Stockton	1.36	Intermediate
S	3844	A One Market Inc.	Bakersfield	0.51	Exempt/Low
N	4322	A&A Gas Inc. Dba A&A Gas And Food Mart	Manteca	3.25	Intermediate
N	1989	A&M Gas (Abdo Almolaiki)	Modesto	0.67	Exempt/Low
S	964	A-1 Food Gas Mart	Visalia	0.51	Exempt/Low
S	3070	A-1 Food Gas Mart	Lindsay	0.51	Exempt/Low
C	2026	A-1 Liquor & Gas (Pritam S. Gill)	Parlier	0.82	Exempt/Low
S	2074	Aa Gas 'N' Grub 2	Farmersville	0.67	Exempt/Low
S	977	Aa Gas-N-Grub	Exeter	0.67	Exempt/Low
N	3768	Aarti Petroleum	Turlock	2.28	Intermediate
N	8709	Aasra Petroleum, Inc.	Ripon	3.01	Intermediate
N	7841	Ab March Ln Stockton Operating Inc.	Stockton	4.84	Intermediate
C	46	Abby Arco	Fresno	0.70	Exempt/Low
N	8840	Abc Petroleum Inc. Dba Tracy Plaza Texaco	Tracy	5.83	Intermediate
N	117	Abdo Thabet Nashir	Stockton	0.56	Exempt/Low
N	103	Abdo Thabit Nashir	Stockton	0.51	Exempt/Low
N	8540	Abdo Thabit Nashir	Stockton	0.66	Exempt/Low
C	667	Abe's Liquor And Food	Clovis	0.82	Exempt/Low
N	1273	Adel's Mini Mart	Merced	0.67	Exempt/Low
N	1725	Agile Solutions & Consulting Inc.	Modesto	3.23	Intermediate
S	2183	Ahdi Enterprises Corp Dba Shafter Shell	Shafter	0.51	Exempt/Low
N	635	Ahmed's Sons Inc.	Manteca	1.53	Intermediate

Region	Facility ID	Facility Name	City	Prioritization Score	Prioritization Category
C	2365	Ahwahnee Ez Mart	Ahwahnee	0.51	Exempt/Low
S	1584	Airport Texaco	Bakersfield	1.20	Intermediate
N	84	Aj's Mini Mart Inc.	Stockton	0.13	Exempt/Low
S	4253	Akers Texaco	Visalia	0.61	Exempt/Low
N	1986	Alex And Sons Gas And Food	Modesto	0.67	Exempt/Low
C	2297	All Star Mini Mart	Armona	0.62	Exempt/Low
S	312	Alraifi LLC	Porterville	0.67	Exempt/Low
S	933	Al's Mini Mart	Porterville	0.51	Exempt/Low
N	7689	Alves Center	Manteca	0.82	Exempt/Low
S	6749	Am Pm Arco	Tulare	3.50	Intermediate
N	1850	Amar Beer Wine & Gas	Turlock	0.00	Exempt/Low
S	3534	Amar Jyot LLC	Bakersfield	2.73	Intermediate
N	9476	American Bedliners & Truck Accessories	Stockton	2.87	Intermediate
N	1722	American United Investments Inc.	Oakdale	8.75	Intermediate
C	3837	Amigos Mini Mart	Avenal	5.82	Intermediate
C	7822	Analyst Properties LLC	Fresno	0.51	Exempt/Low
S	3689	Andreotti's Corner	Buttonwillow	0.02	Exempt/Low
N	1041	Ap Dba Billjar Valero	Tracy	0.67	Exempt/Low
N	1920	Ap Enterprise Inc. Dba Frontier Liquor	Modesto	0.51	Exempt/Low
C	4073	Ap Gill Inc. Dba Zoo Liquor & Gas	Fresno	0.51	Exempt/Low
S	7741	Apk 22 Inc	Dinuba	4.42	Intermediate
S	1000	Applegate Market (Said Kaeib)	Porterville	0.52	Exempt/Low
S	3918	Apro LLC	Visalia	0.61	Exempt/Low
N	133	Apro LLC	Stockton	1.36	Intermediate
N	132	Apro LLC	Stockton	1.48	Intermediate
C	9195	Apro, LLC Dba United Pacific #0251	Madera	1.44	Intermediate
N	1168	Arco #00237 - Mehar Petroleum Inc.	Merced	2.29	Intermediate
N	79	Arco #02186 - Khai Quang Vo	Stockton	1.36	Intermediate
N	83	Arco #05450 American United Investments	Stockton	1.97	Intermediate
N	71	Arco #06080 - Jamil Kabariti	Lathrop	3.68	Intermediate
N	9316	Arco #07071- Msco Strauch Management LLC	Merced	4.15	Intermediate
N	9711	Arco #07124 - Bp Products North America	Merced	2.83	Intermediate
N	8850	Arco #07147-Msco Strauch Management LLC	Stockton	3.03	Intermediate

Region	Facility ID	Facility Name	City	Prioritization Score	Prioritization Category
N	78	Arco #83560 - Wight Holdings Inc.	Stockton	1.41	Intermediate
S	7081	Arco 82646	Delano	0.55	Exempt/Low
N	9463	Arco Am/Pm	Stockton	2.76	Intermediate
C	8583	Arco Am/Pm #83145	Madera	2.39	Intermediate
N	9311	Arco Am/Pm Stockton - Ken Dharni	Stockton	4.22	Intermediate
S	9015	Arco Am/Pm Wasco	Wasco	2.11	Intermediate
C	2317	Arco Am-Pm	Kingsburg	2.22	Intermediate
C	40	Arco AM-PM	Fresno	3.29	Intermediate
N	1727	Arco Fac #06043-Anshi & Ayaan Inc.	Modesto	1.81	Intermediate
N	85	Arco Fac #07049-Strauch Companies	Lodi	2.78	Intermediate
N	80	Arco Fac #2093 - Tracy Bains Inc.	Tracy	3.57	Intermediate
C	97	Arco Gas & Food Mart (Nirmal Singh Gill)	Fresno	0.63	Exempt/Low
C	3728	Arco Smog Pro	Fresno	5.83	Intermediate
C	9121	Arco Station Nees	Fresno	3.88	Intermediate
N	1745	Arco Turlock Petroleum Inc.	Turlock	1.94	Intermediate
C	3411	Arj Chevron	Avenal	0.62	Exempt/Low
N	76	Arp Minimart Corporation	Tracy	0.05	Exempt/Low
S	3418	Arvin Petroleum Inc.	Bakersfield	3.09	Intermediate
S	9035	Arvin Petroleum Inc. #47008	Arvin	1.97	Intermediate
S	2164	Asa Enterprise Inc. - Lucky 7	Bakersfield	0.51	Exempt/Low
N	4721	Ashish Boveja	Stockton	1.17	Intermediate
N	567	Ashish Boveja Dba My Mini Mart Gasoline	Stockton	0.79	Exempt/Low
C	1847	Ashlan Cedar Gas N Liquor	Fresno	2.07	Intermediate
N	9468	Asp Petroleum Inc	Manteca	4.51	Intermediate
N	1171	Atwater Shell	Atwater	1.08	Intermediate
N	4151	Au Energy, LLC	Modesto	1.06	Intermediate
S	7156	Avo's Shell (Avo Cholakian)	Bakersfield	1.75	Intermediate
N	3016	B & W Petroleum (Bait Barn)	Waterford	0.90	Exempt/Low
N	4012	B And W Petroleum	Escalon	0.90	Exempt/Low
C	4329	B&J Petroleum Sales LLC Dba Arco Am/Pm	Fresno	2.75	Intermediate
N	1185	B&V Inc. (Gurnek Bagri & Sammarbir Virk)	Los Banos	1.28	Intermediate
N	2056	B&W Petroleum	Patterson	0.79	Exempt/Low
C	2070	B&W Petroleum #103 Dba Tiny Mart	Prather	0.99	Exempt/Low
C	863	Baba Ji Market	Parlier	0.51	Exempt/Low

Region	Facility ID	Facility Name	City	Prioritization Score	Prioritization Category
S	2428	Baba Properties Inc.	Bakersfield	0.54	Exempt/Low
S	9251	Bachan Singh Ghangas LLC	Bakersfield	1.07	Intermediate
C	690	Bag-O-Bag	Fresno	0.63	Exempt/Low
S	8987	Balkuver LLC	Bakersfield	1.93	Intermediate
N	8563	Ballico Mom And Pop Mini Mart	Ballico	0.67	Exempt/Low
N	1350	Balwant S Dhami, Sure Stop Market	Atwater	0.51	Exempt/Low
C	1805	Balwinder Singh Dba Madera Self Serv	Madera	0.85	Exempt/Low
C	7460	Bangar Chevron	Hanford	1.03	Intermediate
N	4748	Bap Enterprises Inc. / Wilson Way Chevron	Stockton	1.90	Intermediate
N	853	Baph 3 Inc. Dba 3 B's Truck & Auto Plaza	Lodi	2.01	Intermediate
C	1982	Barber Aviation	Madera	2.51	Intermediate
S	7609	Barn V	Visalia	0.93	Exempt/Low
S	1823	Bashaar Najdawi Chevron	Bakersfield	0.79	Exempt/Low
S	2368	Basic Properties	Delano	2.93	Intermediate
C	1718	Bass Fork Minit Mart	North Fork	0.51	Exempt/Low
C	2632	Bbs Partners Incorporated	Oakhurst	0.81	Exempt/Low
C	95	Beacon Gas & Food Mart	Fresno	0.78	Exempt/Low
C	7994	Beal Development LLC-Chevron Food Mart	Fresno	0.93	Exempt/Low
C	9439	Beal Developments	Fresno	0.94	Exempt/Low
C	9035	Beal Developments LLC	Clovis	0.71	Exempt/Low
C	7735	Beal Developments LLC, E-Z Mart	Clovis	0.73	Exempt/Low
C	297	Beal Developments, LLC	Fresno	1.37	Intermediate
C	697	Beal Properties Inc.	Fresno	0.51	Exempt/Low
C	3305	Beal Properties Inc.	Fresno	0.62	Exempt/Low
C	3677	Beal Properties Inc.	Fresno	1.04	Intermediate
S	1459	Bear Mountain Truck Stop	Bakersfield	0.63	Exempt/Low
C	109	Bee's Market/Hardeep Singh Rathore	Raisin City	0.53	Exempt/Low
C	2900	Behlo Oil Corp Dba Kingsburg Chevron	Kingsburg	1.05	Intermediate
C	112	Belmont Car Wash Inc.	Fresno	1.64	Intermediate
S	314	Ben Maddox Pik N Go	Visalia	0.51	Exempt/Low
S	850	Best Truck Stop	Pixley	0.51	Exempt/Low
C	1760	Bhaiti And Son Inc. - Dba Madera Mobil	Madera	0.93	Exempt/Low
C	3864	Bhandal Petro Dba Bulldog Gas & Mart #2	Fresno	0.94	Exempt/Low
S	6896	Bhandal Travel Center	Earlimart	8.10	Intermediate

Region	Facility ID	Facility Name	City	Prioritization Score	Prioritization Category
N	9040	Bi Rite Liquor	Merced	0.86	Exempt/Low
S	9248	Big B's Travel Center #2	Delano	0.51	Exempt/Low
S	620	Big O Gas-Deli & Grill	Orosi	0.51	Exempt/Low
S	105	Big Stop Market Inc. Dba Big Stop Market	Shafter	0.67	Exempt/Low
C	2231	Bill's Quick Stop (Abdo Alhomedi)	Madera	0.51	Exempt/Low
N	3492	Bill's Sport & Bait Shop	Modesto	0.51	Exempt/Low
C	698	Bizzy Bee Gas & Food Mart	Fresno	3.07	Intermediate
S	2302	Bj's Express Mart	Visalia	0.86	Exempt/Low
C	1054	Bj's Food & Liquor #2	Fresno	1.01	Intermediate
C	1717	Bj's Gas And Liquor	Madera	0.73	Exempt/Low
N	261	Blackhawk Petroleum	Stockton	0.67	Exempt/Low
S	3760	Blackwells Corner Restaurant & Deli	Lost Hills	0.13	Exempt/Low
S	1261	Bob Shiralian Shell	Lebec	1.27	Intermediate
N	9362	Bobbies Food Corner	Atwater	0.51	Exempt/Low
S	970	Bob's Auto And Truck Stop	Pixley	0.51	Exempt/Low
S	621	Bob's Tiny Mart	Porterville	0.51	Exempt/Low
C	1218	Bobs Villa Food Mart	Clovis	1.43	Intermediate
N	4353	Bonfare Market #43	Modesto	0.51	Exempt/Low
C	1759	Boyal Brothers Inc. Dba Gas 'N' Grab	Madera	0.51	Exempt/Low
C	327	Boyett Petroleum	Clovis	0.51	Exempt/Low
N	2902	Boyett Petroleum	Modesto	0.51	Exempt/Low
N	3268	Boyett Petroleum	Modesto	1.20	Intermediate
N	9706	Boyett Petroleum	Modesto	2.04	Intermediate
N	1726	Bps Fuel	Modesto	5.83	Intermediate
N	612	Br Petro Inc, Dba Lakewood Chevron	Lodi	1.07	Intermediate
N	937	Brd Investments Inc./Waterloo Food Mart	Stockton	1.18	Intermediate
N	3840	Briggsmore Cruisers #11	Modesto	1.98	Intermediate
N	3963	Brother's Food Mart	Livingston	1.16	Intermediate
N	1241	Brothers Royal Crown	Atwater	1.13	Intermediate
S	2303	Br's Food Store	Porterville	0.51	Exempt/Low
S	115	Brundage Lane Am Pm	Bakersfield	1.63	Intermediate
S	8114	Brundage Petroleum Inc.	Bakersfield	2.46	Intermediate
N	7468	Bsv Inc. Dba Stop N Go	Atwater	0.51	Exempt/Low
N	1205	Bsv, Inc.	Atwater	1.52	Intermediate
C	9346	Bubble Clean	Fresno	1.59	Intermediate
S	7675	Buena Vista Concession (Rupinder Jhaj)	Taft	0.13	Exempt/Low

Region	Facility ID	Facility Name	City	Prioritization Score	Prioritization Category
S	2697	Buford Oil Co	Lost Hills	0.03	Exempt/Low
C	153	Buford Oil Co (Star Mart)	Armona	0.51	Exempt/Low
C	154	Buford Oil Co (Star Mart)	Corcoran	0.51	Exempt/Low
C	162	Buford Oil Co (Star Mart)	Avenal	0.61	Exempt/Low
C	160	Buford Oil Co (Star Mart)	Hanford	1.30	Intermediate
C	1216	Buford Oil Co (Texaco)	Kingsburg	0.51	Exempt/Low
C	237	Buford Oil Co Inc. (Buford Shell #14)	Sanger	0.51	Exempt/Low
C	156	Buford Oil Co. (Little's Tex.)	Hanford	0.51	Exempt/Low
C	155	Buford Oil Co. (Star Mart #4)	Lemoore	0.51	Exempt/Low
C	158	Buford Oil Company	Riverdale	0.51	Exempt/Low
C	161	Buford Oil Company	Fowler	0.69	Exempt/Low
C	168	Buggy Bath	Pinedale	1.23	Intermediate
C	166	Buggy Bath Car Wash (Chevron)	Clovis	0.51	Exempt/Low
C	2770	Buggy Showers	Madera	0.89	Exempt/Low
C	1291	Bulldog Gas & Mart	Fresno	0.87	Exempt/Low
C	38	Bunnell & Almann's Petroleum Inc.	Fresno	2.85	Intermediate
C	7263	Bush Chevron	Lemoore	0.96	Exempt/Low
C	291	Butler Chevron 95768	Fresno	0.71	Exempt/Low
S	2797	Buttonwillow Chevron	Buttonwillow	8.75	Intermediate
S	2047	Buttonwillow Food And Gas	Buttonwillow	2.99	Intermediate
S	2432	Bye Bye Inc./Samco Oak #5	Bakersfield	1.16	Intermediate
N	1856	Bz Mart (Balwinder Dhillon)	Modesto	0.51	Exempt/Low
C	2508	C & C Fuel Company	Madera	0.92	Exempt/Low
N	8797	C & F Market Harvin Fuel	Modesto	0.67	Exempt/Low
C	5741	C A Plaza	Hanford	0.51	Exempt/Low
C	50	C&B Arco Dba H&R Enterprises	Fresno	2.00	Intermediate
N	534	C.D.& R's Oil Inc. Dba Tracy Blvd Chevron	Tracy	2.30	Intermediate
N	9231	Cagasoline Inc. Dba Cagasoline Express	Manteca	1.39	Intermediate
N	161	California Car Wash	Stockton	0.51	Exempt/Low
C	1276	California- Fresno Oil Co-Fowler 76-109	Fowler	0.86	Exempt/Low
S	484	California Fresno Oil Co-Mooney 76-114	Visalia	0.59	Exempt/Low
S	2521	California Mini Mart (Sikander Jassar)	Bakersfield	0.77	Exempt/Low
N	2165	California Pacific Connect Inc.	Modesto	0.51	Exempt/Low
N	2500	California Stop	Stockton	0.51	Exempt/Low

Region	Facility ID	Facility Name	City	Prioritization Score	Prioritization Category
S	2500	California-Fresno Oil Co	Visalia	0.51	Exempt/Low
C	1120	California-Fresno Oil Co	Selma	0.69	Exempt/Low
C	2368	California-Fresno Oil Co	Fresno	1.44	Intermediate
C	468	California-Fresno Oil Co	Fresno	2.82	Intermediate
C	1917	California-Fresno Oil Co	Fresno	5.83	Intermediate
C	1300	California-Fresno Oil Company-Universit	Clovis	1.91	Intermediate
C	1124	California-Fresno Oil Co-Westside 76-107	Firebaugh	1.43	Intermediate
S	2356	Capri Food Store	Mcfarland	0.51	Exempt/Low
N	1193	Card-Gas, Inc.	Merced	0.61	Exempt/Low
C	2880	Cardlock Fuels System, LLC	Fresno	0.51	Exempt/Low
N	2288	Cardlock Fuels System, LLC	Turlock	0.51	Exempt/Low
N	1775	Cardlock Fuels System, LLC.	Modesto	0.51	Exempt/Low
C	2034	Cargo Mart	Laton	0.51	Exempt/Low
C	805	Castle B Inc. Dba Parkside Chevron	Fresno	1.04	Intermediate
C	4141	Cavalier Food	Fresno	1.23	Intermediate
N	1733	Cb 50 Yosemite Blvd Operating Inc.	Modesto	1.68	Intermediate
S	3780	Cbrr Inc.	Taft	0.02	Exempt/Low
C	694	Central Food Mart	Fresno	5.83	Intermediate
N	1770	Central Gas Oakdale	Oakdale	0.59	Exempt/Low
N	9033	Central Valley Gas Stations Atwater	Merced	5.83	Intermediate
N	1198	Century Chevron	Merced	0.69	Exempt/Low
N	1809	Century Chevron	Turlock	1.13	Intermediate
N	4989	Century Chevron Food Mart	Turlock	1.46	Intermediate
N	4766	Century Chevron Food Mart	Turlock	8.75	Intermediate
N	1343	Century Petroleum Inc./Century Chevron	Merced	1.10	Intermediate
N	1746	Ceres Cruisers #12	Ceres	0.92	Exempt/Low
N	1730	Ceres Petroleum Inc. Dba Arco Ampm	Ceres	3.46	Intermediate
N	2168	Ceres Shell	Ceres	1.37	Intermediate
S	9366	Chahal Enterprise Inc. #1	Visalia	3.48	Intermediate
C	718	Chahal Management Inc.	Kerman	0.78	Exempt/Low
S	8767	Chandi Josan Petroleum Inc.	Visalia	3.41	Intermediate
N	8933	Charanjit Jutla	Tracy	2.26	Intermediate
N	2523	Charter Way Petro Inc.	Stockton	2.53	Intermediate
C	1119	Chase Inc.	Kettleman City	1.86	Intermediate

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C	1002	Chase Inc. - Kettleman City Exxon	Kettleman City	0.56	Exempt/Low
S	3750	Chase Inc. - Tejon Valero	Lebec	1.17	Intermediate
S	1658	Chase Inc. 76	Lost Hills	1.26	Intermediate
C	2427	Chase Inc. B P	Coalinga	1.75	Intermediate
C	2374	Chase Inc. Dba Slater Shell	Fresno	2.90	Intermediate
S	3043	Chase Inc. Buttonwillow	Buttonwillow	1.50	Intermediate
C	9166	Chase Valero Travel Center	Firebaugh	1.35	Intermediate
C	37	Chase, Inc.	Coalinga	0.53	Exempt/Low
S	8063	Chauhan & Toor Inc.	Pixley	2.60	Intermediate
S	240	Chester Liquor Market	Bakersfield	0.51	Exempt/Low
S	770	Chevron Food Mart	Tulare	0.58	Exempt/Low
N	4034	Chevron Products Co	Tracy	2.72	Intermediate
N	2363	Chevron Products Co A Chevron Usa Inc.	Stockton	1.52	Intermediate
N	4947	Chevron Products Co A Chevron Usa Inc.	Tracy	1.78	Intermediate
N	4693	Chevron Products Company	Ripon	1.38	Intermediate
N	4114	Chevron Products Company	Livingston	1.48	Intermediate
N	3919	Chevron Products Company	Modesto	1.57	Intermediate
N	4405	Chevron Products Company	Manteca	1.57	Intermediate
N	7627	Chevron Products Company	Riverbank	2.20	Intermediate
N	4087	Chevron Products Company	Stockton	2.40	Intermediate
N	7462	Chevron Products Company	Stockton	2.46	Intermediate
N	4165	Chevron Station & Mini Mart	Merced	1.86	Intermediate
C	280	Chevron U.S.A. Inc.. #96953	Kettleman City	3.06	Intermediate
N	2515	Chevron Usa Inc.	Tracy	3.11	Intermediate
S	9041	Chevron Usa Inc.	Bakersfield	0.00	Exempt/Low
S	2439	Chevron Usa Inc.	Lost Hills	1.20	Intermediate
C	279	Chevron Usa Inc. #92133	Coalinga	2.94	Intermediate
N	3315	Chevron Usa Inc.	Manteca	1.43	Intermediate
N	1813	Chevron Usa Products Company	Modesto	1.61	Intermediate
N	31	Chevron Usa Products Company	Stockton	1.84	Intermediate
N	1812	Chevron Usa Products Company	Ceres	1.98	Intermediate
N	1204	Chevron Usa Products Company	Santa Nella	2.47	Intermediate
N	325	Chevron Usa Products Company	Stockton	2.51	Intermediate
C	290	Chevron Usa, Inc. #92316	Firebaugh	2.36	Intermediate

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S	7230	Circle 7 Liquor Inc.	Visalia	0.52	Exempt/Low
C	2313	Circle D Food & Liquor	Fresno	0.67	Exempt/Low
S	1871	Circle Deli	Bakersfield	0.51	Exempt/Low
N	3200	Circle J Food & Gas	Turlock	0.51	Exempt/Low
N	8956	Circle K Los Banos	Los Banos	2.61	Intermediate
C	2325	Circle K Stores Inc.	Fresno	0.51	Exempt/Low
S	2299	Circle K Stores Inc.	Bakersfield	0.51	Exempt/Low
S	2141	Circle K Stores Inc.	Wasco	0.52	Exempt/Low
S	2146	Circle K Stores Inc.	Bakersfield	0.53	Exempt/Low
S	2143	Circle K Stores Inc.	Bakersfield	0.65	Exempt/Low
C	319	Circle K Stores Inc.	Hanford	0.66	Exempt/Low
N	1211	Circle K Stores Inc.	Dos Palos	0.89	Exempt/Low
N	1206	Circle K Stores Inc.	Atwater	0.96	Exempt/Low
C	321	Circle K Stores Inc.	San Joaquin	1.00	Exempt/Low
C	323	Circle K Stores Inc.	Avenal	1.01	Intermediate
N	1822	Circle K Stores Inc.	Modesto	1.03	Intermediate
N	1210	Circle K Stores Inc.	Los Banos	1.20	Intermediate
C	322	Circle K Stores Inc.	Selma	2.10	Intermediate
C	9207	Circle K Stores Inc.	Fresno	2.30	Intermediate
N	1821	Circle K Stores Inc.	Turlock	3.16	Intermediate
N	1405	Circle 'R' Minimart	Merced	0.73	Exempt/Low
S	325	City Food Mart Lindsay	Lindsay	0.59	Exempt/Low
N	2004	City Mart And Gas, Inc.	Modesto	0.51	Exempt/Low
C	2969	City Of Coalinga	Coalinga	0.02	Exempt/Low
N	1218	City Of Gustine	Gustine	0.63	Exempt/Low
C	3570	City Of Hanford	Hanford	2.51	Intermediate
N	9488	Cj Jutla	Ripon	1.90	Intermediate
S	3402	Ckg Mart Inc.	Lamont	1.29	Intermediate
C	9375	Clovis Arco Am/Pm	Clovis	2.85	Intermediate
C	3209	Clovis Mart & Gas (Valero Gas)	Clovis	2.12	Intermediate
C	1695	Clovis Shell	Clovis	1.53	Intermediate
N	4159	Cls Fuel Enterprises Inc.	Oakdale	1.15	Intermediate
C	1732	Coarsegold Kwik Serv/Boyett Petroleum	Coarsegold	0.92	Exempt/Low
C	1731	Coarsegold Self Service Station/S Singh	Coarsegold	0.76	Exempt/Low
C	4214	Coast To Coast Petroleum	Fresno	1.75	Intermediate
N	1836	Coffee Road Petroleum	Modesto	2.36	Intermediate
N	220	Collegeville Market & Cafe	Stockton	1.02	Intermediate
S	8147	Comanche Shell	Bakersfield	1.15	Intermediate
S	316	Convenience Corner Iii	Goshen	0.67	Exempt/Low

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N	3494	Corner Market & Deli	Stevinson	0.51	Exempt/Low
C	8848	Costco Gasoline	Hanford	2.49	Intermediate
N	4255	Costco Wholesale Loc #661	Modesto	13.60	High Priority
C	2484	Country Club Food Mart	Madera	0.55	Exempt/Low
N	3845	Country Marketplace	Stockton	1.64	Intermediate
N	450	Country Mart Gas & Food	Tracy	0.01	Exempt/Low
S	9208	Countryside Village	Bakersfield	7.29	Intermediate
S	3427	County Line Chevron	Delano	1.11	Intermediate
C	385	Cressman's - Gillett LLC	Shaver Lake	0.13	Exempt/Low
N	2104	Crowslanding Petroleum, Inc.	Modesto	1.13	Intermediate
N	8505	Cruisers Manteca - Bp #29	Manteca	1.63	Intermediate
C	3243	C's Oasis (Chuay Chhun & Cindy Yee)	Fresno	0.94	Exempt/Low
S	3848	Csg Petroleum Inc.	Bakersfield	2.45	Intermediate
S	2284	Cutler Food Mart	Cutler	0.73	Exempt/Low
S	4176	Cypress Flyers	Visalia	5.83	Intermediate
S	3982	D & R Lost Hills Co Brand Facility	Lost Hills	0.58	Exempt/Low
S	3680	D J Holding Inc.	Bakersfield	0.70	Exempt/Low
S	3038	D Street Chevron	Porterville	0.51	Exempt/Low
N	643	Dabb Corporation	Manteca	0.51	Exempt/Low
S	3310	Daffodils LLC	Visalia	0.58	Exempt/Low
N	4654	Dale Road Cruisers #22	Modesto	2.37	Intermediate
C	1778	Daljit Singh Chohan	Madera	0.51	Exempt/Low
N	518	Darrell Eppler Dba March Lane 76	Stockton	1.51	Intermediate
C	3525	Dassel's Petroleum, Inc.	Hanford	0.67	Exempt/Low
S	3568	Day N Night Mini Mart	Tulare	0.51	Exempt/Low
S	1036	Day N Nite Mini Mart	Lindsay	0.51	Exempt/Low
C	1144	Db Ashlan Inc.	Fresno	1.14	Intermediate
S	9131	Delano Chevron	Delano	0.88	Exempt/Low
S	2543	Delano City Municipal Airport	Delano	0.00	Exempt/Low
N	4484	Delhi Arco	Delhi	5.83	Intermediate
N	1229	Delhi Gas & Liquor	Delhi	0.51	Exempt/Low
N	4283	Delta Charter Inc.	Stockton	1.50	Intermediate
C	3461	Depot Development, Inc.	Friant	5.83	Intermediate
S	3252	DGC Oil Inc.	Bakersfield	2.08	Intermediate
S	587	Diamond Food Mart LLC	Tulare	0.75	Exempt/Low
N	7509	Diamond Gas & Mart	Modesto	0.67	Exempt/Low
N	9146	Diamond Gas & Mart #5	Modesto	0.67	Exempt/Low
S	6820	Dillon & Sons Dba The Barn #4	Arvin	0.51	Exempt/Low

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C	1999	Dinkey Creek Inn & General Store Inc.	Shaver Lake	0.00	Exempt/Low
S	2813	DJs Food Mart	Bakersfield	0.51	Exempt/Low
S	962	Doc's Corner Inc.	Tulare	0.51	Exempt/Low
S	742	Don's Liquor Mart	Frazier Park	1.04	Intermediate
N	4604	Dos Palos Chevron	Dos Palos	0.02	Exempt/Low
N	4209	Dos Palos Mini Mart	Dos Palos	0.51	Exempt/Low
N	1735	Dosanjh Family Partnership	Turlock	2.48	Intermediate
N	1794	Dosanjh Family Partnership	Modesto	2.53	Intermediate
N	1734	Dosanjh Petroleum	Salida	1.93	Intermediate
S	939	Double D Mini-Mart	Visalia	0.51	Exempt/Low
N	1757	Downtown Valero	Modesto	0.51	Exempt/Low
C	441	D's Mini Mart	San Joaquin	0.51	Exempt/Low
S	1033	Ducor Handy Market Inc.	Ducor	0.51	Exempt/Low
C	664	Dulai B Corporation Dba J S Mini Mart	Corcoran	0.51	Exempt/Low
S	2353	Dulai Mini Mart/Parmajeet Singh Dulai	Bakersfield	0.87	Exempt/Low
C	472	E Z Go Mini Mart	Fresno	0.51	Exempt/Low
S	3328	E Z Stop Mobil	Bakersfield	1.05	Intermediate
N	1883	E&J Kwik Serv	Modesto	0.57	Exempt/Low
N	3875	Eage Investments LLC	Stockton	2.20	Intermediate
S	2192	Earlimart Valero	Earlimart	0.51	Exempt/Low
N	8807	East Harney Arco - Ken Dharni	Lodi	3.06	Intermediate
S	4206	East Hills Cc Inc.	Bakersfield	0.99	Exempt/Low
S	7378	East Travel Plaza LLC	Arvin	4.07	Intermediate
N	755	El Dorado Food Mart	Stockton	2.13	Intermediate
N	3451	El Dorado Gas And Mart	Stockton	0.67	Exempt/Low
C	685	El Toro Market	Caruthers	0.51	Exempt/Low
C	59	Elkhorn Ave Market	Caruthers	0.67	Exempt/Low
N	2400	Elkhorn Golf Club	Stockton	2.50	Intermediate
N	308	Emil's Liquor & Sport Shop	Escalon	2.92	Intermediate
S	2642	Empire Gas & Liquor	Bakersfield	0.77	Exempt/Low
N	1887	Empire Liquors	Empire	1.59	Intermediate
S	8782	Encore Petroleum Inc.	Visalia	4.49	Intermediate
S	6748	Erin Group LLC	Visalia	0.59	Exempt/Low
N	312	Ernie's General Store	Stockton	0.64	Exempt/Low
N	313	Escalon Mini-Mart	Escalon	0.51	Exempt/Low
C	577	Evergreen Food Store	Fresno	0.51	Exempt/Low
N	4398	Excel Petroleum, Inc.	Stockton	0.70	Exempt/Low
N	388	Excel Petroleum, Inc.	Stockton	5.83	Intermediate

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S	2073	Exeter Mini Mart (Novroz Ali Rahim)	Exeter	0.51	Exempt/Low
S	481	Exeter Pik N Go	Exeter	0.73	Exempt/Low
S	3937	Express Gas Mart (Jesus Ontiveros)	Alpaugh	0.67	Exempt/Low
N	1987	Express Market (B Singh & V Sidhu)	Oakdale	0.53	Exempt/Low
S	6507	Express Mart & Gas	Porterville	1.50	Intermediate
N	8126	Express Mart 1	Modesto	1.56	Intermediate
S	2037	Express Mini Mart	Visalia	0.51	Exempt/Low
S	752	E-Z Mart	Bakersfield	0.76	Exempt/Low
C	8168	Ez Mart #4	Sanger	0.51	Exempt/Low
C	1770	E-Z Mart & Gas (Chaitanya Shah)	Oakhurst	0.67	Exempt/Low
C	1307	Ez Mart Food & Gas	Fresno	0.66	Exempt/Low
C	1755	Ez Mart Food Store # 15	Madera	5.83	Intermediate
S	923	Ez Pick N Go	Visalia	0.51	Exempt/Low
C	467	E-Z Trip Fresno	Fresno	1.30	Intermediate
S	2071	Fa&Y Venture Inc. Dba On Your Way Food St	Delano	0.78	Exempt/Low
N	1991	Fairview General Store	Ceres	0.51	Exempt/Low
C	7834	Falcon Junction Inc.	Prather	1.20	Intermediate
C	947	Family Express Food & Liquor	Fresno	0.51	Exempt/Low
C	987	Family Express Food & Liquor #2	Fresno	0.51	Exempt/Low
C	8043	Family Express Food And Deli	Fresno	0.51	Exempt/Low
C	2210	Family Food Center (Jaswant S Chera)	Madera	0.51	Exempt/Low
S	1085	Famoso Travel Center	Mcfarland	0.51	Exempt/Low
C	3488	Fareast Inc.	Fresno	0.51	Exempt/Low
S	816	Farmers Food Market	Poplar	0.51	Exempt/Low
C	3678	Farmers Market	Madera	0.51	Exempt/Low
N	9480	Farmer's Quick Stop	Dos Palos	0.67	Exempt/Low
S	6484	Farmersville Food Mart	Farmersville	0.67	Exempt/Low
C	270	Fashion Fair Chevron	Fresno	0.62	Exempt/Low
N	4120	Fast And Easy Mart #101 (Muhammad Bilal)	Modesto	1.63	Intermediate
C	430	Fast And Friendly	Armona	0.51	Exempt/Low
S	2454	Fast Break Abdul Aziz	Bakersfield	0.51	Exempt/Low
N	6517	Fast Lane Central Valley, LLC	Lathrop	1.08	Intermediate
C	1766	Fast N Esy #10	Madera	2.01	Intermediate
C	2435	Fast N Esy #11	Fresno	1.94	Intermediate
N	4085	Fast N Esy #12 (Vinay Vohra)	Atwater	2.41	Intermediate
C	1338	Fast N Esy #14	Fresno	1.13	Intermediate

Region	Facility ID	Facility Name	City	Prioritization Score	Prioritization Category
C	1229	Fast N Esy #15	Kingsburg	0.95	Exempt/Low
N	8806	Fast N Esy #16	Manteca	0.76	Exempt/Low
C	8752	Fast N Esy #20	Fresno	1.05	Intermediate
C	1395	Fast N Esy #21	Fresno	0.54	Exempt/Low
N	8721	Fast N Esy #27	Merced	0.57	Exempt/Low
C	4024	Fast N Esy #31	Fresno	1.13	Intermediate
C	295	Fast N Esy #6	Fresno	1.09	Intermediate
C	7877	Fast N Esy #7	Fresno	1.20	Intermediate
C	1278	Fast N Esy 17 Corporation	Fresno	1.06	Intermediate
C	3512	Fast N Esy 18 Corporation	Fresno	1.51	Intermediate
C	1230	Fast N Esy 22 Corp Dba Fast N Easy 24	Fresno	0.65	Exempt/Low
C	8599	Fast N Esy 22 Corporation	Fresno	0.78	Exempt/Low
C	1958	Fast N Esy 23 Corporation	Fresno	0.51	Exempt/Low
C	3566	Fast N Esy 26 Corporation	Fresno	0.59	Exempt/Low
C	3895	Fast N Esy 28 Corporation	Fresno	0.79	Exempt/Low
C	3724	Fast N Esy 29	Fresno	0.53	Exempt/Low
C	301	Fast N Esy 4 Corporation	Fresno	0.87	Exempt/Low
C	294	Fast N Esy 5 Corporation	Fresno	0.83	Exempt/Low
C	7136	Fast N Esy 9 Corporation	Clovis	0.80	Exempt/Low
S	8166	Fast N Esy Ii Inc.- Dba Fast N Esy #13	Tulare	7.04	Intermediate
C	485	Fast Trip Food Store	Mendota	2.16	Intermediate
S	667	Fast Way Market	Richgrove	0.51	Exempt/Low
C	484	Fastrip Food Store	Fresno	2.14	Intermediate
C	483	Fastrip Food Store	Fresno	2.66	Intermediate
C	482	Fastrip Food Store #4-890	Coalinga	3.36	Intermediate
S	476	Fastrip Oil Co	Delano	0.51	Exempt/Low
S	3033	Fastrip Oil Co	Earlimart	1.64	Intermediate
S	2357	Fastrip Oil Co	Lamont	1.71	Intermediate
S	6512	Fastrip Oil Co	Taft	3.06	Intermediate
S	2067	Fastrip Oil Co	Bakersfield	3.58	Intermediate
C	2765	Fastrip Oil Co Lp	Kerman	3.57	Intermediate
C	3053	Fastrip Oil Co, L P	Lemoore	9.39	Intermediate
C	3110	Fastrip Oil Company	Riverdale	0.69	Exempt/Low
C	3166	Fastrip Oil Company L P	Sanger	6.67	Intermediate
C	1741	Fastway Market	Madera	0.51	Exempt/Low
S	1262	Fiesta Liquor And Gas	Bakersfield	0.51	Exempt/Low
C	89	Fifth Wheel Truck Stop Inc.	Fresno	0.67	Exempt/Low
C	2140	Firebaugh Mart LLC	Firebaugh	0.51	Exempt/Low
C	2319	Firouza Inc.	Hanford	0.53	Exempt/Low

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N	97	First Evergreen Oil Corp Dba Tiwana Gas	Stockton	0.90	Exempt/Low
N	1902	Five Minute Car Wash	Modesto	2.05	Intermediate
C	877	Five Stars Market	Five Points	0.67	Exempt/Low
N	714	Flag City Chevron (Stars Holding Co LLC)	Lodi	0.97	Exempt/Low
N	102	Flyers Energy LLC	Stockton	0.51	Exempt/Low
S	2182	Flyers Energy LLC	Bakersfield	0.51	Exempt/Low
S	751	Flyers Energy LLC	Bakersfield	0.51	Exempt/Low
N	128	Flyers Energy, LLC	Manteca	0.51	Exempt/Low
C	8012	Foods Co #316	Fresno	3.75	Intermediate
C	7990	Foods Co #339	Fresno	2.37	Intermediate
S	7794	Foods Co #384	Bakersfield	1.91	Intermediate
N	1247	Forebay Chevron	Santa Nella	1.12	Intermediate
S	1032	Four Seasons Handy Market	Visalia	0.90	Exempt/Low
S	2437	Four Veer Inc. Dba Rosedale Chevron	Bakersfield	1.31	Intermediate
S	2139	Fox Petroleum Inc.	Shafter	2.59	Intermediate
S	616	Frank's Stop & Go Market	Porterville	0.51	Exempt/Low
S	1571	Freeway Express Mart (B Dhaliwal Inc.)	Bakersfield	0.51	Exempt/Low
C	1117	Fresno 99 Investments LLC	Fresno	8.75	Intermediate
C	532	Fresno Ashlan Gas & Mart	Fresno	0.90	Exempt/Low
C	2797	Fresno Central Market	Fresno	0.51	Exempt/Low
C	3790	Fresno Elite Carwash Inc.	Fresno	0.76	Exempt/Low
C	500	Fresno Gas And Liquor	Fresno	0.51	Exempt/Low
C	3299	Fresno Highway Fuels Inc.	Fresno	0.90	Exempt/Low
C	8710	Fresno Mall 76	Fresno	1.06	Intermediate
C	3970	Fresno Mckinley Arco	Fresno	5.83	Intermediate
C	3120	Fresno Petroleum Inc.	Fresno	0.54	Exempt/Low
N	3130	Frias Union Service	Patterson	1.28	Intermediate
S	7384	Friendly Liquor	Porterville	0.51	Exempt/Low
N	1921	Fruit Yard Produce Stand	Modesto	1.53	Intermediate
C	8844	Fueling Convenience Inc.	Fresno	0.75	Exempt/Low
N	9475	Fulkerth Chevron	Turlock	1.09	Intermediate
C	654	G Mart	Fresno	0.72	Exempt/Low
S	2046	G&G Oil Group, Inc. (Dba Arco #42542)	Bakersfield	1.68	Intermediate
S	458	G1 Mart	Lindsay	0.67	Exempt/Low
C	2346	Garreks Inc.	Clovis	2.09	Intermediate
C	3153	Garreks Inc. Dba Bubble Clean	Fresno	1.19	Intermediate
C	77	Gas & Food Shop #3406	Fresno	0.85	Exempt/Low

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S	457	Gas & Goodies	Tulare	0.51	Exempt/Low
S	2784	Gas 4 Less	Bakersfield	0.13	Exempt/Low
N	4372	Gas City (Balwinder Singh)	Modesto	0.91	Exempt/Low
N	1930	Gas Plus Mini Mart (Kamal Preet Kaur)	Modesto	0.51	Exempt/Low
S	2075	Gas Ranch Mini Mart	Woodlake	0.67	Exempt/Low
S	8897	Gas-N-Save Mini Mart Dba Arrow Gas Marke	Bakersfield	0.51	Exempt/Low
S	1002	Gasoline Alley	Woodlake	0.67	Exempt/Low
C	1793	Gateway & Olive Investments Dba Gateway	Madera	0.66	Exempt/Low
N	2298	Gawfco Enterprises Inc.	Westley	1.86	Intermediate
N	3466	George's Mini-Mart	Lockeford	1.00	Exempt/Low
S	1286	Gerges Oil, Inc. Dba Gerges Chevron	Taft	0.51	Exempt/Low
C	1149	Get-N-Go	Fresno	0.84	Exempt/Low
C	3619	Get-N-Go #4	Fresno	0.51	Exempt/Low
S	3614	Gh Food Mart Inc./Complete Convenience Ct	Delano	1.02	Intermediate
C	3874	Ghs Brothers	Fresno	0.72	Exempt/Low
C	1296	Ghs Brothers Dba Xpress Food Mart	Fresno	1.00	Exempt/Low
C	165	Ghs Brothers Dba Xpress Food Mart 2	Fresno	0.51	Exempt/Low
S	965	Gifford's Market	Springville	0.51	Exempt/Low
S	666	Gil Duyst & Son Inc.	Visalia	8.34	Intermediate
N	5102	Gill Bros Inc.	Ceres	1.59	Intermediate
S	602	Gill Food Mart And Gas	Visalia	0.85	Exempt/Low
C	574	Gill's Texaco	Caruthers	0.67	Exempt/Low
C	4378	Gill's Truck Stop	Hanford	1.49	Intermediate
C	1754	Gmg Food Store #101	Madera	0.84	Exempt/Low
N	4293	Golden Bear Gas	Stockton	0.67	Exempt/Low
C	1541	Golden Boy Market	Fresno	0.51	Exempt/Low
C	3744	Golden Doaba Ent LLC Dba Am/Pm 82072	Fresno	2.77	Intermediate
C	8017	Golden Doaba Enterprises LLC	Fresno	0.48	Exempt/Low
S	1030	Golden Filling Station Dba Farmersville	Farmersville	0.51	Exempt/Low
S	592	Golden Rissco Inc. Dba Caldwell Chevron	Visalia	0.51	Exempt/Low
N	5073	Golden State Chevron	Turlock	0.37	Exempt/Low
S	1667	Golden State Mobil	Bakersfield	0.51	Exempt/Low
S	931	Goshen Travel Plaza	Goshen	0.51	Exempt/Low
N	639	Govinder S. Atwal	Lodi	0.51	Exempt/Low
N	5112	Granada Fuel & Food, Inc.	Santa Nella	1.14	Intermediate

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S	2064	Grand Avenue Coast Inc.	Bakersfield	1.55	Intermediate
C	1255	Grand Convenient Stores	Fresno	5.83	Intermediate
C	8735	Grand Petroleum Inc.	Firebaugh	0.45	Exempt/Low
N	1818	Grand Petroleum Inc.	Modesto	1.05	Intermediate
C	3613	Grangeville Market	Hanford	0.51	Exempt/Low
N	1228	Great America Gas & Food	Livingston	0.51	Exempt/Low
C	169	Greener Car Cleaner (Dba: Bubble Wash)	Selma	0.51	Exempt/Low
S	8067	Greg's Petroleum	Shafter	1.03	Intermediate
N	372	Grewal's Gas & Liquor	Stockton	0.70	Exempt/Low
S	324	Griffin Gas Liquor & Food	Tulare	0.51	Exempt/Low
N	9259	Grin Investments Inc.	Stockton	2.54	Intermediate
N	1792	Grip And Go	Modesto	0.67	Exempt/Low
N	1958	G's Food Mart	Patterson	0.67	Exempt/Low
N	454	Gsg Gas And Mart	Stockton	0.51	Exempt/Low
S	1934	Gun C Oh	Bakersfield	0.77	Exempt/Low
N	9466	Gurinder Singh	Modesto	5.83	Intermediate
N	9334	Gurpreet Sandhu	Manteca	1.85	Intermediate
C	3473	Guru Gas & Market Inc.	Huron	0.51	Exempt/Low
N	8851	Gustine Chevron	Gustine	0.64	Exempt/Low
C	9368	Gutherie's Cheveron Mini Mart	Madera	0.64	Exempt/Low
C	9374	H & S Business Center	Sanger	2.08	Intermediate
S	238	H & S Chevron Food Mart Inc.	Arvin	0.51	Exempt/Low
N	1106	H & S Energy Products #3038	Lockeford	0.93	Exempt/Low
N	859	H & S Energy Products, #3034	Manteca	0.51	Exempt/Low
N	3591	H & S Energy Products, #3035	Lathrop	1.94	Intermediate
C	1768	H&R Families Inc. Dba Chowchilla Chevron	Chowchilla	1.11	Intermediate
N	621	H&S Energy Products, LLC # 3081	Stockton	1.74	Intermediate
N	387	Hammer I-5 Am/Pm	Stockton	5.83	Intermediate
C	7716	Hanco77	Hanford	3.66	Intermediate
N	1209	Handi Stop	Merced	0.51	Exempt/Low
C	1085	Handi Stop #9	Fresno	0.76	Exempt/Low
C	613	Handi Stop Market	Fresno	0.51	Exempt/Low
C	2095	Handi Stop/Vinod Nijhawan	Clovis	0.51	Exempt/Low
C	9459	Handi-Stop	Caruthers	1.67	Intermediate
C	813	Hanford Liquor And Food Mart	Hanford	0.51	Exempt/Low
C	614	Hanford Tri Mart Inc.	Hanford	0.51	Exempt/Low
C	9056	Hanjrah Inc. Dba Arco Am Pm	Coalinga	1.25	Intermediate
S	2054	Happy Gas & Mini Mart	Bakersfield	0.51	Exempt/Low
S	911	Harbans Singh Grewal	Mcfarland	0.51	Exempt/Low

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N	9218	Harinder Singh Bhatia	Modesto	4.55	Intermediate
S	4547	Hari's Market	Porterville	0.51	Exempt/Low
C	90	Harjit Singh & Davinderpal Sangha	Fresno	1.38	Intermediate
C	2312	Harmon Star Mart #2 (Avtar Singh)	Fresno	0.51	Exempt/Low
N	3912	Harnam Corporation	Tracy	4.87	Intermediate
N	8692	Haroon Al Rashid, Rahman Gas & Market	Ceres	0.51	Exempt/Low
C	1733	Harpreet S Sidhu Dba Mexicali Market	Madera	0.67	Exempt/Low
C	617	Harris Ranch	Coalinga	2.79	Intermediate
C	1680	Harry's Liquor & Gas (Ravinder Kaur)	Madera	0.70	Exempt/Low
N	9188	Harsarb Inc.	Los Banos	0.64	Exempt/Low
S	455	Harvin Fuel Inc.	Terra Bella	0.51	Exempt/Low
N	771	Harvinder Pal Singh - Kettleman Chevron	Lodi	1.70	Intermediate
C	7954	Headlining Shopping Center LLC	Fresno	0.72	Exempt/Low
C	3544	Helm Liquor Market	Helm	0.67	Exempt/Low
S	3524	Henderson Ave Chevron (Taha Saleh)	Porterville	0.75	Exempt/Low
S	8816	Highland Manor	Oildale	0.51	Exempt/Low
N	2163	Hk 1313 Petroleum, Inc.	Modesto	1.76	Intermediate
N	8829	Hk 1313 Petroleum, Inc.	Modesto	2.73	Intermediate
C	2182	Home Away Inc. Dba The Pines Resort	Bass Lake	0.51	Exempt/Low
S	4674	Howards Mini Mart #6	Bakersfield	0.61	Exempt/Low
C	702	Hsg Farmers Inc. (Johnny Quik 149)	Clovis	1.00	Exempt/Low
S	7539	Hungry's Market	Bakersfield	0.67	Exempt/Low
N	2308	Hunt & Sons Inc.	Oakdale	1.98	Intermediate
N	2306	Hunt & Sons Inc.	Modesto	0.67	Exempt/Low
N	1089	Hunt & Sons Inc. - Arch Road Cardlock	Stockton	0.51	Exempt/Low
N	4198	Hunt & Sons Inc.- Service Road Cardlock	Ceres	0.67	Exempt/Low
S	112	Hwj Enterprizes Inc. Dba Samco Ca #4	Bakersfield	0.90	Exempt/Low
S	1865	Hwy 58 Fuel Stop	Bakersfield	0.51	Exempt/Low
C	2965	Ice Bucket	Coalinga	0.95	Exempt/Low
S	3509	In & Out Food Mart	Visalia	8.75	Intermediate
S	7522	Inderjit Inc.	Wasco	0.51	Exempt/Low
S	2023	Indie Co	Bakersfield	1.48	Intermediate
N	9348	Interstate A Enterprises Inc.	Lathrop	0.51	Exempt/Low

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S	822	Ivanhoe Mini Mart	Ivanhoe	0.51	Exempt/Low
S	976	Ivanhoe Speedy Mart	Ivanhoe	0.51	Exempt/Low
N	8854	Iyr Petroleum Inc.	Modesto	0.92	Exempt/Low
N	1156	J & B Body Shop	Stockton	0.05	Exempt/Low
C	762	J & T Junction Corp	Kingsburg	0.85	Exempt/Low
S	4148	J And J Liquor Stop Number 1	Bakersfield	0.51	Exempt/Low
S	3093	J And K Food Mart Inc.	Bakersfield	1.07	Intermediate
N	4975	J D Singh Service Stations, Inc.	Thornton	8.75	Intermediate
C	52	J L Gas And Food	Fresno	1.77	Intermediate
N	3978	J N S Market Liquor & Gas	Dos Palos	0.67	Exempt/Low
S	2348	J Street Mini Mart	Tulare	0.51	Exempt/Low
N	4291	J&D Property, LLC Dba Hughson Chevron	Hughson	0.89	Exempt/Low
N	1815	J&N Petroleum Inc.	Turlock	1.44	Intermediate
C	1011	J. Market And Gas	Reedley	0.51	Exempt/Low
S	330	Jack Griggs Inc.	Porterville	0.51	Exempt/Low
C	3373	Jack's Car Wash	Fresno	1.58	Intermediate
C	3293	Jack's Gas	Fresno	5.83	Intermediate
C	2306	Jack's Gas #2	Easton	0.78	Exempt/Low
C	734	Jacks Gas #4	Hanford	0.51	Exempt/Low
N	2059	Jacks Gas #5	Newman	1.10	Intermediate
S	818	Jack's Gas #7	Woodlake	0.51	Exempt/Low
S	3608	Jack's Git N Go	Tulare	0.56	Exempt/Low
S	8272	Jacks Liquor Store & Fueling	Visalia	0.67	Exempt/Low
C	674	Jacks Mart	Fresno	0.64	Exempt/Low
N	902	Jackson Energy	Stockton	1.65	Intermediate
S	2384	Jaco Hill	Bakersfield	1.27	Intermediate
S	2392	Jaco Hill	Bakersfield	2.01	Intermediate
S	2360	Jaco Hill	Wasco	2.23	Intermediate
S	2382	Jaco Hill	Bakersfield	2.33	Intermediate
S	2394	Jaco Hill	Bakersfield	2.65	Intermediate
S	2369	Jaco Hill	Shafter	3.07	Intermediate
S	2380	Jaco Hill	Bakersfield	3.33	Intermediate
S	2389	Jaco Hill	Bakersfield	4.19	Intermediate
S	2396	Jaco Hill	Bakersfield	6.20	Intermediate
S	2377	Jaco Hill Co	Bakersfield	0.51	Exempt/Low
S	2372	Jaco Hill Co	Lamont	0.57	Exempt/Low
S	2359	Jaco Hill Co	Arvin	0.82	Exempt/Low
S	2363	Jaco Hill Co	Taft	0.89	Exempt/Low
S	937	Jaco Hill Co	Tulare	1.14	Intermediate
S	2355	Jaco Hill Co	Wasco	1.38	Intermediate

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S	2390	Jaco Hill Co	Bakersfield	1.93	Intermediate
S	2371	Jaco Hill Co	Bakersfield	2.78	Intermediate
S	2370	Jaco Hill Co	Bakersfield	4.31	Intermediate
C	891	Jaco Hill Company	Orange Cove	0.89	Exempt/Low
C	670	Jaco Hill Company	Caruthers	0.92	Exempt/Low
S	636	Jaco Oil Co	Farmersville	7.77	Intermediate
S	2558	Jaco Oil Dba Fastrip Station	Bakersfield	5.11	Intermediate
N	4246	Jadwinder Singh	Patterson	8.75	Intermediate
C	1275	Jagtar Singh Brar Dba Hanford 76	Hanford	0.55	Exempt/Low
N	3406	Jahant Food & Fuel Stop	Acampo	1.15	Intermediate
S	2365	Jamieson Hill	Bakersfield	0.75	Exempt/Low
S	2387	Jamieson Hill	Bakersfield	1.69	Intermediate
S	2374	Jamieson Hill	Lamont	1.70	Intermediate
S	2393	Jamieson Hill	Taft	1.83	Intermediate
S	2399	Jamieson Hill	Lindsay	1.95	Intermediate
S	2361	Jamieson Hill	Bakersfield	2.43	Intermediate
S	2383	Jamieson Hill	Arvin	2.53	Intermediate
S	2373	Jamieson Hill	Bakersfield	2.68	Intermediate
S	2386	Jamieson Hill	Bakersfield	2.91	Intermediate
S	2397	Jamieson Hill	Bakersfield	3.00	Intermediate
S	2395	Jamieson Hill	Delano	3.16	Intermediate
S	2381	Jamieson Hill	Bakersfield	3.78	Intermediate
S	2375	Jamieson Hill	Bakersfield	4.64	Intermediate
N	3775	Jammu & Kashmir Inc./D&S Gas & Mini Mart	Legrand	0.51	Exempt/Low
N	66	Jass Enterprises Inc. - Am/Pm Woodbridge	Woodbridge	2.09	Intermediate
S	2457	Jasuir Singh Sohal-Kwik Korner	Dinuba	0.55	Exempt/Low
N	9650	Javier Galvan West Main Partners LLC	Turlock	8.75	Intermediate
N	535	Jay Mcillrath	Stockton	0.51	Exempt/Low
N	2658	Jbs Petro Inc.	Lodi	0.89	Exempt/Low
S	8259	Jeev Global Inc.	Tulare	1.44	Intermediate
S	3743	Jeffries Brothers	Bakersfield	1.14	Intermediate
S	3117	Jeffries Brothers	Bakersfield	1.32	Intermediate
S	3489	Jeffries Brothers Inc.	Wasco	0.51	Exempt/Low
S	2417	Jeffries Brothers Inc.	Shafter	0.51	Exempt/Low
S	2414	Jeffries Brothers Inc.	Taft	0.52	Exempt/Low
C	1053	Jensen Shell	Fresno	0.78	Exempt/Low
C	675	Jet Stop Inc.	Huron	0.67	Exempt/Low
C	3921	Jgss Food Service Inc.	Fowler	3.38	Intermediate

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S	1729	Jhaj & Brar Investment Inc.	Lost Hills	5.83	Intermediate
C	2825	Jiffy Food	Coalinga	0.51	Exempt/Low
C	475	Jiffy Food Stop	Easton	0.51	Exempt/Low
C	1752	Jiffy Market Food Store	Chowchilla	0.51	Exempt/Low
S	239	Jiffy's Store	Shafter	0.51	Exempt/Low
S	1277	Jkcm Corp Dba Jk Gas And Mart	Delano	0.51	Exempt/Low
C	3483	Jkr Ventures Inc. Dba R & S Mini Mart	Fresno	0.96	Exempt/Low
S	480	Jobrn Inc.	Bakersfield	0.55	Exempt/Low
C	1715	Joes Food Mart	Chowchilla	0.60	Exempt/Low
N	7849	Joes Food Mart	Modesto	0.82	Exempt/Low
N	435	Joe's Travel Plaza	Lathrop	0.67	Exempt/Low
N	4839	Joe's Travel Plaza - Westley	Westley	7.07	Intermediate
S	591	Joe's Westside Market	Porterville	0.62	Exempt/Low
S	8475	John & Suzie Cross Kennedy Meadows Gs	Inyokern	0.26	Exempt/Low
C	1185	Johnny Liquor Food Store	Sanger	0.51	Exempt/Low
C	9545	Johnny Quick #207	Fresno	0.97	Exempt/Low
C	3304	Johnny Quik 163	Fresno	5.83	Intermediate
C	7545	Johnny Quik Food Store	Clovis	1.86	Intermediate
C	695	Johnny Quik Food Store #109	Fresno	0.51	Exempt/Low
C	6986	Johnny Quik Food Store #189	Fowler	5.83	Intermediate
S	1289	Johnny's Foodmart	Bakersfield	1.16	Intermediate
C	3043	Josan & Josan Inc. Dba Selma Arco-Ampm	Selma	3.16	Intermediate
C	2324	Josan & Josan, Inc. Dba Hwy 41 Arco Ampm	Madera	2.47	Intermediate
C	9341	Josan Investment, Inc.	Lemoore	2.15	Intermediate
N	3828	Jsks Enterprises Inc. Dba Arco Am Pm	Manteca	3.07	Intermediate
C	1273	Jst LLC	Fresno	0.81	Exempt/Low
C	1297	Jst LLC	Fresno	1.20	Intermediate
N	757	Judge & Kap Petroleum Inc. Dba Gavinko Ga	Stockton	0.99	Exempt/Low
C	4884	K - C Market	Kettleman City	0.66	Exempt/Low
C	707	K & H Liquor And Food	Lemoore	0.51	Exempt/Low
S	744	K & K Mart	Mcfarland	0.51	Exempt/Low
S	1449	K & S Food Store	Bakersfield	0.60	Exempt/Low
N	1710	K S Chandi & Sons	Modesto	3.54	Intermediate
C	56	Kailey Fuels Inc. (Arco Am Pm)	Fresno	2.53	Intermediate
N	6572	Kamal Dhaliwal	Atwater	4.11	Intermediate
S	938	Kamlesh Rani	Pixley	0.51	Exempt/Low

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N	9026	Kaptan Gas & Food	Oakdale	0.85	Exempt/Low
S	975	Kdg Capital LLC Dba Sierra Sporting Goo	Exeter	0.51	Exempt/Low
S	1004	Ken's Chinowth Git & Go	Visalia	0.95	Exempt/Low
N	452	Kent's Oil Service Inc.	Stockton	4.42	Intermediate
C	716	Kerman Carwash Inc.	Kerman	0.77	Exempt/Low
N	5278	Kesar Petroleum Inc.	Stockton	0.28	Exempt/Low
C	55	Kettleman City Mobil Inc.	Kettleman City	1.05	Intermediate
S	6850	Kevin Stores Inc. Dba Hillside Liquor	Bakersfield	0.51	Exempt/Low
N	456	King Island Marina	Stockton	1.84	Intermediate
N	5100	Kingdon Airport LLC	Lodi	0.05	Exempt/Low
N	5126	Kings Market	Hilmar	0.51	Exempt/Low
C	1281	Kings River Sinclair	Reedley	2.09	Intermediate
C	3808	Kingsburg Food Mart	Kingsburg	0.57	Exempt/Low
N	1042	Kpmc Management Inc. Dba: Arco Cherokee	Lodi	0.66	Exempt/Low
S	3127	Kulwant Khaira Dba C&E Market	Tulare	0.51	Exempt/Low
C	1886	Kwik Korner	Reedley	0.51	Exempt/Low
S	1008	Kwik Korner Market	Orosi	0.67	Exempt/Low
C	92	Kwik Serv	Fresno	0.51	Exempt/Low
N	3277	Kwik Serv Lodi, B&W 113	Lodi	0.51	Exempt/Low
C	4225	Kwik Serve	Fresno	2.15	Intermediate
N	433	La Favorita, California Corporation	French Camp	0.51	Exempt/Low
C	6922	La Plaza 24, Inc.	Madera	0.51	Exempt/Low
S	2496	Lakhbir Singh Dba Cornerstone Market	Dinuba	0.70	Exempt/Low
S	1573	Larson Food Store	Bakersfield	0.00	Exempt/Low
N	3486	Lathrop Gas & Food Inc.	Lathrop	2.24	Intermediate
N	134	Lathrop Shell (Arbabian Family LLC)	Lathrop	1.38	Intermediate
S	3796	Lemon Cove Market	Lemon Cove	0.51	Exempt/Low
C	7380	Lemoore Crossing	Lemoore	0.51	Exempt/Low
C	1289	Lemoore Mobil (Foeng Yam)	Lemoore	0.51	Exempt/Low
N	1322	Lemos Entr. LLC/M&M Corner Mini Mart	Delhi	1.01	Intermediate
S	3562	Lerdo Chevron	Shafter	0.03	Exempt/Low
S	1513	Linder Equipment Co	Tulare	0.08	Exempt/Low
S	4188	Lindsay Chevron	Lindsay	5.83	Intermediate
S	3697	Lindsay Food Mart	Lindsay	0.82	Exempt/Low
S	9195	Lindsay Unified School District	Lindsay	0.51	Exempt/Low

Region	Facility ID	Facility Name	City	Prioritization Score	Prioritization Category
N	3273	Livingston Gas And Grocery	Livingston	0.54	Exempt/Low
S	9202	Lkmp Properties	Shafter	0.56	Exempt/Low
N	4773	Lodi Airport	Acampo	0.63	Exempt/Low
N	203	Lodi Food And Liquor	Lodi	0.51	Exempt/Low
N	5016	Lodi Valley Petroleum Inc.	Lodi	0.51	Exempt/Low
C	9402	Loma Vista Petroleum, Inc.	Clovis	2.95	Intermediate
N	1289	Los Banos Shell	Los Banos	1.18	Intermediate
N	1188	Los Camperos Inc. Dba Buy N Save	Los Banos	0.51	Exempt/Low
C	8054	Los Primos Market	Laton	0.51	Exempt/Low
S	1310	Lost Hills Travel Center Inc.	Lost Hills	1.79	Intermediate
S	767	Lovejot Singh & Jagjit Singh	Visalia	0.51	Exempt/Low
S	3957	Lovers Lane Food Mart	Visalia	0.59	Exempt/Low
N	4477	Love's Country Store Of California #223	Ripon	4.34	Intermediate
N	8912	Love's Country Stores Of Ca	Lodi	0.75	Exempt/Low
S	4025	Love's Country Stores Of Calif #230	Lost Hills	4.55	Intermediate
S	7567	Love's Travel Stop- #382	Tulare	2.06	Intermediate
C	9522	Love's Travel Stop #736	Madera	3.44	Intermediate
N	4378	Loves Travel Stops & Country Stores	Santa Nella	2.33	Intermediate
C	2394	Lucky 7	Madera	0.51	Exempt/Low
S	8632	Lucky 7	Bakersfield	0.51	Exempt/Low
S	2144	Lucky 7 #1	Delano	0.51	Exempt/Low
S	2958	Lucky 7 #2 Food Mart	Delano	0.51	Exempt/Low
C	991	Lucky Gas & Liquor	Fresno	0.61	Exempt/Low
S	1559	Lucky Seven #3	Bakersfield	0.51	Exempt/Low
N	1299	M & A Market	Merced	0.51	Exempt/Low
N	8199	M & B Petroleum	Modesto	2.93	Intermediate
N	1298	M.G. Santos, Inc., Texaco #2	Los Banos	0.88	Exempt/Low
C	3148	Madera Valero Gas & Food (Aahil Entrprs)	Madera	0.67	Exempt/Low
C	1726	Madtown Dino Mart	Madera	0.56	Exempt/Low
N	7715	Main St Chevron Turlock Project Inc.	Turlock	1.08	Intermediate
C	1035	Majha Business Solutions	Fresno	0.74	Exempt/Low
C	2888	Mallah Inc.	Fresno	0.63	Exempt/Low
N	8641	Mann Bros Truck Stop Inc.	Modesto	0.17	Exempt/Low
N	850	Manteca Liquor & Food	Manteca	0.64	Exempt/Low
N	9391	Manteca Petroleum, Inc.	Manteca	3.95	Intermediate
N	4339	Manu Deen Bani, Inc.	Snelling	0.51	Exempt/Low

Region	Facility ID	Facility Name	City	Prioritization Score	Prioritization Category
N	9302	March & March LLC	Stockton	0.67	Exempt/Low
S	2181	Market Express One Inc.	Bakersfield	0.51	Exempt/Low
N	4580	Marks Fuel & Food Inc. (Dba: Arco Victor)	Lodi	5.83	Intermediate
N	3956	Maxi Mart	Atwater	0.78	Exempt/Low
S	8951	Mcauliff Center Lp	Visalia	1.25	Intermediate
S	222	Mcfarland Chevron	Mcfarland	1.10	Intermediate
N	2281	Mchenry 76 & Food Mart	Modesto	0.66	Exempt/Low
N	4049	Mchenry Cruisers #10	Modesto	2.96	Intermediate
N	2263	Mchenry Shell	Modesto	0.51	Exempt/Low
N	86	Mcm14 Corp	Stockton	2.77	Intermediate
C	993	Meerpur Inc.	Fresno	0.51	Exempt/Low
C	3200	Mendota Food Mart	Mendota	0.67	Exempt/Low
N	1184	Merced Fuel & Food (Akshat Sharma)	Merced	5.83	Intermediate
N	1201	Merced Mall Chevron	Merced	1.59	Intermediate
N	7168	Merced River Development Inc.	Snelling	0.72	Exempt/Low
S	225	Mesa Marin Chevron	Bakersfield	0.19	Exempt/Low
S	2236	Metro Mart	Bakersfield	0.51	Exempt/Low
S	1448	Midway Market & Liquor	Lake Of The Wds	0.51	Exempt/Low
C	837	Mighty Mart	Sanger	2.82	Intermediate
S	8343	Mighty Mike's Gas, Inc.	Plainview	0.51	Exempt/Low
S	8989	Millbrook Gas Station	Bakersfield	8.75	Intermediate
C	2202	Millerton General Store	Clovis	0.51	Exempt/Low
S	2048	Ming Business Inc.	Bakersfield	1.53	Intermediate
N	549	Miracle Mile Market	Stockton	0.61	Exempt/Low
C	3611	Mission Gas N Go Inc.	Madera	3.05	Intermediate
C	843	Mission Plaza	Parlier	0.61	Exempt/Low
N	4569	Mitchell Gas & Lube	Ceres	5.83	Intermediate
S	8900	Mlh Enterprise	Bakersfield	1.80	Intermediate
N	9350	Mobil Exxon Gas And Mini Mart	Patterson	0.53	Exempt/Low
N	175	Mobil Stockton #1/Abdo Nashir	Stockton	0.88	Exempt/Low
S	1038	Moe's Quickstop	Orosi	0.51	Exempt/Low
N	1353	Mohamed M Obeid Dba Richard's Market & L	Gustine	0.51	Exempt/Low
N	1744	Monte Vista Petroleum Inc.	Turlock	5.83	Intermediate
C	1799	Monty's Liquor	Madera	0.51	Exempt/Low
S	1061	Mooney Shell	Visalia	0.51	Exempt/Low
N	2406	Morada Chevron Fast N Easy Go	Stockton	1.93	Intermediate
S	2304	Morton Express Mini Mart	Porterville	0.51	Exempt/Low

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N	9562	Mo's Oasis Market	Hughson	1.00	Exempt/Low
N	125	Mossdale Chevron (Sksp Inc.)	Lathrop	1.46	Intermediate
S	589	Mota's Mini Mart	Ivanhoe	0.51	Exempt/Low
S	8913	Mountain View Inc.	Bakersfield	0.66	Exempt/Low
S	2776	Mountview Inc.	Bakersfield	0.98	Exempt/Low
S	3220	Mountview Inc.	Bakersfield	1.07	Intermediate
S	2230	Mpcn Corp Dba Super Food Mart	Bakersfield	0.51	Exempt/Low
N	334	Mss-Petro Inc. Dba Flames Liquor & Gas	Lodi	0.97	Exempt/Low
C	853	Mt Whitney Mini Mart	Riverdale	0.51	Exempt/Low
C	3479	Mtn View Gas & Mart (Bhandal Inc.)	Selma	1.15	Intermediate
S	747	Mueer M Saeed- Edison Mini Mart	Edison	0.51	Exempt/Low
S	2102	Munn Chau Dba Stockdale Food Mart	Bakersfield	0.73	Exempt/Low
S	4289	Munni Ji LLC Dba Tipton Shell	Tipton	0.52	Exempt/Low
S	8342	Murray Family Farms	Bakersfield	0.01	Exempt/Low
S	3267	Muthana Ii Corp Dba Obie's Downtown	Bakersfield	1.08	Intermediate
S	2492	N & S Mini Market	Porterville	0.67	Exempt/Low
S	9171	N Square	Goshen	5.71	Intermediate
C	3579	Nas Partnership Dba Six Star Food Mart	Madera	1.33	Intermediate
S	5420	Natalie Enterprises Inc. Dba Tadros Marke	Tulare	5.83	Intermediate
N	378	National Petroleum Manteca	Manteca	1.04	Intermediate
N	3957	National Petroleum Patterson	Patterson	8.75	Intermediate
C	3509	Navjeet Singh	Clovis	2.92	Intermediate
S	4293	Nelson's Corner LLC	Springville	0.51	Exempt/Low
N	4518	New Olive Market	Atwater	0.51	Exempt/Low
C	1290	Neya Inc.	Fresno	1.35	Intermediate
S	471	Niles Market	Bakersfield	0.51	Exempt/Low
N	2009	Nirmal Kaur Dba Waterford Market	Waterford	0.51	Exempt/Low
C	1141	Nirmal Singh Shop N Quick Inc.	Fresno	0.54	Exempt/Low
S	734	Nizar Karimi	Visalia	0.51	Exempt/Low
N	738	North Pole Gas & Food Inc.	Tracy	1.25	Intermediate
C	1128	Northgate Shell	Fresno	1.97	Intermediate
C	39	Nskb Investments Inc. Dba Sb Market	Fresno	1.92	Intermediate
C	2441	O C Citrus Mini Mart	Orange Cove	0.51	Exempt/Low
N	2072	Oakdale Municipal Airport	Oakdale	2.51	Intermediate

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N	9688	Oasis Fuels Inc. Dba Merced Truck & Auto	Le Grand	0.01	Exempt/Low
N	4196	Oasis Market	Crows Landing	0.69	Exempt/Low
S	7569	Oasis Market & Truck Stop	Ducor	0.67	Exempt/Low
N	8707	Oasis Market And Liquor	Turlock	1.89	Intermediate
N	1882	Oasis Mini Mart	Newman	0.72	Exempt/Low
C	1126	Old Town Shell	Clovis	0.51	Exempt/Low
S	9433	Olive Grove Foodmart	Bakersfield	2.39	Intermediate
S	2100	Olive Star Cc Inc.	Bakersfield	0.59	Exempt/Low
N	1849	Olsen Service Station/Nasser M Obaid	Modesto	0.51	Exempt/Low
S	3892	Omega Market	Porterville	0.51	Exempt/Low
S	6617	On The Go Food Store	Bakersfield	1.47	Intermediate
C	1250	On The Go Stores LLC Dba On The Go Fresn	Fresno	0.67	Exempt/Low
N	4176	One Stop Market	Patterson	0.67	Exempt/Low
N	1131	One Stop Market	Manteca	0.91	Exempt/Low
C	810	One Stop Market & Gas	Reedley	1.48	Intermediate
S	1454	One Stop Shell (Kulwant Singh)	Bakersfield	0.51	Exempt/Low
S	3725	Ooba Inc. Dba Samco Union #7	Bakersfield	1.32	Intermediate
S	2815	Orange Belt Grocery (Mohsen M Obad)	Lindsay	0.67	Exempt/Low
N	9230	Orange Market & Gas	Turlock	0.51	Exempt/Low
N	3939	Orlando's	Linden	0.64	Exempt/Low
S	811	Orosi Food Mart (Salah S Salah)	Orosi	0.51	Exempt/Low
S	1068	Orosi Mart & Deli (Salah Saleh Alisaleh)	Orosi	0.60	Exempt/Low
S	2436	Oswell Chevron, Inc.	Bakersfield	0.99	Exempt/Low
S	114	Outpost Food And Gas	Taft	0.51	Exempt/Low
C	2326	P J Express Mart	Madera	0.51	Exempt/Low
N	1202	Pacheco Chevron	Los Banos	1.79	Intermediate
N	8614	Pacific West Petroleum Inc.	Tracy	6.52	Intermediate
S	2555	Paige Ave Mini Mart	Tulare	1.13	Intermediate
C	1791	Pal Brothers, LLC	Madera	1.24	Intermediate
C	9342	Palm Bluff Carwash	Fresno	1.79	Intermediate
C	9440	Palm Plaza	Hanford	8.75	Intermediate
S	2219	Panama & Colony Gas	Bakersfield	0.51	Exempt/Low
S	7610	Panama Lane Shell	Bakersfield	1.09	Intermediate
S	2068	Pandher Mart - LLC	Bakersfield	1.73	Intermediate
C	4185	Panoche Mobil	Firebaugh	0.89	Exempt/Low
C	1892	Panoche Shell	Firebaugh	1.06	Intermediate

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N	4608	Paq Inc., Dba Gas-4-Less	Stockton	2.92	Intermediate
N	1749	Paradise Gasoline	Modesto	0.66	Exempt/Low
C	47	Pardeep Singh	Fresno	7.29	Intermediate
C	913	Parkway Mini Mart	Fresno	0.51	Exempt/Low
N	4067	Parkwood Gas & Food	Stockton	0.88	Exempt/Low
S	2954	Parmar Brothers Inc.	Tulare	0.57	Exempt/Low
C	1745	Parmar Petroleum Inc. Dba Gas N Stuff	North Fork	0.51	Exempt/Low
S	2499	Parshant Kumar/Madhu Bala (Pk 1 Stop)	Visalia	0.67	Exempt/Low
N	9546	Patterson Valero	Patterson	0.51	Exempt/Low
N	2098	Paul Oil Company Inc.	Oakdale	1.12	Intermediate
N	2099	Paul Oil Company, Inc.	Riverbank	0.91	Exempt/Low
N	5105	Pd Brothers/ G & B Liquor	Planada	0.51	Exempt/Low
N	8774	Pdi Dba Los Banos Valero	Los Banos	1.10	Intermediate
C	923	Penny Wise	Fresno	0.85	Exempt/Low
N	2105	Penny Wise Gas	Modesto	0.79	Exempt/Low
C	1977	Pennywise	Fresno	1.08	Intermediate
C	3918	Perjian Corporation	Fresno	0.51	Exempt/Low
N	633	Pershing Gas For Less	Stockton	2.53	Intermediate
N	9274	Pershing Holdings Inc.	Escalon	2.79	Intermediate
S	3576	Petro Travel Plaza	Wheeler Ridge	3.72	Intermediate
S	4161	Petro Travel Plaza Holdings LLC	Lebec	3.78	Intermediate
S	7238	Petro Travel Plaza LLC	Lebec	2.89	Intermediate
N	7988	Pg Trading Inc. Dba Grab And Go Plaza	Tracy	2.12	Intermediate
C	1184	Pic 'N' Go #2	Fresno	0.64	Exempt/Low
C	701	Pick Quick Food Store (Bladev S Padda)	Clovis	0.88	Exempt/Low
C	7163	Pilot Travel Centers #1277	Avenal	0.03	Exempt/Low
S	1456	Pilot Travel Centers #1302	Bakersfield	1.75	Intermediate
N	3363	Pilot Travel Centers LLC	Ripon	0.73	Exempt/Low
N	4547	Pilot Travel Centers LLC	Lodi	0.81	Exempt/Low
S	2012	Pilot Travel Centers LLC	Bakersfield	2.84	Intermediate
N	9260	Pilot Travel Centers LLC #1017-01	Lathrop	1.63	Intermediate
S	9102	Pilot Travel Centers LLC #1071-01	Tulare	0.47	Exempt/Low
N	9267	Pilot Travel Centers LLC #1080-01	Patterson	4.68	Intermediate
S	3806	Pilot Travel Centers LLC #154	Lost Hills	3.38	Intermediate

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C	2132	Pilot Travel Centers LLC #365	Madera	4.12	Intermediate
S	1439	Pine Mountain Service Center	Pine Mt Club	0.51	Exempt/Low
S	936	Pixley Handy Market Inc.	Pixley	0.52	Exempt/Low
S	2016	Pixley Mini Mart	Pixley	0.51	Exempt/Low
S	2649	Pj Express Mart	Farmersville	0.67	Exempt/Low
S	1041	Plano Handy Market (Hesham Makhlouf)	Porterville	0.67	Exempt/Low
N	1668	Platinum Gas & Market	Modesto	0.51	Exempt/Low
S	4154	Poplar Mini Mart	Porterville	0.51	Exempt/Low
S	574	Portavilla Market (Joseph Abdulla)	Porterville	0.67	Exempt/Low
S	8314	Porterville Arco	Porterville	4.19	Intermediate
S	2090	Porterville City Airport	Porterville	3.67	Intermediate
S	1027	Porterville Liquor	Porterville	0.53	Exempt/Low
S	1728	Pound's Grocery	Bakersfield	0.51	Exempt/Low
S	566	Preet Market	Tulare	0.51	Exempt/Low
S	1007	Prince Food & Gas	Visalia	0.65	Exempt/Low
S	633	Prince Mart (Harinderpal Kaur)	Lemon Cove	0.51	Exempt/Low
S	6859	Prince Palace	Bakersfield	1.06	Intermediate
S	4246	Prince Palace	Bakersfield	1.18	Intermediate
S	8341	Prince Palace Truck Stop Inc.	Bakersfield	1.08	Intermediate
S	604	Princess Superette	Visalia	0.51	Exempt/Low
C	3150	Pritam Singh Gill Dba Extra Mart	Madera	5.83	Intermediate
N	4351	Pritpal Singh - Pennywise Travel	Santa Nella	3.45	Intermediate
C	8518	Propel Fuels Inc.	Fresno	0.51	Exempt/Low
S	3790	Prosperity Food Land (Fawaz Alset)	Tulare	0.51	Exempt/Low
S	7005	Prosperity Mini Mart & Gas	Tulare	8.75	Intermediate
N	2097	Pushpinder Singh Dba Money Market	Oakdale	0.53	Exempt/Low
S	2621	Quality Market & Fuel	Lamont	0.61	Exempt/Low
S	311	Quality Mart	Lindsay	0.51	Exempt/Low
S	2283	Quic Shop Markets	Dinuba	1.14	Intermediate
N	2129	Quick & Save	Patterson	0.51	Exempt/Low
N	1349	Quick And Easy - Rai & Sons Corp.	Gustine	0.51	Exempt/Low
C	992	Quick Fill Inc.	Fresno	0.00	Exempt/Low
C	693	Quick Food Store	Fresno	0.51	Exempt/Low
C	7442	Quick N E-Z	Fresno	1.47	Intermediate
N	4234	Quick N Save	Hughson	0.51	Exempt/Low
N	4446	Quick N Save	Riverbank	0.51	Exempt/Low

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N	4610	Quick N Save	Merced	0.67	Exempt/Low
C	1139	Quick Pick & Deli	Fresno	0.51	Exempt/Low
N	141	Quick Serve	Manteca	1.66	Intermediate
N	4249	Quick Shop N Go	Modesto	0.51	Exempt/Low
C	3358	Quick Stop Mini Mart	Caruthers	0.51	Exempt/Low
S	221	Quick Trip Liquor	Tulare	0.58	Exempt/Low
S	1146	Quick-N-Handy Mart & Deli	Dinuba	0.80	Exempt/Low
S	2179	Quick-N-Handy Mart & Deli #2	Visalia	0.65	Exempt/Low
S	2665	Quick-N-Out	Bakersfield	0.51	Exempt/Low
S	603	Quik Jack's Inc.	Visalia	0.91	Exempt/Low
C	1730	Quik Serve Food Store	Coarsegold	5.83	Intermediate
N	2123	Quik Stop #142	Denair	1.50	Intermediate
N	2125	Quik Stop #45	Modesto	0.96	Exempt/Low
N	2114	Quik Stop #71	Modesto	0.99	Exempt/Low
N	2124	Quik Stop #73	Oakdale	0.96	Exempt/Low
N	2115	Quik Stop #79	Turlock	0.94	Exempt/Low
N	2118	Quik Stop #83	Modesto	1.70	Intermediate
N	2117	Quik Stop #87	Modesto	0.91	Exempt/Low
N	669	Quik Stop Market #120	Stockton	1.31	Intermediate
N	660	Quik Stop Market #121	Manteca	0.98	Exempt/Low
N	666	Quik Stop Market #124	Manteca	0.54	Exempt/Low
N	671	Quik Stop Market #138	Tracy	0.83	Exempt/Low
N	668	Quik Stop Market #144	Stockton	1.21	Intermediate
N	2121	Quik Stop Market #155	Turlock	1.01	Intermediate
N	2116	Quik Stop Market #156	Ceres	1.15	Intermediate
N	4362	Quik Stop Market #163	Livingston	3.22	Intermediate
N	663	Quik Stop Market #39	Stockton	0.62	Exempt/Low
N	659	Quik Stop Market #76	Stockton	0.97	Exempt/Low
N	662	Quik Stop Market Inc. #148	Lodi	0.77	Exempt/Low
N	661	Quik Stop Markets #125	Ripon	1.55	Intermediate
N	665	Quik Stop Markets #132	Stockton	1.07	Intermediate
N	670	Quik Stop Markets #152	Lodi	0.85	Exempt/Low
S	961	Qwik Stop	Porterville	0.63	Exempt/Low
C	6895	R & S Liquor	Corcoran	0.51	Exempt/Low
N	4559	R Abbate Enterprises	Gustine	0.61	Exempt/Low
S	1290	R J & Sons Inc.	Delano	0.67	Exempt/Low
N	2913	R K Service Station	Waterford	0.64	Exempt/Low
S	482	R Singh Enterprises Inc.	Exeter	0.62	Exempt/Low
N	1359	R St Chevron	Merced	0.53	Exempt/Low

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N	1094	Radc Enterprises Inc. - Grant Line Shell	Tracy	1.39	Intermediate
N	245	Radc Enterprises Inc. Dba Tracy Shell	Tracy	1.19	Intermediate
N	9597	Radc Enterprises, Inc.	Stockton	2.59	Intermediate
N	9596	Radc Enterprises, Inc.	Modesto	2.16	Intermediate
N	1737	Rai & Bath Petroleum Inc.	Modesto	3.19	Intermediate
N	1732	Rai & Sehaj Petroleum Inc.	Modesto	2.31	Intermediate
C	2364	Rai Food Mart Inc. Dba Oaks Mini Mart	Reedley	5.83	Intermediate
N	2127	Rai's Mart (Essam Alsumare)	Riverbank	0.67	Exempt/Low
S	2145	Ramco Express	Bakersfield	0.76	Exempt/Low
N	6060	Ramos Oil Inc.	Thornton	0.51	Exempt/Low
S	972	Ranch Market	Porterville	0.51	Exempt/Low
N	1169	Rancho Market And Gas Inc.	Winton	0.51	Exempt/Low
N	5015	Rancho San Miguel Market	Stockton	0.27	Exempt/Low
C	3076	Ranchos Valero	Madera	0.78	Exempt/Low
N	1053	Randhawa Fuel LLC Dba Dinomart	Manteca	1.09	Intermediate
N	983	Randhawa Petroleum LLC Dba El Dorado Gas	Stockton	0.65	Exempt/Low
C	2261	Rani Food & Liquor Inc.	Fresno	0.51	Exempt/Low
N	431	Rat Oil, Inc. Dba Gas And Shop	Ripon	0.51	Exempt/Low
N	282	Razi Petroleum Inc	Tracy	0.63	Exempt/Low
C	3083	Red Chillies LLC Dba Jackpot	Hanford	0.74	Exempt/Low
C	691	Red Rocket (Lakhbir Singh)	Clovis	0.51	Exempt/Low
C	3737	Red Top Gas	Chowchilla	0.51	Exempt/Low
C	1005	Red Triangle Oil Company	Fresno	0.51	Exempt/Low
S	111	Refaat Naiem Tayan	Bakersfield	0.97	Exempt/Low
N	1159	Refuel Petroleum, Inc.	Manteca	0.51	Exempt/Low
C	3819	Renna Ventures Inc.	Fresno	0.97	Exempt/Low
C	1016	Reno's Mega Mart	Firebaugh	1.38	Intermediate
N	208	Rg Gas Stations Inc. Dba Thornton Valero	Stockton	0.88	Exempt/Low
C	3300	Rhodes Inc.	Orange Cove	0.51	Exempt/Low
C	1021	Rhodes Texaco	Reedley	0.51	Exempt/Low
S	1287	Rio Bravo Market (Dipali Desai)	Bakersfield	0.51	Exempt/Low
N	459	Ripon Shell (Balaji Angle)	Ripon	0.91	Exempt/Low
N	3985	Riverbank Cruisers #34	Riverbank	2.30	Intermediate
C	8615	Riverside Golf Course	Fresno	0.36	Exempt/Low
C	9449	Riverside Valero	Fresno	1.28	Intermediate
S	825	Rj Food & Gas (Preetam Singh)	Dinuba	1.25	Intermediate

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S	6587	Rj's Travel Center	Traver	0.97	Exempt/Low
C	275	Robert V Jensen Inc.- Chevron	Hanford	0.93	Exempt/Low
C	1031	Robert V. Jensen, Inc.	Fresno	0.96	Exempt/Low
C	2423	Robert V. Jensen, Inc.	Reedley	0.94	Exempt/Low
N	1358	Robinson Oil Corp Dba Rotten Robbie #59	Santa Nella	2.54	Intermediate
C	1879	Roe Oil Company	Hanford	0.51	Exempt/Low
S	1663	Rosedale Station Inc.	Bakersfield	0.00	Exempt/Low
S	8831	Royal Express Delivery Inc.	Bakersfield	0.51	Exempt/Low
N	8695	Royal Gas And Food	Livingston	0.67	Exempt/Low
S	8898	Roy's Market	Bakersfield	0.51	Exempt/Low
S	803	Rozi's Liquor Store	Delano	0.51	Exempt/Low
S	596	Rozi's Market	Visalia	0.51	Exempt/Low
C	766	Rs Cheaper Co	Fresno	0.87	Exempt/Low
C	8997	Ryan Corner	Fresno	0.51	Exempt/Low
S	1732	S & A Market	Shafter	0.51	Exempt/Low
S	2104	S & H Fuel Stop 3 Inc.	Bakersfield	0.87	Exempt/Low
S	3955	S & H Fuel Stop Inc.	Bakersfield	0.51	Exempt/Low
S	1288	S & J Quick Stop	Shafter	0.53	Exempt/Low
C	2203	S & K Mini Market	Chowchilla	0.52	Exempt/Low
C	3424	S & K Mini Mart	Madera	0.55	Exempt/Low
C	1956	S & K Mini Mart	Sanger	0.68	Exempt/Low
N	2289	S & S Bal LLC	Turlock	0.97	Exempt/Low
S	679	S & S Mini Mart, Inc.	Lamont	0.51	Exempt/Low
N	2522	S&A Petro Inc.	Stockton	0.96	Exempt/Low
C	3111	S.B. Partners Inc. Dba Yosemite Gas	Oakhurst	8.75	Intermediate
N	4563	Safeway Inc.	Turlock	3.31	Intermediate
N	5020	Safeway Inc., Store #2707	Stockton	4.86	Intermediate
N	4490	Safeway, Inc.	Stockton	1.11	Intermediate
N	1260	Sagar's Gas N Save	Merced	0.67	Exempt/Low
S	2065	Saint Peter & Saint Paul LLC	Bakersfield	1.44	Intermediate
C	457	Saleh H. Alkobadi Dba East Reedley Store	Reedley	5.83	Intermediate
N	1769	Salida Cruisers #1	Salida	1.80	Intermediate
S	2014	Sal's E-Z Stop	Bakersfield	0.51	Exempt/Low
S	1348	Sam Khalil	Lebec	1.89	Intermediate
S	1066	Sam Qasem Alinagi Alqabeli	Farmersville	0.67	Exempt/Low
S	2287	Samco Food Store Inc.	Bakersfield	0.52	Exempt/Low
S	6555	Sam's Club # 4819	Bakersfield	9.59	Intermediate

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S	3734	Sam's Market	Bakersfield	0.51	Exempt/Low
S	6951	Sam's Market & Gas	Bakersfield	0.53	Exempt/Low
C	1222	Sam's Mini Mart	Coalinga	0.67	Exempt/Low
S	812	San Joaquin Helicopter	Delano	0.13	Exempt/Low
C	573	Sanger Automated Fuel Inc.	Sanger	0.58	Exempt/Low
C	134	Sanger Food Mart	Sanger	0.51	Exempt/Low
N	7987	Sanguinetti Investments, LLC	Farmington	2.34	Intermediate
S	2051	Sat Kaival Management LLC	Bakersfield	3.22	Intermediate
N	7310	Sat Kartar Blessings LLC	Stockton	0.76	Exempt/Low
C	404	Satinder Pal Singh	Sanger	0.51	Exempt/Low
C	7198	Satwant Mini Mart	Madera	1.08	Intermediate
S	819	Save Center Gas & Food (Gurdip S Sandhu)	Porterville	0.51	Exempt/Low
C	1137	Save-N-Go	Selma	0.73	Exempt/Low
N	2477	Sb Gas & Market	Tracy	0.51	Exempt/Low
N	3658	Sbd Oil Inc.	Westley	2.68	Intermediate
N	262	Sbr Petro Inc./Countryside Liquor & Gas	Lodi	0.51	Exempt/Low
N	3612	Sbsj Petro Inc. Dba Flag City Shell	Lodi	1.26	Intermediate
S	1083	Schwebel Petroleum	Bakersfield	0.51	Exempt/Low
S	1084	Schwebel Petroleum	Bakersfield	3.11	Intermediate
S	8562	Schwebel Petroleum Co Inc.		0.00	Exempt/Low
S	8198	Schwebel Petroleum Co Inc.	Fellows	0.00	Exempt/Low
S	8197	Schwebel Petroleum Co Inc.	Maricopa	0.61	Exempt/Low
C	3325	Second Generation LLC	Fresno	0.63	Exempt/Low
S	3909	Second Generation LLC	Farmersville	0.75	Exempt/Low
C	2832	Selma Chevron	Selma	0.68	Exempt/Low
C	455	Selma Exxon	Selma	1.18	Intermediate
C	763	Selma Quick Stop	Selma	0.51	Exempt/Low
C	8244	Selma Retail Prop Inc.-Dba Get N Go Selma	Selma	0.73	Exempt/Low
C	337	Sequoia Marketplace LLC	Squaw Valley	0.90	Exempt/Low
C	2196	Sequoia Marketplace LLC	Squaw Valley	1.18	Intermediate
N	8725	Seven-Eleven Delhi #Bp32	Delhi	2.84	Intermediate
S	2626	Seville Food Mart	Visalia	0.51	Exempt/Low
C	7819	Shah Chevron	Hanford	5.83	Intermediate
C	3365	Shah's Shell	Hanford	0.94	Exempt/Low
S	3626	Shakib Dashtipour	Bakersfield	1.87	Intermediate
S	8186	Shannon Village Mart	Visalia	2.37	Intermediate
N	8748	Shannon's Mini Mart	Merced	0.67	Exempt/Low

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C	2043	Shaver Lake Gas & Deli	Shaver Lake	0.51	Exempt/Low
C	3308	Shaver Lake Sports Inc.	Shaver Lake	0.46	Exempt/Low
S	4292	Shell	Visalia	0.51	Exempt/Low
S	3615	Shell "Barn" Mini Mart	Exeter	0.72	Exempt/Low
N	8736	Shell Station	Gustine	0.51	Exempt/Low
S	810	Shepherd's Market	Visalia	0.51	Exempt/Low
S	1031	Sherwood Handy Market	Porterville	0.63	Exempt/Low
S	2187	Shiralian Ent Inc.- Dba E-Z Trip-B/W	Buttonwillow	1.63	Intermediate
S	326	Shiralian Valero	Tulare	1.75	Intermediate
C	1800	Shirdhi Inc.	Chowchilla	1.32	Intermediate
N	1030	Shirdhi Inc.	Merced	1.55	Intermediate
C	8553	Shirdhi Inc. Dba Express Mart Valero	Lemoore	1.38	Intermediate
C	1228	Shirmiss Inc Dba Peach Shell	Clovis	1.39	Intermediate
C	1142	Shogy Market LLC	Firebaugh	0.51	Exempt/Low
S	2470	Shop & Go Market	Visalia	0.67	Exempt/Low
S	320	Shop & Save	Porterville	0.51	Exempt/Low
C	1145	Shop And Gas	Fresno	0.51	Exempt/Low
N	4044	Shop And Go	Merced	0.67	Exempt/Low
C	8516	Shop Kwik Market	Reedley	0.67	Exempt/Low
C	8751	Shop N Go #614	Clovis	1.98	Intermediate
C	88	Shop N Go #618	Lemoore	0.89	Exempt/Low
S	4036	Shop 'N Go Inc.	Tulare	0.98	Exempt/Low
C	136	Shop N Quick #2	Easton	0.79	Exempt/Low
C	2683	Shop N'go Inc.	Coalinga	0.89	Exempt/Low
C	1138	Shop-N-Go	Fresno	1.23	Intermediate
C	1140	Shop-N-Go	Fowler	1.92	Intermediate
C	4026	Shop-N-Go	Clovis	2.34	Intermediate
N	292	Short Stop Food Mart	Lodi	0.63	Exempt/Low
S	973	Shukri A Alrezaki	Lindsay	0.51	Exempt/Low
S	6930	Sidhu Estates Inc.	Dinuba	1.62	Intermediate
C	1152	Sierra Liquor & Deli	Hanford	0.51	Exempt/Low
S	2177	Sierra Minit Mart - Plano	Porterville	1.05	Intermediate
S	319	Sierra Minit Mart #1	Porterville	0.96	Exempt/Low
S	2546	Sierra Minit Mart #2	Porterville	1.55	Intermediate
S	2547	Sierra Minit Mart #4	Terra Bella	0.92	Exempt/Low
S	2086	Sierra Minit Mart #5	Tulare	1.20	Intermediate
S	2087	Sierra Minit Mart #7	Tulare	1.28	Intermediate
N	1724	Simlov Enterprise LLC	Turlock	2.08	Intermediate

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S	3335	Simonyan Enterprises Ii Inc.	Lindsay	2.48	Intermediate
N	1381	Simple Simon Mini-Mart	Dos Palos	0.51	Exempt/Low
C	1746	Six Star Chevron (Tanver Ahmad)	Madera	1.31	Intermediate
N	674	Sjrj Investment Inc.	Manteca	0.51	Exempt/Low
N	2891	Sksp Inc. Dba Modesto Chevron	Modesto	5.83	Intermediate
C	9581	Skypark Arco	Fresno	2.11	Intermediate
C	1240	Smart Place Inc.	Fresno	0.51	Exempt/Low
N	2178	Smart Stop Food Mart	Modesto	0.51	Exempt/Low
N	1383	Smiley's Shell	Merced	0.51	Exempt/Low
N	1376	Smiley's Shell	Merced	0.74	Exempt/Low
N	353	Smk Chevron (Harvinder Pal Singh)	Acampo	1.58	Intermediate
C	8736	Snack Market & Tobacco	Fresno	1.01	Intermediate
C	3772	Snappy Food	Fresno	0.65	Exempt/Low
S	3716	Snappy Food Store	Bakersfield	0.66	Exempt/Low
N	9386	Sng Hotels Inc.	Manteca	8.75	Intermediate
C	3477	Snl Corp	Fresno	0.51	Exempt/Low
N	345	Sohal #3	Stockton	2.83	Intermediate
N	2034	Spa Food Liquor & Gas	Modesto	0.51	Exempt/Low
N	1258	Spa Petroleum Inc.	Merced	4.38	Intermediate
S	2061	Sparkling Image Corp	Bakersfield	1.49	Intermediate
C	159	Spl Lidder Enterprise Inc.	Hanford	0.51	Exempt/Low
N	2182	Sport Stop	Waterford	1.11	Intermediate
C	9088	Square Deal Market	Corcoran	0.74	Exempt/Low
N	258	Srh Food & Gas Market	Stockton	0.90	Exempt/Low
C	797	Srp Real Estate Inc. (Dba Belmont Fuel St	Fresno	0.61	Exempt/Low
S	3285	Ssg Bakersfield Group Inc.	Bakersfield	2.13	Intermediate
S	905	Sssb Corp, Inc. Dba Verdugo Market 2	Bakersfield	0.51	Exempt/Low
S	1453	Sssb1 Corp Inc. Dba 76 Food Mart	Bakersfield	0.64	Exempt/Low
S	2631	Sssb2 Corp (Wasco Market)	Wasco	0.67	Exempt/Low
C	1591	Star #1	Selma	1.22	Intermediate
C	1195	Star 1 Mart	Parlier	1.23	Intermediate
C	3692	Star 7 Market	Kerman	0.51	Exempt/Low
N	1779	Star Convenience Inc.	Modesto	0.51	Exempt/Low
N	7167	Star Convenience Inc. Dba Quik Shop & Gas	Modesto	0.51	Exempt/Low
N	2071	Star Gas	Oakdale	0.51	Exempt/Low
N	981	Statewide Petroleum Inc.	Manteca	0.51	Exempt/Low

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C	700	Sterling Hartel Developments 1, Inc.	Fresno	0.57	Exempt/Low
C	3306	Sterling Hartel Developments 1, Inc.	Fresno	1.04	Intermediate
S	3420	Stine Road Chevron	Bakersfield	0.71	Exempt/Low
S	2072	Stockdale Mobil	Bakersfield	1.05	Intermediate
S	4129	Stockdale Mobil #2	Bakersfield	7.29	Intermediate
S	4127	Stony Creek Village	Stony Creek	0.51	Exempt/Low
C	5721	Stop And Shop #2	Fresno	0.51	Exempt/Low
C	1148	Stop N Go	Fresno	0.51	Exempt/Low
C	8350	Stop N Go Chevron	Madera	1.00	Exempt/Low
N	2209	Stop N Save Liquors #1	Modesto	0.51	Exempt/Low
N	2203	Stop N Save Liquors #10	Modesto	0.51	Exempt/Low
N	2201	Stop N Save Liquors #2	Modesto	0.51	Exempt/Low
N	2208	Stop N Save Liquors #4	Turlock	0.51	Exempt/Low
N	2206	Stop N Save Liquors #5	Riverbank	0.51	Exempt/Low
N	2202	Stop N Save Liquors #6	Modesto	0.51	Exempt/Low
N	2207	Stop N Save Liquors #7	Modesto	0.51	Exempt/Low
N	2204	Stop N Save Liquors #8	Modesto	0.51	Exempt/Low
C	994	Stop Zone Inc.	Hanford	0.51	Exempt/Low
S	1044	Strathmore Handy Market	Strathmore	0.51	Exempt/Low
S	1069	Strathmore Liquor	Strathmore	0.51	Exempt/Low
S	1722	Stuart's Petroleum	Bakersfield	1.03	Intermediate
S	2431	Stuart's Petroleum	Bakersfield	1.13	Intermediate
S	2078	Sub Station (Sukhdev Singh)	Woodlake	1.04	Intermediate
S	2638	Success Market	Porterville	0.15	Exempt/Low
S	1049	Suhovy's Market	Strathmore	0.51	Exempt/Low
S	806	Sukhsanam Market	Bakersfield	0.51	Exempt/Low
S	246	Sullivan Petroleum Corp LLC	Bakersfield	1.44	Intermediate
S	9173	Sullivan Petroleum LLC	Bakersfield	8.75	Intermediate
S	6678	Sullivan's Petroleum LLC	Bakersfield	1.66	Intermediate
S	1218	Sultana Food Mart	Sultana	0.51	Exempt/Low
N	2257	Sungold Ventures LLC Dba Sungold Petrole	Modesto	8.75	Intermediate
S	2706	Sunlines Handy Market	Porterville	0.51	Exempt/Low
C	1740	Sunny Market & Liquor	Madera	0.51	Exempt/Low
N	3280	Sunny's Food Mart	Modesto	0.51	Exempt/Low
S	2096	Sunnyside Handy Market	Porterville	0.51	Exempt/Low
C	9423	Sunnyside Market	Fresno	1.31	Intermediate
C	1129	Sunnyside Sinclair	Fresno	0.55	Exempt/Low

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S	154	Sunrise Handy Market (Nezam Kasis)	Porterville	0.61	Exempt/Low
C	875	Sunrise Mini Mart	Reedley	0.51	Exempt/Low
N	1736	Sunrise Retail Enterprises Inc.	Riverbank	3.41	Intermediate
C	2050	Sunshine Food Mart	Fresno	0.53	Exempt/Low
S	1045	Sunshine Handy Market	Porterville	0.51	Exempt/Low
C	1201	Super 1 Food Store	Fresno	0.51	Exempt/Low
S	2031	Super 7 Beer & Food Inc.	Porterville	0.51	Exempt/Low
S	2656	Super 7 Food Store #2 (Paramjit Kaur)	Tulare	0.67	Exempt/Low
C	465	Super Express (Marinder Singh)	Clovis	0.81	Exempt/Low
N	8769	Super Mac Food & Gas #2	Modesto	0.51	Exempt/Low
N	4438	Super Mac Food & Gas (Paramjit Singh)	Hilmar	0.54	Exempt/Low
C	8807	Super Mart Chevron	Caruthers	0.51	Exempt/Low
S	618	Super Stop #2	Kingsburg	0.51	Exempt/Low
N	4142	Super Stop Gas & Liquor	Manteca	0.67	Exempt/Low
S	3578	Super Stop Shopping Center	Tulare	0.51	Exempt/Low
C	733	Super-7	Fresno	0.51	Exempt/Low
N	3414	Super-A Gas & Food	Winton	0.51	Exempt/Low
N	1388	Superway Market	Planada	0.67	Exempt/Low
S	1006	Sw Retail Group Dba Sal's Food Mart	Dinuba	0.63	Exempt/Low
C	8520	Sws Fuel Inc. Dba Johnny Quick 007	Madera	1.52	Intermediate
N	4419	Synergy Petroleum 332 Inc.	Stockton	0.89	Exempt/Low
C	1212	T & A Mobil Mini-Mart	Hanford	0.51	Exempt/Low
C	1209	T & J Arco Mini Mart	Parlier	1.04	Intermediate
S	2069	T S Gas Inc.	Bakersfield	0.00	Exempt/Low
N	3058	Ta Operating LLC	Santa Nella	1.31	Intermediate
S	8614	Ta Operating LLC	Arvin	2.22	Intermediate
C	1792	Tackle Box	Madera	1.09	Intermediate
S	8993	Taft Enterprises Inc.	Bakersfield	0.36	Exempt/Low
S	3648	Taft Hwy Chevron	Bakersfield	1.18	Intermediate
S	2379	Taing Horizon Inc.	Bakersfield	0.62	Exempt/Low
C	1210	Take 10	Corcoran	1.21	Intermediate
N	9330	Tera Investments	Lodi	2.04	Intermediate
S	1029	Terra Bella Handy Market	Terra Bella	0.51	Exempt/Low
S	2189	Terry M & Michael J Bennett	Visalia	0.61	Exempt/Low
S	3706	Tesoro West Coast Co LLC #68225	Tulare	1.71	Intermediate
S	900	Tesoro West Coast Co LLC #68124	Delano	0.51	Exempt/Low

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S	3561	Tesoro West Coast Co LLC #68126	Earlimart	1.21	Intermediate
C	3548	Tesoro West Coast Company LLC #68139	Fresno	1.44	Intermediate
N	3384	Tesoro West Coast Company LLC #68166	Modesto	1.13	Intermediate
N	1928	Tesoro West Coast Company LLC #68226	Turlock	0.85	Exempt/Low
N	751	Tesoro West Coast Company LLC #68150	Lockeford	1.60	Intermediate
N	95	Tesoro West Coast Company LLC #68151	Lodi	1.14	Intermediate
N	104	Tesoro West Coast Company LLC #68152	Lodi	0.82	Exempt/Low
N	1039	Tesoro West Coast Company LLC #68153	Lodi	1.57	Intermediate
N	903	Tesoro West Coast Company LLC #68154	Lodi	1.62	Intermediate
N	2265	Tesoro West Coast Company LLC #68163	Modesto	0.90	Exempt/Low
N	1854	Tesoro West Coast Company LLC #68164	Modesto	1.55	Intermediate
N	1859	Tesoro West Coast Company LLC #68165	Modesto	1.45	Intermediate
N	1860	Tesoro West Coast Company LLC #68177	Oakdale	1.42	Intermediate
N	3564	Tesoro West Coast Company LLC #68221	Stockton	1.49	Intermediate
C	1225	Texaco	Huron	0.51	Exempt/Low
S	3224	Tfc88 Inc. Dba Stockdale West Texaco	Bakersfield	2.17	Intermediate
S	8605	The Barn Delano	Delano	1.35	Intermediate
S	9077	The Barn Demaree	Visalia	0.94	Exempt/Low
S	1452	The Barn Ii	Bakersfield	1.18	Intermediate
S	2095	The Barn Iii	Bakersfield	0.78	Exempt/Low
C	1742	The Forks Resort	Bass Lake	1.63	Intermediate
N	1847	The Grewal Family Trust	Turlock	1.06	Intermediate
C	3006	The Last Stop	Sanger	1.04	Intermediate
S	1638	The Spot Food Mart #4	Bakersfield	5.83	Intermediate
S	4168	The Spot Food Mart Inc.	Bakersfield	5.83	Intermediate
S	487	Three Rivers Chevron	Three Rivers	0.51	Exempt/Low
S	2215	Three Rivers Market	Three Rivers	0.51	Exempt/Low
N	856	Tiki Lagun Partners LLC	Stockton	1.80	Intermediate
S	904	Tip Top Liquors	Bakersfield	0.51	Exempt/Low
S	2260	Tipton Chevron	Tipton	0.67	Exempt/Low

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C	2241	Tj Food N Liquor (Eric S. Tang)	Fresno	0.73	Exempt/Low
C	735	Tj Grangeville Corporation	Lemoore	1.00	Exempt/Low
S	1572	Tmp Corp Dba Freeway Gas & Liquor	Bakersfield	0.51	Exempt/Low
S	2434	Tmp Corp Dba Niles Chevron	Bakersfield	0.70	Exempt/Low
N	8867	Todd Energy Corporation	Los Banos	4.22	Intermediate
C	2232	Tollhouse Market & Grill	Tollhouse	0.51	Exempt/Low
S	2720	Tomer And Sons Inc.	Bakersfield	0.51	Exempt/Low
C	4217	Tony's 1 Stop Shop	Fresno	0.68	Exempt/Low
C	3689	Tony's One Stop Arco/Manjit Kaur	Fresno	1.22	Intermediate
C	1245	Tower Gas & Mini Mart	Fresno	0.51	Exempt/Low
S	3811	Town & Country Market	Porterville	1.63	Intermediate
N	638	Tr Petro Inc. Dba Plaza Liquor #2	Lodi	0.58	Exempt/Low
N	8746	Tracy 76 - Reliance Gas Investments Inc.	Tracy	0.75	Exempt/Low
N	849	Tracy Market Inc.	Tracy	0.97	Exempt/Low
N	3970	Tracy Truck & Auto Stop	Tracy	1.74	Intermediate
S	1733	Travel Centers Of America	Buttonwillow	2.58	Intermediate
N	1317	Travel Centers Of America	Santa Nella	3.71	Intermediate
S	2629	Traver Market	Traver	1.55	Intermediate
S	143	Traver Valley Farms	Traver	0.55	Exempt/Low
C	1151	Tri-Mart	Hanford	0.67	Exempt/Low
N	1905	Triple R Gas And Mart	Waterford	0.51	Exempt/Low
S	2055	Trmc Retail LLC - Speedway No 1477	Mettler	0.23	Exempt/Low
S	2056	Trmc Retail LLC-Speedway No 1474 (Mobil)	Frazier Park	1.43	Intermediate
S	2057	Trmc Retail LLC-Speedway No 1475 (Mobil)	Bakersfield	1.27	Intermediate
S	1048	Trmc Retail-Speedway No 3051	Visalia	1.68	Intermediate
C	3793	Tulare Arco (Sai Roja Inc.)	Fresno	3.29	Intermediate
S	588	Tulare Mini Mart	Tulare	0.51	Exempt/Low
S	7037	Tulare Petroleum Inc.	Tulare	3.40	Intermediate
C	8333	Tule River Tribal Council Dba Feather Tr	Avenal	0.00	Exempt/Low
N	3062	Turlock Petroleum Inc.	Ceres	3.77	Intermediate
S	2050	Turna & Sons Group Inc.	Bakersfield	1.63	Intermediate
N	887	Turner Cut Resort & Marina Inc.	Stockton	1.31	Intermediate
N	4765	Tvain Group Inc.	Turlock	4.79	Intermediate
N	8212	Tvain Investments Financial Inc.	Turlock	2.13	Intermediate

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N	889	Two Guys Food & Fuel	Lathrop	1.12	Intermediate
S	1035	Two Village Market	Visalia	0.51	Exempt/Low
C	8032	U And A Mini Mart Ii	Sanger	0.82	Exempt/Low
S	852	U S Mini Mart	Earlimart	0.51	Exempt/Low
N	3592	Union Point Resort, Inc.	Stockton	0.00	Exempt/Low
S	8981	Union Village	Bakersfield	0.85	Exempt/Low
C	3241	United Park Inc.	Chowchilla	0.04	Exempt/Low
C	791	Us Gas And Food	Fresno	0.59	Exempt/Low
S	2020	Usa Food And Deli, Inc.	Exeter	0.51	Exempt/Low
C	989	U-Save Liquor Market Inc.	Fresno	0.78	Exempt/Low
S	3533	V G Mini Market	Bakersfield	0.52	Exempt/Low
N	3949	V K Chevron	Modesto	1.30	Intermediate
C	78	Valero Mini Mart (Sukhdev S. Brar)	Firebaugh	0.61	Exempt/Low
C	2166	Vallee Food Store #2	Coarsegold	0.59	Exempt/Low
C	2774	Vallee Foods #17	Fresno	0.93	Exempt/Low
S	571	Valley Convenience Stores Inc.	Exeter	0.51	Exempt/Low
S	2077	Valley Convenience Stores Inc.	Tulare	0.51	Exempt/Low
C	7138	Valley Food Mart	Coalinga	0.51	Exempt/Low
S	9356	Valley Fuel Goshen Inc.	Visalia	1.36	Intermediate
S	1883	Valley Fuel Tipton, Inc.	Tipton	0.74	Exempt/Low
S	813	Valley Fuel Visalia, Inc.	Visalia	0.51	Exempt/Low
C	94	Valley Gas	Fresno	0.51	Exempt/Low
C	1208	Valley Gas	Orange Cove	0.51	Exempt/Low
C	84	Valley Gas And Mini Mart (Ajitpal Singh)	Fresno	0.67	Exempt/Low
C	1813	Valley Gas Food Mart	Coalinga	0.51	Exempt/Low
N	3968	Valley Pacific Petroleum Services Inc.	Lodi	0.51	Exempt/Low
N	4158	Valley Pacific Petroleum Services Inc.	Stockton	0.51	Exempt/Low
N	1973	Valley Pacific Petroleum Services Inc.	Riverbank	0.51	Exempt/Low
N	3560	Valley Pacific Petroleum Services Inc.	Stockton	0.51	Exempt/Low
S	308	Valley Pacific Petroleum Services Inc.	Woodlake	0.51	Exempt/Low
S	2255	Valley Pacific Petroleum Services Inc.	Visalia	0.51	Exempt/Low
N	3138	Valley Pacific Petroleum Services Inc.	Tracy	1.48	Intermediate
C	1165	Valli Gas & Car Wash	Sanger	0.51	Exempt/Low
N	1988	Valtoha Inc. Dba Patterson Chevron	Patterson	0.87	Exempt/Low

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N	999	Van De Pol Enterprises, Inc.	Lodi	0.51	Exempt/Low
N	4163	Van De Pol Enterprises, Inc. Dba Gustine	Gustine	0.51	Exempt/Low
C	1710	Van De Pol Enterprises, Inc. Dba Madera P	Madera	1.29	Intermediate
N	1290	Van De Pol Enterprises, Inc. Dba Merced C	Merced	0.60	Exempt/Low
N	1303	Van De Pol Enterprises, Inc. Dba R Street	Merced	0.51	Exempt/Low
C	3188	Van De Pol Enterprises, Inc. Dba:Chowchil	Chowchilla	1.23	Intermediate
N	156	Van De Pol Enterprises, Inc.	Ripon	0.13	Exempt/Low
N	921	Vanco Truck & Auto Plaza	Stockton	1.48	Intermediate
S	1585	Van's Deli Mart	Delano	0.51	Exempt/Low
N	1816	Verpal Investments Inc. Dba Eagle Chevron	Modesto	0.70	Exempt/Low
N	483	Village West Marina	Stockton	0.41	Exempt/Low
N	3627	Vine Fuels Inc.	Salida	1.47	Intermediate
N	2280	Vintage Car Wash Inc.	Modesto	0.51	Exempt/Low
S	2165	Virk Petroleum Corp/Akal Travel Plaza	Delano	0.13	Exempt/Low
C	2109	Virk Properties Inc. Dba Johnny Quik #157	Fresno	1.14	Intermediate
S	2703	Visalia Liquor Inc.	Visalia	0.63	Exempt/Low
C	3826	Vons - A Safeway Company	Oakhurst	3.05	Intermediate
C	3763	Vons - A Safeway Company	Clovis	4.35	Intermediate
C	7971	Vucovich Inc. Dba Fresno Equipment Co	Five Points	4.30	Intermediate
C	2918	Wagner's Mammoth Pool Resorts	Logan Meadow	0.00	Exempt/Low
S	8911	Wainright Oil Corp	Lebec	1.02	Intermediate
C	9777	Walmart Inc.	Kerman	3.06	Intermediate
S	1574	Wardaa 1 LLC Dba Samco Rosedale #13	Bakersfield	0.93	Exempt/Low
S	2013	Wardaa Inc. Dba Samco Norris #9	Bakersfield	0.51	Exempt/Low
S	1841	Wasco Chevron	Wasco	5.83	Intermediate
S	6830	Wasco Mini Mart (Ahmed Ghassan Nagi)	Wasco	0.91	Exempt/Low
N	890	Waterloo Liquors	Stockton	0.55	Exempt/Low
S	2440	Weedpatch Chevron	Bakersfield	0.83	Exempt/Low
C	48	West & Shaw Kwik Serv	Fresno	1.00	Exempt/Low
C	2866	West Hill Oil, Inc.	Coalinga	0.13	Exempt/Low
C	7275	West Hills Oil Inc.	San Joaquin	0.51	Exempt/Low
C	3593	West Hills Oil, Inc.	Kettleman City	0.61	Exempt/Low

Region	Facility ID	Facility Name	City	Prioritization Score	Prioritization Category
N	945	West Lane Fuels	Stockton	0.51	Exempt/Low
S	2269	West Tulare Food Mart	Tulare	1.00	Exempt/Low
N	5049	West Valley Auto Service, LLC	Tracy	9.48	Intermediate
N	936	Western Food And Fuel	Stockton	0.51	Exempt/Low
N	1817	Westley Beacon	Westley	0.73	Exempt/Low
C	3401	Westside Stations, Inc.	Mendota	1.43	Intermediate
S	8338	Wheeler Ridge Shell Station	Bakersfield	0.51	Exempt/Low
S	4247	White Lane Mobil & Circle K	Bakersfield	0.51	Exempt/Low
S	1654	White Lane Shell (Jeffrey Yam)	Bakersfield	1.60	Intermediate
N	1983	Whitmore Stations Inc.	Ceres	1.16	Intermediate
S	2035	Willie's Market (Balwinder Mehat)	Lindsay	0.64	Exempt/Low
N	3135	Windecker Inc.	Los Banos	0.51	Exempt/Low
N	9339	Windecker Property Development LLC	Los Banos	2.04	Intermediate
N	3900	Wine Country Sta/Gill Pandher Invest Inc.	Lodi	0.87	Exempt/Low
N	1232	Winton Petroleum Inc.	Winton	0.51	Exempt/Low
C	287	WKM Associates Inc.	Fresno	1.26	Intermediate
C	469	Woodward Village 76	Fresno	0.77	Exempt/Low
S	745	Xpress Gas 76	Bakersfield	1.11	Intermediate
S	3143	Xpress Mart	Bakersfield	0.00	Exempt/Low
S	1887	Xtra Mart	Exeter	0.51	Exempt/Low
S	3961	Yahalla Inc. Dba Samco #2	Bakersfield	1.00	Exempt/Low
S	2613	Yakoob Mohamed Dba Jack's Gas & Deli	Orosi	0.65	Exempt/Low
S	3672	Yakoob Nagib Saleh Mohamed Dba Jacks Gas	Visalia	1.14	Intermediate
N	4172	Yosemite & Creekwood Inc.	Modesto	1.06	Intermediate
N	73	Yosemite Avenue Arco Am/Pm	Manteca	1.55	Intermediate
C	1797	Zippy Mart #3	Madera	0.67	Exempt/Low

Table A2. Other Types of Facilities Prioritized in 2022

Region	Facility ID	Facility Name	City/County	Prioritization Score	Prioritization Category
N	717	A. Sambado & Son, Inc.	Linden	4.81	Intermediate
N	7488	Aemetis Advanced Fuels Keyes Inc.	Ceres	5.87	Intermediate
C	8901	Agroplantae Inc.	Fresno	0.05	Exempt/Low
N	4399	All Foreign & Domestic Body Shop	Stockton	0.46	Exempt/Low
C	3115	American Avenue Landfill	Kerman	5.03	Intermediate
N	9476	American Bedliners & Truck Accessories	Stockton	2.87	Intermediate
C	6923	Ampersand Chowchilla Biomass LLC	Chowchilla	123.00	High Priority
N	3021	Anh Auto Body & Paint	Stockton	0.30	Exempt/Low
S	8416	Aptco LLC	Delano	0.36	Exempt/Low
S	3012	Aptco LLC	McFarland	1.96	Intermediate
S	2273	Bakersfield City Wastewater #2	Bakersfield	0.50	Exempt/Low
S	3103	Bakersfield City Wastewater #3	Bakersfield	2.16	Intermediate
S	1246	Berry Petroleum Company LLC	Kern County	6.73	Intermediate
S	1328	Berry Petroleum Company LLC	McKittrick	6.73	Intermediate
S	3585	Berry Petroleum Company LLC	Kern County	8.98	Intermediate
S	2265	Berry Petroleum Company LLC	Kern County	6.73	Intermediate
S	8591	Bethlehem Construction	Wasco	0.04	Exempt/Low
S	3984	Bowman Asphalt Inc.	Bakersfield	48.60	High Priority
C	150	Browning Ferris Industries	Fresno	0.13	Exempt/Low
C	146	Browning Ferris Industries	Fresno	0.19	Exempt/Low
S	4214	Calgren Renewable Fuels	Pixley	9.27	Intermediate
C	216	California Air National Guard	Fresno	28.00	High Priority
C	218	California Army National Guard	Fresno	3.43	Intermediate
C	402	California Dairies, Inc.	Fresno	1.43	Intermediate
S	382	California Resources Elk Hills LLC	Kern County	8.83	Intermediate
S	1738	California Resources Production Corp	Kern County	8.83	Intermediate
N	370	California Resources Production Corp	Stockton	1.13	Intermediate
S	8454	California Resources Production Corp	Kern County	8.83	Intermediate
S	8282	California Resources Production Corp	Kern County	8.83	Intermediate
C	652	Calmat Dba Vulcan Materials Company	Sanger	9.43	Intermediate
S	1538	Calmat Of Central California	Bakersfield	0.78	Exempt/Low
C	283	Chemical Waste Management, Inc.	Kettleman City	0.50	Exempt/Low
S	49	Chevron USA Inc.	McKittrick	0.05	Exempt/Low
S	1423	Chevron USA Inc.	Kern County	0.00	Exempt/Low
C	311	Chevron USA Inc.	Fresno County	0.17	Exempt/Low
S	2010	Chevron USA Inc.	Kern County	3.40	Intermediate
S	55	Chevron USA Inc. Lost Hills GP	Lost Hills	0.11	Exempt/Low
C	3074	City Of Clovis - Landfill	Clovis	0.73	Exempt/Low
N	2073	Covanta Stanislaus, Inc.	Crows Landing	3.59	Intermediate

Region	Facility ID	Facility Name	City/County	Prioritization Score	Prioritization Category
S	6971	Crimson Renewable Energy LP	Bakersfield	0.00	Exempt/Low
N	3715	Custom Marble & Onyx	Modesto	0.15	Exempt/Low
S	1385	Delta Trading L P	Bakersfield	0.02	Exempt/Low
N	558	Diamond Pet Foods-Lathrop	Lathrop	7.52	Intermediate
C	3801	E & B Trucking Inc.	Hanford	0.16	Exempt/Low
C	1830	Foster Commodities	Kingsburg	0.21	Exempt/Low
C	535	Fresno/Clovis Regional WWTP	Fresno	0.88	Exempt/Low
N	1660	Gallo Cattle Company	Atwater	31.90	High Priority
N	964	George Reed Inc.	Clements	3.79	Intermediate
S	7858	Grade 6 Oil, LLC - KRH	Bakersfield	5.94	Intermediate
S	724	Grade 6 Oil, LLC - Western Power & Steam	Bakersfield	5.94	Intermediate
N	2898	Graham Packaging Pet Technologies Inc.	Modesto	0.02	Exempt/Low
N	366	Granite Construction	French Camp	2.85	Intermediate
S	1610	Granite Construction Co	Bakersfield	7.78	Intermediate
S	8650	Granite Construction Co	Bakersfield	1.19	Intermediate
C	9867	Granite Construction Company	Kingsburg	0.00	Exempt/Low
N	7888	Granite Construction Company	Tracy	5.21	Intermediate
C	590	Granite Construction, Coalinga	Coalinga	5.46	Intermediate
C	8706	Greens Best Bark And Mulch, Inc.	Reedley	3.48	Intermediate
N	6082	Grower Direct Nut Company	Hughson	2.33	Intermediate
N	2403	Hamamoto's Body Shop	Stockton	0.00	Exempt/Low
N	8237	Hernandez Auto Body And Paint	Stockton	0.32	Exempt/Low
N	408	Holz Rubber Company Inc.	Lodi	50.00	High Priority
N	767	J R Simplot Company	Lathrop	3.63	Intermediate
C	142	J R Simplot Co/Simplot Grower Solutions	Five Points	0.15	Exempt/Low
C	144	J R Simplot Co/Simplot Grower Solutions	Firebaugh	2.68	Intermediate
S	37	Kern Oil & Refining Co.	Bakersfield	21.30	High Priority
S	1768	Kw Plastics Of California	Bakersfield	0.17	Exempt/Low
N	2000	Lakewood Memorial Park	Hughson	2.73	Intermediate
S	1703	Macpherson Oil Co	Bakersfield	0.81	Exempt/Low
N	2943	Main Body Shop	Stockton	0.19	Exempt/Low
N	4607	Merced Power, LLC	El Nido	5.08	Intermediate
C	3608	Nutrien Ag Solutions	Firebaugh	0.03	Exempt/Low
N	593	Owens-Brockway Glass Container	Tracy	0.94	Exempt/Low
S	1336	Pacific Pipeline System LLC	Lebec	0.51	Exempt/Low
S	3636	Pastoria Energy Facility LLC	Lebec	1.51	Intermediate
S	4056	Pena's Disposal	Cutler	1.68	Intermediate
S	8448	Pixley Biogas LLC	Pixley	9.27	Intermediate
S	6534	Pixley Cogen Partners	Pixley	9.27	Intermediate
S	3277	R & R Resources LLC	Kern County	0.28	Exempt/Low
N	8844	Rivermaid Trading, Co.	Lodi	4.22	Intermediate
S	1688	Ruben's Auto Body LLC	Lamont	0.56	Exempt/Low
N	3317	San Francisco Autobody Frame	Stockton	0.05	Exempt/Low
N	1643	Select Harvest USA	Turlock	0.08	Intermediate

Region	Facility ID	Facility Name	City/County	Prioritization Score	Prioritization Category
S	1372	Sentinel Peak Resources Ca LLC	Kern County	4.09	Intermediate
N	2382	Steven Stein Enterprises, Inc.	Stockton	0.01	Exempt/Low
N	2199	Stewart & Jasper	Newman	5.44	Intermediate
S	8310	Sturgeon Service International	Various Locations	0.00	Exempt/Low
S	360	Synagro WWT, Inc.	Lost Hills	0.05	Exempt/Low
C	1244	Toro Petroleum Corp	Firebaugh	0.43	Exempt/Low
S	2783	Tuboscope/Rodco A Nov LP Co Bakersfield	Bakersfield	3.84	Intermediate
S	548	Tulare City Wastewater Plant	Tulare	1.04	Intermediate
N	7617	USA Waste Of California, Inc.	Lathrop	18.60	High Priority
N	1291	Van De Pol Enterprises, Dba Merced Bulk	Merced	1.68	Intermediate
C	1714	Van De Pol Enterprises, Inc. Dba: Madera	Madera	2.43	Intermediate
S	1896	Ventura Coastal LLC	Visalia	0.49	Exempt/Low
S	2426	Visalia City Airport Aviation	Visalia	1.64	Intermediate
S	189	Voltage Multipliers Inc.	Visalia	0.59	Exempt/Low

Table A3. Facilities with Health Risk Assessments Performed in 2022

Region	Facility ID	Facility Name	City	Cancer Score	Acute Score	Chronic Score	Risk Category
N	5136	4283929 Delaware LLC; Dba West Coast Pet	Lodi	0.28	0.24	0.14	Intermediate Risk
S	890	Caballero Operations LLC	Bakersfield	9.40	0.83	0.05	Intermediate Risk
C	9450	Costco Gasoline Loc #1360	Clovis	0.00	0.50	0.20	Intermediate Risk
N	4669	Costco Gasoline LOC #658	Tracy	0.80	0.30	0.00	Intermediate Risk
N	7776	Costco Wholesale	Manteca	2.10	0.30	0.00	Intermediate Risk
S	7067	Costco Wholesale	Visalia	3.00	0.40	0.10	Intermediate Risk
S	6654	Costco Wholesale	Bakersfield	7.20	0.30	0.10	Intermediate Risk
N	4744	Costco Wholesale Loc #38	Stockton	6.70	0.50	0.20	Intermediate Risk
S	3930	Costco Wholesale Corp Loc #688	Bakersfield	3.50	0.30	0.10	Intermediate Risk
N	4153	Costco Wholesale Loc #142	Merced	2.20	0.20	0.10	Intermediate Risk
N	5127	Costco Wholesale Loc #782	Turlock	3.50	0.90	0.10	Intermediate Risk
S	3523	Elk Hills Power LLC	Tupman	0.04	0.00	0.00	Exempt/Low Risk
C	1406	Foster Farms, Belgravia Plant	Fresno	7.44	0.31	0.06	Intermediate Risk
N	8533	Highway 59 Composting Facility	Merced	3.19	0.07	0.00	Intermediate Risk
N	3696	Highway 59 Landfill Site	Merced	0.34	0.02	0.00	Exempt/Low Risk
C	2106	Nas Lemoore	Lemoore	8.09	0.45	0.01	Intermediate Risk
C	1820	Rio Bravo Fresno	Fresno	1.18	0.00	0.00	Intermediate Risk
S	4254	Salser & Dillard Funeral Chapel	Visalia	2.87	0.12	0.12	Intermediate Risk
C	7405	Triangle Rock Products, LLC	Madera	1.79	0.16	0.06	Intermediate Risk
S	3729	Visalia Landfill	Visalia	0.08	0.01	0.00	Exempt/Low Risk
C	8476	Vulcan Materials Co	Fresno	5.36	0.12	0.03	Intermediate Risk

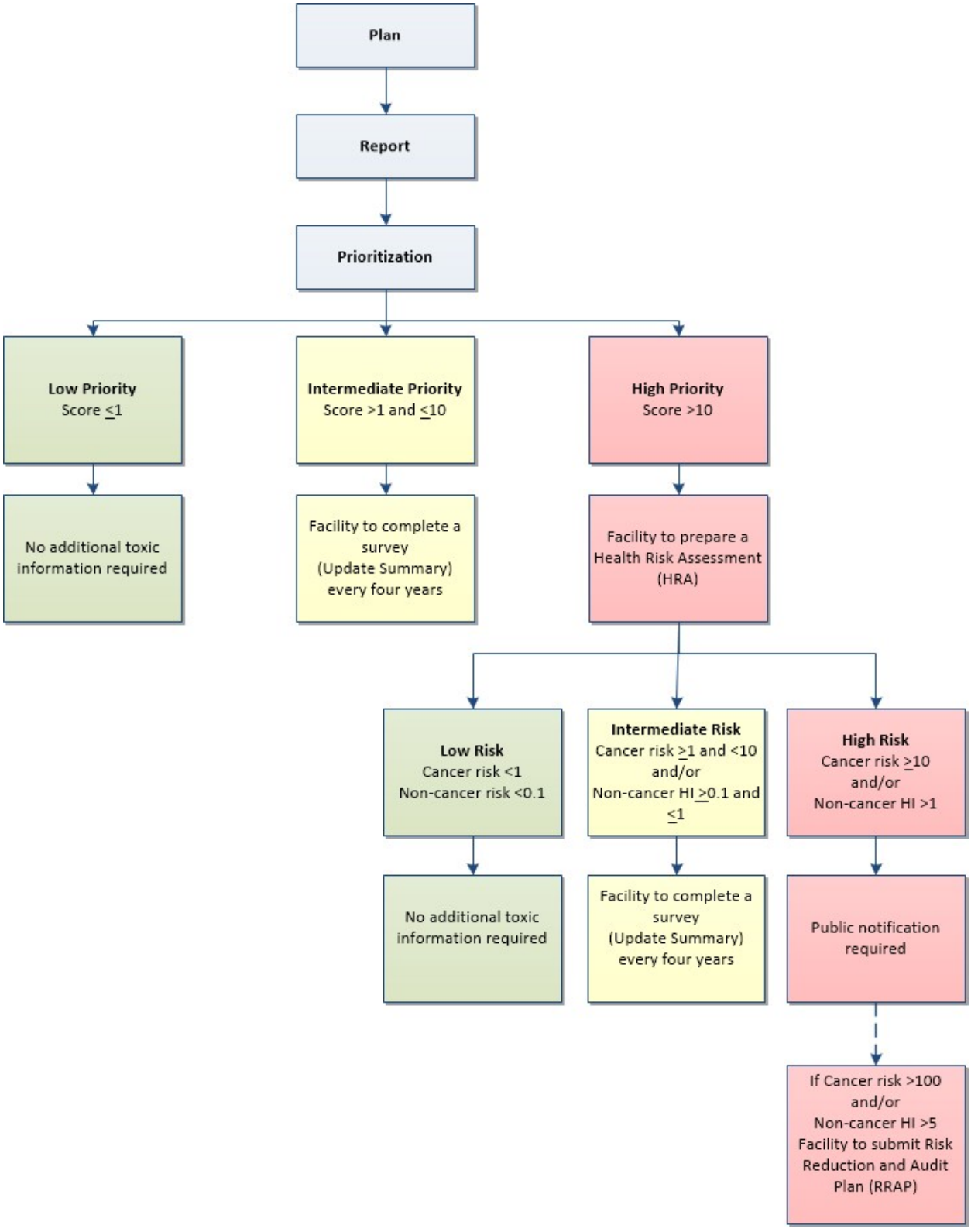
Appendix B. Toxics Emissions Summary

Emissions for eight counties of San Joaquin Valley from the latest California Air Resources Board California Toxics Inventory (CTI).

Table B1. Toxic Emissions Summary

Pollutant	CTI (tons/yr)
Acetaldehyde	3,512
Diesel Particulate Matter	2,520
Formaldehyde	2,318
Benzene	1,020
Perchloroethylene	448
1,3-Butadiene	269
Methylene Chloride	247
PAHs	238
Manganese	217
Acrolein	153
p-Dichlorobenzene	130
Styrene	96
Trichloroethylene	46
Chromium	34
Lead	28
Nickel	18
Acrylonitrile	7
Vinyl Chloride	7
Arsenic	5
Cadmium	3
Mercury	2
Chloroform	2
Ethylene Oxide	0
Ethylene Dichloride	0
Beryllium	0
Carbon Tetrachloride	0
Dioxins/Benzofurans	0
Chromium, Hexavalent	0

Appendix C. AB 2588 District Implementation Flow Chart



Appendix D. Current Status of NESHAP Delegation

National Emission Standards for Hazardous Air Pollutants (NESHAP) for which authority has been delegated to the District are included in District Rule 4002. This rule incorporates the NESHAPs from Part 61, Chapter I, Subchapter C, Title 40, Code of Federal Regulations (Table D.1), and the NESHAPs for Source Categories from Part 63, Chapter I, Subchapter C, Title 40, Code of Federal Regulations (Table D.2).

Table D1. District Delegated NESHAPs from Part 61, Chapter I, Subchapter C, Title 40, Code of Federal Regulations.

Subpart	Description
A	General Provisions
C	National Emission Standard for Beryllium
D	National Emission Standard for Beryllium Rocket Motor Firing
E	National Emission Standard for Mercury
F	National Emission Standard for Vinyl Chloride
J	National Emission Standard for Equipment Leaks (Fugitive Emission Sources) of Benzene
L	National Emission Standard for Benzene Emissions from Coke By-Product Recovery Plants
M	National Emission Standard for Asbestos
N	National Emission Standard for Inorganic Arsenic Emissions from Glass Manufacturing Plants
O	National Emission Standard for Inorganic Arsenic Emissions from Primary Copper Smelters
P	National Emission Standard for Inorganic Arsenic Emissions from Arsenic Trioxide and Metallic Arsenic Production Facilities
V	National Emission Standard for Equipment Leaks (Fugitive Emission Sources)
Y	National Emission Standard for Benzene Emissions from Benzene Storage Vessels
BB	National Emission Standard for Benzene Emissions from Benzene Transfer Operations
FF	National Emission Standard for Benzene Waste Operations

Table D2. District Delegated NESHAPs from Part 63, Chapter I, Subchapter C, Title 40, Code of Federal Regulations.

Subpart	Description
A	General Provisions
F-I	National Emission Standards for Organic Hazardous Air Pollutants From the Synthetic Organic Chemical Manufacturing Industry
J	National Emission Standards for Hazardous Air Pollutants from Polyvinyl Chloride and Copolymers Production
L	National Emission Standards for Coke Oven Batteries
R	National Emission Standards for Gasoline Distribution Facilities (Bulk Gasoline Terminals and Pipeline Breakout Stations)
S	National Emission Standards for Hazardous Air Pollutants from the Pulp and Paper Industry
T	National Emission Standards for Halogenated Solvent Cleaning (except §63.462 - Batch cold cleaning machine standards)
U	National Emission Standards for Hazardous Air Pollutant Emissions: Group I Polymers and Resins
W	National Emission Standards for Hazardous Air Pollutants for Epoxy Resins Production and Non-Nylon Polyamides Production
X	National Emission Standards for Hazardous Air Pollutants from Secondary Lead Smelting
Y	National Emission Standards for Marine Tank Vessel Loading Operations AA National Emission Standards for Hazardous Air Pollutants From Phosphoric Acid Manufacturing Plants
BB	National Emission Standards for Hazardous Air Pollutants from Phosphate Fertilizers Production Plants
CC	National Emission Standards for Hazardous Air Pollutants from Petroleum Refineries
DD	National Emission Standards for Hazardous Air Pollutants from Off-Site Waste and Recovery Operations
EE	National Emission Standards for Magnetic Tape Manufacturing Operations
GG	National Emission Standards for Aerospace Manufacturing and Rework Facilities
HH	National Emission Standards for Hazardous Air Pollutants from Oil and Natural Gas Production Facilities
II	National Emission Standards for Shipbuilding and Ship Repair (Surface Coating)
JJ	National Emission Standards for Wood Furniture Manufacturing Operations
KK	National Emission Standards for the Printing and Publishing Industry
LL	National Emission Standards for Hazardous Air Pollutants for Primary Aluminum Reduction Plants
MM	National Emission Standards for Hazardous Air Pollutants from Chemical Recovery Combustion Sources at Kraft, Soda, Sulfite, and Stand-Alone Semichemical Pulp Mills
YY	National Emission Standards for Hazardous Air Pollutants: Generic Maximum Achievable Control Technology (Generic MACT)
CCC	National Emission Standards for Hazardous Air Pollutants for Steel Pickling--HCl Process Facilities and Hydrochloric Acid Regeneration Plants
DDD	National Emission Standards for Hazardous Air Pollutants for Mineral Wool Production
GGG	National Emission Standards for Hazardous Air Pollutants from Pharmaceutical Production
HHH	National Emission Standards for Hazardous Air Pollutants from Natural Gas Transmission and Storage Facilities
III	National Emission Standards for Hazardous Air Pollutants for Flexible Polyurethane Foam Production
JJJ	National Emission Standards for Hazardous Air Pollutant Emissions: Group IV Polymers and Resins
LLL	National Emission Standards for Hazardous Air Pollutants for Source Categories;

Subpart	Description
	Portland Cement Manufacturing Industry
MMM	National Emission Standards for Hazardous Air Pollutants: Pesticide Active Ingredient Production
NNN	National Emission Standards for Hazardous Air Pollutants for Source Categories; Wool Fiberglass Manufacturing
OOO	National Emission Standards for Hazardous Air Pollutant Emissions: Manufacture of Amino/Phenolic Resins
PPP	National Emission Standards for Hazardous Air Pollutants for Polyether Polyols Production
QQQ	National Emission Standards for Hazardous Air Pollutants from Primary Copper Smelting
RRR	National Emission Standards for Hazardous Air Pollutants for Secondary Aluminum Production
TTT	National Emission Standards for Hazardous Air Pollutants for Primary Lead Smelting
UUU	National Emission Standards for Hazardous Air Pollutants from Petroleum Refineries: Catalytic Cracking Units, Catalytic Reforming Units, and Sulfur Recovery Units
VVV	National Emission Standards for Hazardous Air Pollutants: Publicly Owned Treatment Works
XXX	National Emission Standards for Hazardous Air Pollutants for Ferroalloys Production: Ferromanganese and Silicomanganese
AAAA	National Emission Standards for Hazardous Air Pollutants from Municipal Solid Waste Landfills
CCCC	National Emission Standards for Hazardous Air Pollutants from Manufacturing of Nutritional Yeast
EEEE	National Emission Standards for Hazardous Air Pollutants from Organic Liquids Distribution (Non-Gasoline)
FFFF	National Emission Standards for Hazardous Air Pollutants from Miscellaneous Organic Chemical Manufacturing
GGGG	National Emission Standards for Hazardous Air Pollutants from Solvent Extraction for Vegetable Oil Production
HHHH	National Emission Standards for Hazardous Air Pollutants from Wet- Formed Fiberglass Mat Production
JJJJ	National Emission Standards for Hazardous Air Pollutants from Paper and Other Web Coating
KKKK	National Emission Standards for Hazardous Air Pollutants from Surface Coating of Metal Cans
MMMM	National Emission Standards for Hazardous Air Pollutants from Surface Coating of Miscellaneous Metal Parts and Products
NNNN	National Emission Standards for Hazardous Air Pollutants from Surface Coating of Large Appliances
OOOO	National Emission Standards for Hazardous Air Pollutants from Printing, Coating, and Dyeing of Fabrics and Other Textiles
PPPP	National Emission Standards for Hazardous Air Pollutants from Surface Coating of Plastic Parts and Products
QQQQ	National Emission Standards for Hazardous Air Pollutants from Surface Coating of Wood Building Products
RRRR	National Emission Standards for Hazardous Air Pollutants from Surface Coating of Metal Furniture
SSSS	National Emission Standards for Hazardous Air Pollutants from Surface Coating of Metal Coil
TTTT	National Emission Standards for Hazardous Air Pollutants from Leather Finishing Operations
UUUU	National Emission Standards for Hazardous Air Pollutants from Cellulose Products

Subpart	Description
	Manufacturing
VVVV	National Emission Standards for Hazardous Air Pollutants from Boat Manufacturing
WWWW	National Emission Standards for Hazardous Air Pollutants from Reinforced Plastic Composites Production
XXXX	National Emission Standards for Hazardous Air Pollutants from f Rubber Tire Manufacturing
YYYY	National Emission Standards for Hazardous Air Pollutants from Stationary Combustion Turbines
AAAAA	National Emission Standards for Hazardous Air Pollutants from Lime Manufacturing Plants
BBBBB	National Emission Standards for Hazardous Air Pollutants from Semiconductor Manufacturing
CCCCC	National Emission Standards for Hazardous Air Pollutants from Coke Ovens: Pushing, Quenching, and Battery Stacks
EEEEE	National Emission Standards for Hazardous Air Pollutants from Iron and Steel Foundries
FFFFF	National Emission Standards for Hazardous Air Pollutants from Integrated Iron and Steel Manufacturing
GGGGG	National Emission Standards for Hazardous Air Pollutants from Site Remediation
HHHHH	National Emission Standards for Hazardous Air Pollutants from Miscellaneous Coating Manufacturing
IIIII	National Emission Standards for Hazardous Air Pollutants from Mercury Emissions from Mercury Cell Chlor-Alkali Plants
JJJJJ	National Emission Standards for Hazardous Air Pollutants from Brick and Structural Clay Products Manufacturing
KKKKK	National Emission Standards for Hazardous Air Pollutants from Clay Ceramics Manufacturing
LLLLL	National Emission Standards for Hazardous Air Pollutants from Asphalt Processing and Asphalt Roofing Manufacturing
MMMM M	National Emission Standards for Hazardous Air Pollutants from Flexible Polyurethane Foam Fabrication Operations
PPPPP	National Emission Standards for Hazardous Air Pollutants from Engine Test Cells/Stands
QQQQQ	National Emission Standards for Hazardous Air Pollutants from Friction Materials Manufacturing Facilities
RRRRR	National Emission Standards for Hazardous Air Pollutants from Taconite Iron Ore Processing
SSSSS	National Emission Standards for Hazardous Air Pollutants from Refractory Products Manufacturing
TTTTT	National Emission Standards for Hazardous Air Pollutants from Primary Magnesium Refining

San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

GOVERNING BOARD

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Supervisor, San Joaquin County

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J. Steven Worthley
Supervisor, Tulare County

Vacant
Appointed by Governor

Vacant
Large City

Vacant
Small City, Central Region

Vacant
Small City, Southern Region

Seyed Sadredin
Executive Director
Air Pollution Control Officer

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Central Region Office
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Fresno, CA 93726-0244
(559) 230-6000 • FAX (559) 230-6061

Southern Region Office
2700 M Street, Suite 275
Bakersfield, CA 93301-2373
(661) 326-6900 • FAX (661) 326-6985

www.valleyair.org

DATE: June 19, 2008

TO: SJVUAPCD Governing Board

FROM: Seyed Sadredin, Executive Director/APCO
Project Coordinator: Arnaud Marjollet

RE: RECEIVE AND FILE THE "2008 ANNUAL REPORT ON THE DISTRICT'S INDIRECT SOURCE REVIEW PROGRAM"

RECOMMENDATION:

Receive and file the "2008 Annual Report on the District's Indirect Source Review Program" (see attachment A).

BACKGROUND:

District Rule 9510, Indirect Source Review (ISR), was adopted by the District's Board to reduce the impacts of growth in emissions resulting from new land development in the San Joaquin Valley. The rule's intent, requirements, and administrative procedures are generally described in this report, which was prepared pursuant to Rule 9510 to describe emission reductions achieved and mitigation fees received through implementation of the ISR program.

DISCUSSION:

District Rule 9510 applies to new development projects that emit emissions of at least two tons of nitrogen oxides (NOx) or two tons of particulate matter smaller than ten microns in aerodynamic diameter (PM10) per year.

Developers of projects subject to Rule 9510 must reduce emissions occurring during construction and operational phases, or pay specified mitigation fees. To minimize emissions and to minimize the applicable mitigation fee, developers have begun voluntarily incorporating many air-friendly design changes into their proposals.

For instance, significant reductions in emissions have been generated via the use of cleaner construction equipment. For large distribution centers, proponents have voluntarily proposed to use cleaner truck fleets. In addition, many lesser but still cumulatively significant reductions in emissions have been garnered by a whole range of effective design principles, like installation of solar power, integrated mixed-use development design, bike lanes, high-efficiency housing design, and many others.

If a developer does not achieve the sufficient emission reductions through onsite measures, the rule provides a mechanism by which the developer can pay an offsite mitigation fee to the District. One hundred percent of all offsite mitigation fees received by the District are to be used by the District's existing Emission Reduction Incentive Program (ERIP) to fund emission reduction projects, achieving emission reductions in behalf of the project. Additionally, if a project is subject to off-site emission reduction fees, the developer is required to pay an administrative fee equal to four percent (4%) of the required off-site fees. This fee is to cover the District's cost of administering the off-site emission reduction program.

Section III of this year's report summarizes District Implementation of Rule 9510 and Section IV summarizes funds received and expended, emission reductions realized, and overall cost-effectiveness of funded projects. Appendix A of the report provides a list of all emission reduction projects funded by the ISR program.

Attachment
2008 Annual Report on the District's Indirect Source Review Program (13 pages)

San Joaquin Valley Air Pollution Control District
Meeting of the Governing Board
June 19, 2008

RECEIVE AND FILE THE "2008 ANNUAL REPORT ON THE DISTRICT'S INDIRECT SOURCE REVIEW PROGRAM"

Attachment:
2008 Annual Report on the District's Indirect Source Review Program
(12 pages)

The above attachment has been included with the agenda packets distributed to members of the Governing Board. It has not been included with other agenda packets. A copy of this document is available for review and/or purchase from the San Joaquin Valley Unified Air Pollution Control District.

San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

2008 Annual Report on the District's Indirect Source Review Program

Reporting Period: March 1, 2007 to February 29, 2008

SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT GOVERNING BOARD
2008 Annual Report on the District's Indirect Source Review Program

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EXECUTIVE DIRECTOR / AIR POLLUTION CONTROL OFFICER

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I. EXECUTIVE SUMMARY

This *"2008 Annual Report on the District's Indirect Source Review Program"* was prepared by the San Joaquin Valley Unified Air Pollution Control District. District Rule 9510, Indirect Source Review (ISR), was adopted by the District's Governing Board to reduce the impacts of growth in emissions resulting from new land development in the San Joaquin Valley. The rule's intent, requirements, and administrative procedures are described in this report, as are the emission reductions achieved and mitigation fees received during 2007-2008 through implementation of the ISR program.

District Rule 9510 applies to new development projects that emit emissions of at least two tons of nitrogen oxides (NOx) or two tons of particulate matter smaller than ten microns in aerodynamic diameter (PM10) per year. The rule contains provisions exempting traditional stationary source projects that are subject to the District's stationary source permitting requirements.

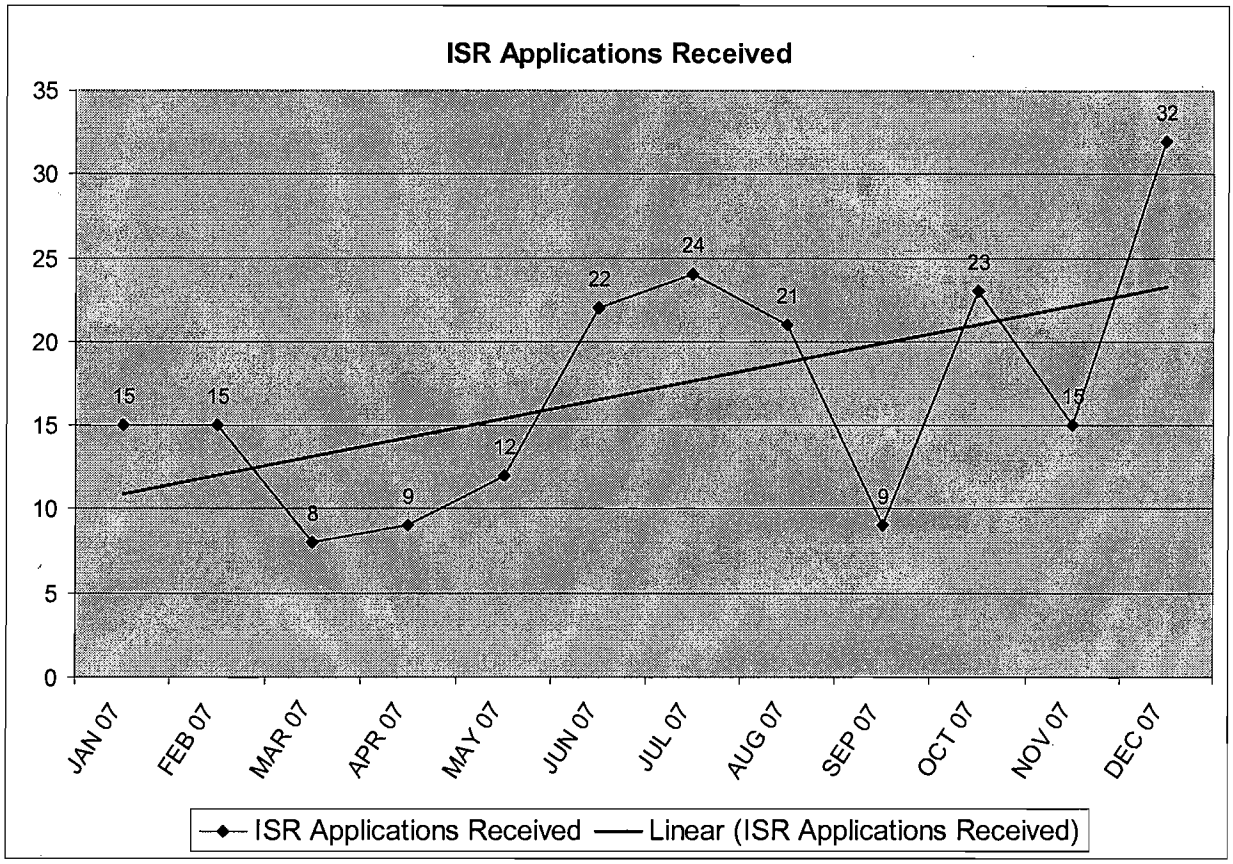
Developers of projects subject to Rule 9510 must reduce emissions occurring during construction and operational phases, or pay specified mitigation fees. To minimize emissions and to minimize the applicable mitigation fee, developers have begun voluntarily incorporating many air-friendly design changes into their proposals. For instance, significant reductions in emissions have been generated via the use of cleaner construction equipment. For large distribution centers, proponents have voluntarily proposed to use cleaner truck fleets. In addition, many lesser but still cumulatively significant reductions in emissions have been garnered by a whole range of effective design principles, like installation of solar power, integrated mixed-use development design, bike lanes, high-efficiency housing design, and many others.

If a developer cannot achieve the required emission reductions through onsite measures, the rule provides a mechanism by which the developer can pay an offsite mitigation fee to the District. One hundred percent of all offsite mitigation fees received by the District are to be used by the District's existing Emission Reduction Incentive Program (ERIP) to fund emission reduction projects, achieving emission reductions in behalf of the project. Additionally, if a project is subject to off-site emission reduction fees, the developer is required to pay an administrative fee equal to four percent (4%) of the required off-site fees. This fee is to cover the District's cost of administering the off-site emission reduction program.

Despite legal challenges[1] and slowed growth in the building industry, especially in the residential development sector, the ISR program had considerable success during this reporting period. As compared with the 2006-2007 reporting period, the ISR program experienced a 46% increase in Air Impact Assessment (AIA) applications received (194 applications received this year versus 133 last year) and a 244% increase in payment of

[1] On June 27, 2006 a lawsuit was filed by various building industries challenging the validity of District Rule 9510. On March 25, 2008 the Fresno County Superior Court ruled in favor of the District on all accounts. An appeal of that decision was filed May 22, 2008. There is a companion case pending in Federal Court which claims District Rule 9510 is preempted by federal tailpipe control standards. Initial indications of the outcome of this case may become apparent in the fall of 2008.

off-site mitigation fees ($5,716,032 received this year compared to $1,660,072 last year).



This increase continued throughout the year, as seen by the graph above, and is attributable to major efforts in District outreach and implementation of measures to improve linkages between the ISR program and District Compliance functions. Outreach included coordinating and holding multiple meetings with key planning agency staff throughout the San Joaquin Valley, conducting public workshops on how to comply with ISR and providing land use agencies training on the use of URBEMIS.

For the 2007-2008 ISR annual reporting period, the District's ISR accounts held a beginning balance of $5,090,869. During this reporting period, the District received off-site mitigation fees totaling $5,392,453 resulting in a grand total of $10,483,322 in off-site mitigation fees. The District funded off-site emission reduction projects totaling $3,125,191, leaving an unexpended balance of $7,358,131.

Implementation of District Rule 9510 resulted in projected combined on-site and off-site emission reductions totaling 2,078 tons of nitrogen oxides (NOx) and 1,087 tons of fine particulate matter (PM10). Off-site emission reduction projects funded by the ISR program achieved emission reductions representing 252 of NOx and 9 tons of PM10, with an average cost effectiveness of $11,928 per ton of reduced emissions.

II. INTRODUCTION

The District's population increased by 22% between 1990 and 2000, and California's Department of Finance has projected that the San Joaquin Valley Air Basin (SJVAB) will experience an overall increase in population of 24% between 2000 and 2010, and an additional 26% increase between 2010 and 2020. Population growth results in increased area source emissions from activities such as increased consumer product use, fuel combustion, and landscape maintenance. Additionally, the total number of vehicle miles traveled (VMT) increases at an even faster rate than the population growth rate. The District experienced a 9% increase in VMT in just three years, between 1999 and 2002, and we expect to see an additional 27% increase in VMT from 2002 to 2010.

The projected growth in these so called "indirect source" emissions erodes the benefits of emission reductions achieved through the District's stationary source program and the state and federal mobile source controls. The District has longstanding statutory authority to regulate indirect sources of air pollution. Pursuant to this authority, the District made a federally enforceable commitment to regulate indirect sources when it adopted its PM10 Attainment Plan in June 2003. Subsequently, the California State Legislature passed Senate Bill 709, Florez, in the fall of 2003, which Governor Gray Davis subsequently signed and codified into the Health and Safety Code in §40604. This additional legislation required the District to adopt, by regulation, a schedule of fees to be assessed on area wide or indirect sources of emissions that are regulated by the District.

District Rule 9510 (Indirect Source Review) was adopted by the District's Board on December 15, 2005, and became effective March 1, 2006. Rule 9510 was adopted by the District's Board to reduce the impacts of growth in emissions resulting from new land development in the San Joaquin Valley. Although the rule does not directly regulate VMT, it is designed to regulate the air impacts associated with new development. Rule 9510 applies to residential and non-residential development projects, including transportation and transit projects, which equal or exceed established applicability thresholds. Rule 9510 establishes emission reduction requirements for NOx and PM10 pollutants. Emission reductions required by the rule that are not achieved through on-site emission reduction measures are subject to off-site emission reduction fees. These fees are used by the District to fund emission reduction projects, mitigating the project's potential impact on air quality in the SJVAB.

This report was prepared pursuant to provisions of Rule 9510 that require the District to prepare an annual report regarding expenditure of received funds and achieved emission reductions. Pursuant to Rule 9520, Section 10.4, the annual report should include the following:

- Total amount of Off-Site Fees received;
- Total monies spent;
- Total monies remaining;
- Any refunds distributed;
- A list of all projects funded;

- Total emissions reductions realized; and
- The overall cost-effectiveness factor for the projects funded.

III. IMPLEMENTATION

District Rule 9510 (Indirect Source Review)

District Rule 9510 applies to new development projects that emit emissions of at least two tons of NOx or two tons of PM10 per year. Developers of projects subject to Rule 9510 are required to reduce emissions occurring during construction and operational phases. During construction, exhaust emissions of NOx and PM10 are to be reduced by 20% and 45% respectively, compared to the statewide average for construction equipment. Construction exhaust emissions can be reduced through installation and use of aftermarket devices, and through use of construction equipment that is newer than the statewide average. Operational emissions of NOx and PM10 are to be reduced by 33.3% and 50%, respectively, of the project's baseline for 10 years.

Operational emissions can be reduced by incorporating design elements that reduce onsite emissions, and the District has seen some very positive clean-air technologies and techniques employed by developers to reduce indirect emissions. For instance, significant reductions in emissions have been generated via the use of cleaner construction equipment. For large distribution centers, proponents have voluntarily proposed to use cleaner truck fleets. In addition, many lesser but still cumulatively significant reductions in emissions have been garnered by a whole range of effective design principles, like installation of solar power, integrated mixed-use development design, bike lanes, high-efficiency housing design, and many others.

If, after implementing such onsite measures, a developer cannot achieve the required emission reductions, the rule provides a mechanism by which the developer can pay an offsite mitigation fee to the District. One hundred percent of all offsite mitigation fees received by the District are to be used by the District's existing Emission Reduction Incentive Program (ERIP) to fund emission reduction projects, achieving emission reductions on behalf of the project. To recover the District's costs for administering the requirements of Rule 9510, the District's Board adopted Rule 3180 (Administrative Fees for Indirect Source Review). Provisions of Rule 3180 establish an application filing fee structure of $432 for residential and $648 for non-residential projects. Additionally, if a project is subject to off-site emission reduction fees, the developer is required to pay an administrative fee equal to four percent (4%) of the required off-site fees. This fee is to cover the District's cost of administering the off-site emission reduction program.

Development Mitigation Contracts

A Development Mitigation Contract (DMC) is an air quality mitigation measure by which a developer voluntarily enters into a contractual agreement with the District to reduce a development project's impact on air quality beyond that achieved by compliance with District Rule 9510. By fully mitigating the project's impact on air quality, a developer

can address one of the issues that have led to California Environmental Quality Act (CEQA) legal challenges to development projects within the SJVAB.

Implementation of a DMC is complementary to ISR; project emissions are characterized, mitigation funds are paid to the District, the District administers the funds to secure the required emission reduction projects. A prerequisite for the District to enter into a DMC is that the DMC will exceed the air quality benefits achieved by compliance with Rule 9510. Therefore, developers who enter into a DMC are considered in compliance with District Rule 9510. This report therefore includes revenues and emission reductions resulting from DMCs. During this reporting period, the District received no new off-site mitigation fees from development mitigation contracts. However, DMC funds carried forward from the previous reporting period were used to fund off-site emission reduction projects.

IV. 2007–2008 ANALYSIS

Table -1: Summary of ISR Program for 2007 to 2008

		Total ISR Program
Beginning Balance	**$**	**5,090,869**
Total Application Fees Received	$	115,869
Total Administrative Fees Received	$	207,710
Total Amount Off-Site Fees Received	$	5,392,453
Total Fees Received	$	5,716,032
Grand Total of Available Off-Site Fees	**$**	**10,483,322**
Total Amount Spent (Contracted)	**$**	**3,125,191**
Total Balance of Available Off-Site Fees	$	7,358,131
Total Amount Refunded	$	0
Grant Total Balance of Available Off-Site Fees	**$**	**7,358,131**

		NOx	*PM10*	*Total*
Total Off-Site Achieved Emission Reductions	***Tons***	251.56	9.09	**260.65**
Emission Reductions Cost Effectiveness *(average based on projects funded)*	*$/Ton*			**11,928**
Total ON-SITE Projected Emission Reductions	*Tons*	1,009.61	305.20	**1,314.81**
Total OFF-SITE Projected Emission Reductions	*Tons*	1,067.91	781.78	**1,849.69**
Total Projected Emission Reductions	***Tons***	2,077.52	1,086.78	**3,164.50**

Total Application Fees Received

District Rule 3180 (Administrative Fees for Indirect Source Review) establishes application fees of $432 and $648 respectively for non-residential ISR applications. The District may also charge for additional staff time required to process an application. As presented in Table-1, the District received application fees totaling $115,869.

Total Administrative Fees Received

District Rule 3180 (Administrative Fees for Indirect Source Review) establishes a four percent (4%) administrative fee to cover the District's costs of operating an off-site emissions reduction program. As presented in Table-1, the District received administrative fees totaling $207,710.

Total Amount of Off-site Fees Received

Provisions within Rule 9510 allow applicants to defer payment of off-site mitigation fees. The payment schedule must provide assurance that reductions from off-site emission reduction projects can be obtained reasonably contemporaneous with emission increases associated with the project. As presented in Table-1, the District received off-site fees totaling $5,392,453. This total does not include fees that have been deferred, nor does it include payments that have been invoiced, but not yet received. As compared to $1,543,697 presented in last year's annual report, this represents a 249% increase in off-site fees received by the District.

A balance of $5,090,869 in off-site mitigation fees was carried forward from the previous reporting period, resulting in $10,483,322 available to fund off-site mitigation projects. Please note that last year's annual report showed a remaining off-site mitigation fee balance of $3,368,308. This amount included $1,722,561 representing funds which had been committed to projects, but not contracted at the time of the annual report.

Total Expenditure of Off-site Fees Received

The District uses off-site fees to fund quantifiable and enforceable off-site emission reduction projects, reducing surplus emissions of NOx and PM10. With the exception of $131,000 voluntarily released by a developer, expenditure of off-site mitigation fees has been limited to fees collected through Development Mitigation Contracts. Of the $131,000 that was available to the District, an emissions reduction project representing $31,000 was funded, and the balance of $100,000 is currently contracted and will be reported in the next year ISR Annual Report.

As presented in Table-1, funds totaling of $3,125,191 were dispersed during this reporting period, leaving a balance of $7,358,131.

Total Emission Reductions Realized

The District funded 25 emission reduction projects for a total of 81 emission sources. These projects consisted primarily of re-powering various type of diesel powered industrial portable equipment such as top grinder, oil drill rig, plastic granulator and agricultural irrigation pumps, with either cleaner diesel engines or by conversion to electric motors. The projects funded achieved total emission reductions of 252 tons of NOx and 9 tons of PM10, with a total of 261 tons combined. The same projects also reduced emissions of Reactive Organic Gases (ROG) by 31 tons. A complete list of all projects funded is presented in Appendix B.

Projected Emission Reductions

Projected emission reductions are a combination of emission reductions to be achieved in the future through implementation of design elements at full project build out and through funding off-site emission reductions projects, using off-site mitigation fees.

For this reporting period, implementation of District Rule 9510 resulted in combined projected on-site and off-site emission reductions totaling 2,078 tons of NOx and 1,087 tons of PM10.

Overall Cost-effectiveness of Funded Projects

Average overall cost-effectiveness is calculated based on total tons of emissions reduced, NOx plus PM10, divided by total funds spent. During this reporting period, the District achieved emission reductions totaling 261 tons and expended funds totaling $3,125,191. As presented in Table-1, average cost-effectiveness is calculated to be $11,928 dollars per ton. This represents a 7% increase, as compared to last year's cost-effectiveness of $11,133 dollars per ton. The District anticipates that cost effectiveness will continue to increase as the most cost-effective projects are funded first.

Appendix A - List of all emission reduction projects funded by the ISR program

APPENDIX A

List of all emission reduction projects funded by the ISR program

EMISSION REDUCTIONS PROJECTS
ISR Annual Report / March 2007 – Feb 2008

Project Name	Date Rec'd	Date Executed	Executed Contract Amount	Amount Paid	Amount UnPaid	Balance	Status	Count Installed	Count Projected	Project Type	Nox Tons	PM10 Tons	ROG Tons
VERA													
Old River Ranch		18-May-07	$25,000	$21,992	$0	$3,008	Closed	1		AG Engine	1.70	0.06	0.21
Old River Ranch		10-Apr-07	$115,567	$0	$115,567	$0	Outstanding		6	AG Engine	1.98	-0.06	0
Old River Ranch		21-Mar-07	$90,000	$90,000	$0	$0	Closed	3		AG Engine	3.15	0.07	0.31
Old River Ranch		30-Apr-07	$22,278	$19,789	$0	$2,489	Closed	1		AG Engine	1.91	0.07	0.26
Old River Ranch		23-Apr-07	$82,719	$82,719	$0	$0	Closed	3		AG Engine	8.52	0.33	1.08
Old River Ranch		23-Apr-07	$20,000	$20,000	$0	$0	Closed	1		AG Engine	1.19	0.01	0.09
Old River Ranch		16-Apr-07	$30,000	$30,000	$0	$0	Closed	2		AG Engine	1.48	0.08	0.26
	Dec-08		**$385,564**	**$264,500**	**$115,567**	**$5,497**		**11**	**6**		**19.93**	**0.56**	**2.21**
Lennar Communities	Feb-08	26-Sep-07	**$16,496**	**$14,920**	**$0**	**$1,576**	**Closed**	**1**		Ag Engine	**1.07**	**0**	**0.18**
Castle & Cooke/ West Ming	May-08	14-Nov-07	**$131,128**	**$131,128**	**$0**	**$0**	**Closed**	**3**		Off Road - Portable Grain Grinders, Pellet Mill Equipment	**36.34**	**1.3**	**4.37**
Castle & Cooke/ Gateway Village		31-May-07	$1,232,390	$484,073			Closed	12		Ag Engine	41.84	1.46	5.42
Castle & Cooke/ Gateway Village					$748,317		Outstanding		8		18.84	0.65	2.39
	Oct-08		**$1,232,390**	**$484,073**	**$748,317**	**$0**		**12**	**8**		**60.68**	**2.11**	**7.81**
Panama 99 Prop. LLC/HWY 99		04-Apr-07	$151,421	$79,985			Closed	2		Off Road - Air Compressors, Drill Units Hydraulic Drill Equipment	4.35	0.16	0.54
Panama 99 Prop. LLC/HWY 99					$71,436		Outstanding		2		6.25	0.26	0.83
Panama 99 Prop. LLC/HWY 99		25-Jun-07	$103,274		$103,274		Outstanding		3	Off Road - Drill Service Pumps	8.26	0.35	1.07
Panama 99 Prop. LLC/HWY 99		19-Jun-07	$41,192	$39,368	$0		Closed	1		Ag Engine	4.48	0.15	0.51
Panama 99 Prop. LLC/HWY 99		14-Nov-07	$47,705	$47,705	$0		Closed	1		Off-Road - Portable Grain Equipment	12.29	0.41	1.42
	Oct-08		**$343,592**	**$167,058**	**$174,710**	**$1,824**		**4**	**5**		**35.63**	**1.33**	**4.37**
Castle & Cooke /Stockdale Ranch		11-Jun-07	$49,428	$49,428	$0	$0	Closed	1		Off Road - Plastic Granulator	4.70	0.17	0.52
Castle & Cooke /Stockdale Ranch		31-May-07	$100,987	$100,987	$0	$0	Closed	3		Off Road - Sprayer	5.22	0.18	0.6
Castle & Cooke /Stockdale Ranch		19-Jun-07	$67,025	$67,025	$0	$0	Closed	3		Off Road - Hydraulic Power Pack	6.38	0.27	0.94
Castle & Cooke /Stockdale Ranch		31-May-07	$48,394	$48,394	$0	$0	Closed	1		Off Road - Pump Engine	3.00	0.10	0.34
Castle & Cooke /Stockdale Ranch		20-Aug-07	$27,910	$0	$27,910	$0	Outstanding		1	Off Road - Drill Rig	1.10	0.05	0.15
Castle & Cooke /Stockdale Ranch		31-May-07	$275,651	$217,842	$0	$57,809	Closed	7		Off Road - Generator, Mud Pump, Drill Rig, Draw Work	24.28	0.91	2.96
Castle & Cooke /Stockdale Ranch				$0	$57,809	($57,809)	Outstanding		1		15.88	0.53	1.82
Castle & Cooke /Stockdale Ranch		31-May-07	$140,916	$0	$140,916	$0	Outstanding		4	Ag Engine	12.51	0.43	1.48
Castle & Cooke /Stockdale Ranch		02-May-07	$25,857	$25,857	$0	$0	Closed	1		Ag Engine	1.60	0.06	0.21
Castle & Cooke /Stockdale Ranch		06-Jun-07	$171,600	$0	$171,600	$0	Outstanding		5	AG Engine	17.17	0.59	2.12
Castle & Cooke /Stockdale Ranch		31-May-07	$77,253	$77,253	$0	$0	Closed	3		AG Engine	5.01	0.21	0.69
	Oct-08		**$985,021**	**$586,786**	**$398,235**	**$0**		**19**	**11**		**96.85**	**3.50**	**11.8**
ISR													
ISR Mitigation		02-Oct-07	$31,000	$0	$31,000	$0	Outstanding		1	Park and Ride Subsidy	1.06	0.29	0.34
	Sep-08		**$31,000**	**$0**	**$31,000**	**$0**			**1**		**1.06**	**0.29**	**0.34**
		Totals	**$3,125,191**	**$1,648,465**	**$1,467,829**	**$8,897**		50	Projects	Achieved	**168.51**	**6.00**	**20.91**
								31	Projects	Projected	**83.05**	**3.09**	**10.20**
											251.56	**9.09**	**31.1**

AIR QUALITY EMISSION REDUCTION AGREEMENT

This Air Quality Emission Reduction Agreement ("Agreement") is entered into as of _____, 2007 by and between Developer Name ("Developer") and the SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT, an air pollution control district formed pursuant to California Health and Safety Code section 40150, et seq. ("District").

RECITALS

WHEREAS, Developer is presently seeking governmental approval of land use entitlements ("Entitlements") which will permit the development of a Project located in the City/County, California, as more particularly described on Exhibit A attached hereto (the "Project"); and

WHEREAS, the Project incorporates the design features specified on Exhibit B attached hereto ("Emission Reduction Design Features"), in order to significantly reduce the air quality impacts associated with the Project; and

WHEREAS, despite incorporation of the Emission Reduction Design Features, without additional emission reductions, the Project would cause impacts on air quality within the geographical boundaries of the San Joaquin Valley Unified Air Pollution Control District, as depicted on Exhibit C attached hereto (the "District Boundaries"); and

WHEREAS, Developer anticipates that mitigation of impacts on air quality resulting from the Project will be either required as a condition to the approval of Developer's Entitlements, or voluntarily imposed by Developer as a means of reducing such impacts; and

WHEREAS, Developer desires to fully comply with all requirements of the California Environmental Quality Act codified at California Public Resources Code section 21000, et seq. ("CEQA"), including all requirements relating to the mitigation of air quality impacts arising from or in connection with the Project; and

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WHEREAS, District is an air pollution control district formed by the counties of Fresno, Kern, Kings, Madera, Merced, San Joaquin, Stanislaus and Tulare, pursuant to California Health and Safety Code section 40150, et seq.; and

WHEREAS, District is responsible for developing and implementing air quality control measures within the District Boundaries, including air quality control measures for stationary sources, transportation sources, and indirect sources; and

WHEREAS, District has determined that with appropriate funding, District can bring about a reduction of emissions from certain projects in types and in sufficient quantities to fully mitigate the net air quality criteria pollutant impacts of the Project as quantified in the Verified Air Quality Assessment (as defined in Section 2.2 below) ("Project's Air Impact"); and

WHEREAS, Developer and District desire to enter into this Agreement in order to develop and implement air quality control measures which will fully mitigate the Project's Air Impact to the extent that the development of such Project will result in no net increase in criteria pollutant emissions over the criteria pollutant emissions which would otherwise exist without the development thereof.

AGREEMENT

NOW THEREFORE, in exchange of the mutual covenants herein contained, Developer and District hereby agree as follows:

1. **Emission Reduction by Developer and District.**

1.1. **Emission Reduction Proposals**. Developer shall identify and propose to District opportunities to reduce emissions to fully mitigate Project's Air Impact, including but not limited to opportunities for removal or retrofitting of stationary, transportation, indirect, and/or mobile pollution source equipment, and/or other opportunities therefore (each, an "**Emission Reduction Proposal**"). Each Emission Reduction Proposal shall be submitted in writing to District, using District approved forms, and shall contain a representation by Developer that the owner/operator of the identified Pollution Source Equipment has expressed interest in entering into a written funding agreement with

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District in District's then standard form ("**Funding Agreement**") requiring removal or replacement of the identified equipment with new equipment under District's "Heavy Duty Engine Emission Reduction Incentive Program", or another emission reduction program adopted by District ("**District Emission Reduction Program**"). Developer shall submit Emission Reduction Proposals to District in sufficient amounts to fully mitigate emissions from each distinct phase of the project. For each phase of the project, Developer shall submit Emission Reduction Proposals to District no later than application for grading permits for, and before generating emissions from, that phase. Any Emission Reduction Shortfall for a given phase shall be addressed according to Section 1.7.2 of this Agreement.

1.2. **District's Verification of Emission Reduction.** As quickly as practicable upon Developer's submission to District of an Emission Reduction Proposal, District shall determine the types and quantities of permanent reduction in emissions which would be realized by the proposed removal or retrofit and shall advise Developer of such determination in writing ("**Emission Reduction Verification**") thereby verifying that in District's considered opinion the removal or retrofit proposed in the Emission Reduction Proposal would result in permanent emission reduction in the locality of the Project in the types and quantities so determined by District.

1.3. **Emission Reduction Proposal Advance.** Developer shall advance to District, on the date of submittal of each Developer's Emission Reduction Proposal, a monetary sum equal to the total estimated cost (as specified in each Developer's Emission Reduction Proposal), until sufficient advance is received by District to fully mitigate the Project's Air Impact ("**Emission Reduction Proposal Advance**").

1.4. **Funding Agreements.** As soon as practicable after District's receipt of Developer's Emission Reduction Proposal Advance, District shall use diligent efforts to enter into Funding Agreements with the owners and/or operators of the pollution source equipment identified in Developer's Emission Reduction Proposal, thereby providing for the removal and/or retrofit of all of such Pollution Source Equipment, and

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providing for District's payment (from the Emission Reduction Proposal Advance) to such owner or operator, of an amount equal to the estimated cost of such opportunity, as specified in Developer's Emission Reduction Proposals. District shall use diligent efforts to enter into Funding Agreements with all of the owners or operators identified in Developer's Emission Reduction Proposals within one hundred eighty (180) days following District's receipt of a complete Emission Reduction Proposal and the Emission Reduction Proposal Advance from Developer.

1.5. **Use of Emission Reduction Proposal Advance**. District shall use the Emission Reduction Proposal Advance to meet its monetary obligations under the Funding Agreements that District shall enter into with the owners of the Pollution Source Equipment identified in Developer's Emission Reduction Proposals.

1.6. **Use of Unused Portions of Emission Reduction Proposal Advance.** In the event Developer is unable to submit to District Emission Reduction Proposals providing for emission reduction in the types and quantities necessary to fully mitigate the Project's Air Impact, or in the event District is unable to enter into Funding Agreements with any of the owners or operators identified in Developer's Emission Reduction Proposals, District shall notify Developer in writing of the additional emission reductions needed to fully mitigate the Project's Air Impact, and Developer shall have a reasonable time, not to exceed one hundred eighty (180) days within which to submit to District additional or supplemental Emission Reduction Proposals in order to provide the necessary additional emission reduction.

1.7. **Unused Advance / Emission Reduction Shortfall / Additional Payment.**

1.7.1. **Unused Advance.** If, despite District's diligent efforts to enter into Funding Agreements with all of the owners or operators identified in Developer's Emission Reduction Proposals (and, if applicable, supplemental Emission Reduction Proposals submitted by Developer), District is unable to enter into Funding Agreements sufficient to fully mitigate the Project's Air Impact, then District shall use any unused portion of Developer's Emission Reduction Proposal Advance to fund emission

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reduction opportunities to mitigate the balance of the Project's Air Impact at District's actual cost of doing so, provided that such actual costs shall not exceed the costs set forth in the following Emission Reduction Cost Schedule:

Emission Reduction Cost Schedule		
Year Paid	NOx or ROG ($/ton)	PM10 ($/ton)
2007	$49,700	$55,940
2008	$65,450	$90,110
Beyond	Prevailing Costs	Prevailing Costs

District is of the considered opinion that the emission reductions listed in the above schedule can be achieved at the corresponding times and costs shown in said schedule. If, at the time of invoicing, the District has not identified Prevailing Costs for post-2008 payments, 2008 costs shall apply.

1.7.2. **Emission Reduction Shortfall/Additional Payment.** In the event the emission reduction brought about by the Funding Agreements entered into between District and the owners or operators identified in Developer's Emission Reduction Proposals (and, if applicable supplemental Emission Reduction Proposals), and that brought about pursuant to Section 1.7.1 above, are not sufficient to fully mitigate the Project's Air Impact ("**Emission Reduction Shortfall**"), then Developer shall be credited for the emission reduction brought about as a result of Funding Agreements entered into between District and the owners or operators identified in Developer's Emission Reduction Proposals and for the emission reduction brought about pursuant to Section 1.7.1 above, and Developer thereafter shall deposit with District, within 30 days of receiving notice of the Emission Reduction Shortfall from District, an additional amount equal to the product of (i) District's cost per ton of emission reduction as shown in the Emission Reduction Cost Schedule set forth in Section 1.7.1 above, multiplied by (ii) the total number of tons of emission reduction necessary to fully mitigate the Project's Air Impact less the total number of tons of emission reduction so credited to Developer. However, in no case shall the amount paid to District and the

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amount of emission reductions achieved per this agreement be less than the amount that would be paid to District or the amount of emission reductions that would be required for this Project according to District Rule 9510 (Indirect Source Review). To allow verification of equivalency of emission reductions and off-site mitigation fee amounts, according to District Rule 9510, Developer shall submit to District an ISR Air Impact Assessment Application, using District forms, no later than concurrent with the Developer's submission of the air quality assessment, as set forth in Section 2.2.

1.8. **Surplus Mitigation.** In addition to the amounts payable under paragraph 1.3, Developer shall deliver to District an additional sum equal to five percent (5%) of the Emission Reduction Proposal Advance. Said additional sum shall be paid under the same schedule as set forth in paragraph 1.3. District shall utilize such additional sum to fund further localized emission reduction opportunities in quantities consistent with the schedule set forth in paragraph 1.7.1.

1.9 **Time of Use**. Any emission reductions brought about by this Agreement prior to the date Developer receives final approval of the Project from all applicable Governmental Authorities shall be credited to the total amount of emission reductions achieved per this agreement.

1.10. **District's Obligation**. The monies paid by Developer under this Agreement shall be used by District to obtain localized emission reductions in the types and quantities necessary to fully mitigate the Project's Air Impact as quantified in the Verified Air Quality Assessment. If necessary, District shall assist Developer in securing emission reductions, consistent with the provisions established in Section 1.7.2.

1.11. **Developer's Obligation**. District acknowledges that, if the Project is not finally approved so that such development is allowed to proceed, Developer has no obligations under this Agreement relative to the respective Project. Developer acknowledges that it must satisfy the terms of this Agreement in order to develop the Project.

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2. **CEQA Compliance/Full Mitigation.** For and in exchange of Developer's payment of funds pursuant to Section 1 above, District shall ensure, by way of entering into, funding and enforcing the Funding Agreements in accordance with the provisions of Section 1.4 above, that the Project's Air Impact is fully mitigated, such that the Project, combined with the emission reductions brought about in accordance with Section 1 above, shall result in no net increase in air quality impacts over those air quality impacts which would otherwise exist without the development of such Project. For the purpose of this agreement, full mitigation means the sum of all NOx, ROG, and PM10 emission reductions achieved by the Emission Reductions Proposals equals, or is greater than, the sum of all NOx, ROG, and PM10 emissions increases calculated as the average annual construction and the peak annual area source and mobile source emissions of NOx, ROG, and PM10 less the average annual emissions that have occurred at the project site during the three years prior to release of the Notice of Preparation. In addition to entering into, funding and enforcing the Funding Agreements in accordance with the provisions of Section 1.4 above, District shall do all of the following:

2.1. **District's Verification of Air Assessment Protocol.** Within ten (10) business days following the date of this Agreement, Developer shall submit to District an air assessment protocol prepared by Developer's air quality consultant reflecting the methodology, including air quality impact modeling, to be utilized in the preparation of the air quality assessment for the Project. Within twenty-one (21) business days following District's receipt of Developer's air assessment protocol, District shall review and comment upon such air assessment protocol, and, after Developer's incorporation of any revisions suggested by District, District shall verify in writing to Developer the correctness of the air assessment protocol which will be utilized in the preparation of the air quality assessment for the Project.

2.2 **District's Verification of Air Quality Assessment.** Following District's Verification of Air Assessment Protocol, Developer shall submit to District an air quality

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assessment prepared by Developer's air quality consultant assessing the air quality impacts of the Project. District shall use its best efforts to review and comment upon Developer's air quality assessment within thirty (30) days following District's receipt of Developer's complete air quality assessment, and, after Developer's incorporation of any and all revisions suggested by District, District shall verify in writing to Developer the correctness of the air quality assessment to be utilized in connection with the CEQA documents for the Project, including (i) the methodology utilized in the preparation of the CEQA document, (ii) the types and quantities of any net air quality impacts associated with the Project, (iii) the appropriateness of the mitigation measures proposed in the CEQA document, and (iv) any other matters which may pertain to such CEQA document and/or any air quality impacts or air quality mitigation measures referenced therein (the "**Verified Air Quality Assessment**").

2.3. **District's Verification of Administrative Draft Environmental Impact Report**. Upon request by Developer, and submission by Developer to District of any administrative Draft Environmental Impact Report, or other applicable CEQA documents for the Project, District shall review, comment upon and, after incorporation of any and all revisions made by District, verify in writing to Developer the correctness of all portions thereof which pertain to air quality impacts, including, (i) the methodology utilized in the preparation of the CEQA document, (ii) the types and quantities of any net air quality impacts associated with the Project, (iii) the appropriateness of the mitigation measures proposed in the CEQA document, and (iv) any other matters which may pertain to such CEQA document and/or any air quality impacts or air quality mitigation measures referenced therein.

2.4 **District's Acknowledgment Regarding Full Mitigation**. At such time as District is provided an opportunity as a commenting agency to comment upon the Draft Environmental Impact Report and Final Environmental Impact Report for the Project, District shall comment in writing as to the correctness of all portions thereof which pertain to air quality impacts, including (i) the methodology utilized in the

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preparation of the CEQA document, (ii) the types and quantities of any net air quality impacts associated with the Project, (iii) the appropriateness of the mitigation measures proposed in the CEQA document, and (iv) any other matters which may pertain to such CEQA document and/or any air quality impacts or air quality mitigation measures referenced therein. District shall at all times fully perform its duties and obligations as a commenting agency, and the provisions of this Section 2.4 shall not be interpreted to the contrary. At such time as District has entered into Funding Agreements pursuant to Section 1.4 above and the owners/operators of equipment to be removed and/or replaced under such agreements have removed and replaced such equipment in accordance with the provisions thereof, District shall verify in writing to Developer and to the lead agency that full mitigation of the Project's Air Impact has been achieved, upon successful fulfillment of all Funding Agreements. District shall ensure that the owners/operators of equipment to be removed and/or replaced pursuant to such Funding Agreements perform all obligations to be performed on the part of such parties under said Funding Agreements. District acknowledges that the Verified Air Quality Assessment and its quantification of the Project's Air Impact will be based on the pending applications for development of the Project and that actual approvals may be for a lesser amount of development. District agrees that Developer's obligations under this Agreement shall be based on the amount of development actually approved, and the final quantification of the Project's Air Impact will be revised accordingly.

2.5. **District's Oversight of Air Quality Mitigation Monitoring Plan.** Upon request of the lead agency having jurisdiction over the Project, District shall oversee that portion of the mitigation monitoring plan adopted by the lead agency for the Project which relates to the mitigation brought about by Section 1 of this Agreement. Alternatively, upon request of that lead agency, District shall cooperate with the lead agency in the oversight of that portion of the mitigation monitoring plan adopted by the lead agency for the Project which relates to the mitigation brought about by Section 1

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of this Agreement.

2.6. **District's Documentation, Record Keeping and Monitoring**. District shall document, keep adequate records on and monitor the emission reduction brought about as a result of this Agreement, and shall from time to time, upon written request by Developer or by the lead agency for the Project, provide to Developer or to the lead agency written reports verifying that emission reduction has been and/or is being brought about so as to fully mitigate the Project's Air Impact.

3. **Subsequent Litigation, Legislation and/or Administrative Action / Credit to Developer**.

3.1. **Subsequent Litigation**. In the event that despite this Agreement, Developer is required as a result of a final judgment or District Approved Settlement (as defined below) in any subsequent third party litigation, to pay monies in addition to the monies to be paid by Developer pursuant to Section 1 above, then, provided that the project total emissions are the same as quantified in the Verified Air Quality Assessment, District shall acknowledge and credit Developer with mitigation of the air quality impacts of the Project in such types and quantities that Developer can establish, to the reasonable satisfaction of District, will result from Developer's payment of such additional monies, and shall reduce any amounts thereafter payable by Developer under this Agreement by an amount equal to the additional monies so paid by Developer. This requirement shall not apply if the additional monies are required to mitigate emissions that exceed those set forth in the Verified Air Quality Assessment. For purposes of this Section 3.1.1, a "**District Approved Settlement**" shall mean a settlement of a lawsuit filed pursuant to CEQA, the National Environmental Protection Act or other applicable environmental law which (i) provides for Developer's payment of monies in exchange for a dismissal of such lawsuit, (ii) provides for the use of such monies by the petitioner in such lawsuit in such a manner as to mitigate adverse air quality impacts of the Project, and (iii) is approved in writing by District.

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3.2. **District Rule 9510.** The performance of Developer's and District's obligations under this Agreement will fully mitigate the Project's Air Impact. Inasmuch as the mitigation provided under this Agreement exceeds the mitigation which would otherwise have been provided under Sections 6.0 and 7.0 of District's Rule 9510, and the Project's mitigated baseline (being zero emissions) is less than the threshold stated in Section 4.3 of said Rule 9510, the Project is exempt from Sections 6.0 and 7.0 of District's Rule 9510. Accordingly, no off-site Emission Reduction Fee will be required in connection with the approval or development of the Project. For each individual project developed at the project site requiring a discretionary approval by the lead agency, Developer shall provide District with a map or diagram indicating its location within the area covered by this Agreement.

4. **Term of Agreement.** This Agreement shall be effective upon the date first written above, and shall terminate upon District's meeting its obligation to implement projects that provide necessary emissions reductions to fully mitigate the Project's Air Impact (the "**Term**"). Developer may, at any time by written notice to District, terminate this Agreement, whereupon, (i) District shall acknowledge in writing to the lead agency that Developer has mitigated air quality impacts of the Project to the extent and in the types and quantities brought about by Funding Agreements theretofore funded by Developer's Emission Reduction Proposal Advance (and if applicable pursuant to Section 1.7.1 above), (ii) District shall refund to Developer any unused portion of Developer's Emission Reduction Proposal Advance less any unpaid administrative fees incurred; and (iii) neither Developer nor District shall have any further rights or obligations under this Agreement. Developer acknowledges that in the absence of this Agreement, the project is subject to all applicable provisions of District Rule 9510 (Indirect Source Review).

5. **Payment of Administrative Fees to District.** Developer agrees to pay to District, in order to reimburse District for its general overhead required for the administration of this Agreement, an administrative fee ("***ERIP Fee***") in an amount

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equal to four percent (4%) of the Emission Reduction Proposal Advance. Such ERIP Fee shall be due and payable upon Developer's delivery of the Emission Reduction Proposal Advance pursuant to Section 1.3 above. In addition to the ERIP Fee, Developer agrees to pay to District, within thirty (30) days following Developer's receipt of District's invoice, administrative fees to reimburse District for staff time spent and materials used by District in the administration of this Agreement, other than that time associated with the ERIP program covered by the ERIP Fee above, including review, verification and preparation of documents, and staff time relating to the performance of District's obligations hereunder, based on a time and materials basis at District's average weighted labor rates.

6. **Representations, Covenants and Warranties.**

6.1. **Developer's Representations, Covenants and Warranties.** Developer represents, covenants and warrants to District, as of the date of this Agreement, and as of the date of Developer's submission to District of any documents contemplated hereunder, as follows:

6.1.1. The undersigned representatives of Developer are duly authorized to execute, deliver and perform this Agreement, and upon Developer's execution and delivery of this Agreement, this Agreement will have been duly authorized by Developer.

6.1.2. Upon execution and delivery of this Agreement by Developer, Developer's obligations under this Agreement shall be legal, valid and binding obligations of Developer, duly enforceable at law and in equity in accordance with the terms and conditions of this Agreement.

6.1.3. There is no lawsuit, legal action, arbitration, legal or administrative proceeding, legislative or quasi-legislative action or claim existing, pending, threatened or anticipated which would render all or any portion of this Agreement invalid, void or unenforceable in accordance with the terms and conditions thereof.

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6.1.4. Other than the execution and delivery of this Agreement by the undersigned representatives of Developer, there are no approvals, consents, confirmations, proceedings, or other actions required by Developer or any third party, entity or agency in order to enter into and carry out the terms, conditions and intent of the parties with respect to this Agreement.

6.2. **District's Representations, Covenants and Warranties.** District represents, covenants and warrants to Developer, as of the date of this Agreement, and as of the date of District's delivery to Developer of any documents contemplated hereunder, as follows:

6.2.1. The undersigned representatives of District are duly authorized to execute, deliver and perform this Agreement, and upon District's execution and delivery of this Agreement, this Agreement will have been duly authorized by District.

6.2.2. Upon execution and delivery of this Agreement by District, District's obligations under this Agreement shall be legal, valid and binding obligations of District, duly enforceable at law and in equity in accordance with the terms and conditions of this Agreement.

6.2.3. There is no lawsuit, legal action, arbitration, legal or administrative proceeding, legislative, quasi-legislative or administrative action or claim existing, pending, threatened or anticipated which would render all or any portion of this Agreement invalid, void or unenforceable in accordance with the terms and conditions thereof.

6.2.4. Other than the execution and delivery of this Agreement by the undersigned representatives of District, there are no approvals, consents, confirmations, proceedings, or other actions required by District or any third party, entity or agency in order to enter into and carry out the terms, conditions and intent of the parties with respect to this Agreement.

6.2.5. No lawsuit, legal action, arbitration, legal or administrative proceeding, legislative or quasi-legislative action or claim existing, pending, threatened or

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anticipated will render invalid, void or unenforceable any right or benefit Developer is to receive under the terms and conditions of this Agreement.

6.2.6. The monies paid by Developer under this Agreement shall be sufficient to ensure that the emission reduction contemplated by this Agreement shall occur, and District shall utilize such monies in such a manner as to ensure that such emission reduction shall occur.

6.2.7. Upon the approval of this Agreement by the governing board of District, the Air Pollution Control Officer of District, or equivalent representative, or a delegee of such officer, shall have the authority to approve, deliver, verify, enter into, acknowledge and/or accept any communication, notice, notification, verification, agreement and/or other document to be issued or entered into by District under the terms and conditions of this Agreement, without further approval of the governing board of District.

7. **Indemnification**. Developer agrees to indemnify, defend and hold harmless District for, from and in connection with any third party claims, losses and/or liabilities arising from or in connection with District's performance of this Agreement, excluding only such claims, losses and/or liabilities which result from or in connection with District's sole negligence, act or omission.

8. **Inurnment**. Developer's rights and obligations under this Agreement, or applicable portions thereof, shall run with the land encompassed by the Project, and shall inure to the benefit of and be binding upon the heirs, successors and assigns of Developer who take title to such lands or applicable portions thereof. Upon Developer's conveyance of all or any portion of the lands encompassed by the Project, the rights and obligations of Developer under this Agreement shall, to the extent applicable to the lands so conveyed, be transferred to the transferee thereof, and Developer shall thereupon be released by District from, all obligations and liabilities so assigned, except for such obligations and liabilities arising prior to such transfer.

9. **Assignment**. Developer shall have the right to assign all or any part of its rights and/or obligations under this Agreement. Upon any such assignment, Developer shall

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deliver to District a written assignment and assumption agreement specifying the fact and extent of the assignment, the name and address of the assignee, and the assignee's assumption of all obligations of Developer thereby assigned. Developer shall have the right to assign all or any part of its rights and/or obligations under this Agreement to a third party for use in connection with the mitigation of air quality impacts resulting from one or more projects other than the Project, so long as (i) the project is located within the District Boundaries, (ii) the air quality impacts of such project(s) will in fact be mitigated, as verified by District, by the emission reductions brought about by this Agreement, and (iii) the project(s) consist of residential, commercial, industrial and/or mixed use real estate projects which incorporate the Emission Reduction Design Features. Upon any such assignment by Developer, District shall enter into an amendment of this Agreement which acknowledges the assignment and conforms the various provisions of this Agreement as may be required to be conformed in order to provide to the assignee the rights and benefits of this Agreement as if such assignee and its project were the original party and project contemplated in this Agreement.

10. **Recitals Incorporated**. The recitals set forth hereinabove are hereby incorporated into this Agreement and acknowledged, agreed to and adopted by the parties to this Agreement.

11. **Further Assurances**. Developer and District agree to execute and deliver any documents and/or perform any acts, which are reasonably necessary in order to carry out the intent of the parties with respect to this Agreement.

12. **No Joint Venture or Partnership**. District and Developer agree that nothing contained in this Agreement or in any document executed in connection with this Agreement shall be construed as making District and Developer joint ventures or partners.

13. **Notices**. Any notices or communications relating to this Agreement shall be given in writing and shall be deemed sufficiently given and served for all purposes

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when delivered, if (a) in person, (b) by facsimile (with the original delivered by other means set forth in this Section 13), (c) by generally recognized overnight courier or (d) by United States Mail, certified or registered mail, return receipt requested, postage prepaid, to the respective addresses set forth below, or to such other addresses as the parties may designate from time to time by providing written notice of the change to the other party.

To Developer: Address & Contact Name	To District: San Joaquin Valley APCD 1990 E. Gettysburg Avenue Fresno, CA 93726 Fax: (559) 230-6061 Attn: Seyed Sadredin Executive Director/APCO
With a copy to: Address & Contact Name	with a copy to:San Joaquin Valley APCD 1990 E. Gettysburg Avenue Fresno, CA 93726 Fax: (559) 230-6061 Attn: Dave Warner Director of Permit Services with a copy to: San Joaquin Valley APCD 1990 E. Gettysburg Avenue Fresno, CA 93726 Fax: (559) 230-6061 Attn: Philip M. Jay District Counsel

14. **Entire Agreement.** The terms of this Agreement, together with all attached exhibits, are intended by the parties as the complete and final expression of their agreement with respect to such terms and exhibits and may not be contradicted by evidence of any prior or contemporaneous agreement. This Agreement specifically supersedes any prior written or oral agreements between the parties with respect to

the subject matter of this Agreement.

15. **Amendments and Waivers.** No addition to or modification of this Agreement shall be effective unless set forth in writing and signed by the party against whom the addition or modification is sought to be enforced. The party benefited by any condition or obligation may waive the same, but such waiver shall not be enforceable by another party unless made in writing and signed by the waiving party.

16. **Invalidity of Provisions.** If any provision of this Agreement as applied to either party or to any circumstance shall be adjudged by a court of competent jurisdiction to be void or unenforceable for any reason, the same shall in no way affect (to the maximum extent permissible by law) any other provision of this Agreement, the application of any such provision under circumstances different from those adjudicated by the court, or the validity or enforceability of this Agreement as a whole. The parties further agree to replace any such invalid, illegal or unenforceable portion with a valid and enforceable provision which will achieve, to the maximum extent legally possible, the economic, business or other purposes of the invalid, illegal or unenforceable portion.

17. **Construction.** Unless otherwise indicated, all Section references are to the sections of this Agreement and all references to days are to calendar days. Whenever, under the terms of this Agreement the time for performance of a covenant or condition falls upon a Saturday, Sunday or California state holiday, the time for performance shall be extended to the next business day. The headings used in this Agreement are provided for convenience only and this Agreement shall be interpreted without reference to any headings. Wherever required by the context, the singular shall include the plural and vice versa, and the masculine gender shall include the feminine or neuter genders, or vice versa. This Agreement may be executed in one or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument. The language in all parts of this Agreement shall be construed as a whole in accordance with its fair meaning, and shall not be

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construed against any party solely by virtue of the fact that such party or its counsel was primarily responsible for its preparation.

18. **Governing Law**. This Agreement shall be governed by the laws of the State of California applicable to contracts made and to be performed in California.

19. **No Third-party Beneficiaries**. Nothing in this Agreement, express or implied, is intended to confer any rights or remedies under or by reason of this Agreement on any person other than the parties to it and their respective permitted successors and assigns, nor is anything in this Agreement intended to relieve or discharge any obligation of any third person to any party hereto or give any third person any right of subrogation or action over or against any party to this Agreement.

20. **Exhibits**. The exhibits attached to this Agreement shall be deemed to be a part of this Agreement and are fully incorporated herein by reference.

21. **Force Majeure**. The time within which any party shall be required to perform under this Agreement shall be extended on a day-per-day basis for each day during which such performance is prevented or delayed by reason of events reasonably outside of the control of the performing party, including, without limitation, acts of God, events of destruction, acts of war, civil insurrection, strikes, shortages, governmental delays, moratoria, civil litigation and the like, and/or delays caused by the non-performing party's act or omission.

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IN WITNESS WHEREOF, Developer and District have executed this Agreement and agree that it shall be effective as of the date first written above.

DEVELOPER: Developer Name,

a California limited liability company

By:_____

Name:_____

Title:_____

DISTRICT: **SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT**, an air pollution control district formed pursuant to California Health and Safety Code section 40150, et seq.

///

DISTRICT

San Joaquin Valley Unified Air Pollution Control District

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By:_____

Councilmember J. Steven Worthley, Chair

Governing Board

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Recommended for approval:

San Joaquin Valley Unified Air Pollution Control District

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_____

Seyed Sadredin

Executive Director/APCO

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Approved as to legal form:

San Joaquin Valley Unified Air Pollution Control District

_____

Philip M. Jay

District Counsel

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Approved as to accounting form:

San Joaquin Valley Unified Air

Pollution Control District

///

_____

Roger W. McCoy

Director of Administrative Service

For accounting use only:

Program:_____

Account No.:_____

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EXHIBIT A

DESCRIPTION OF THE PROJECT

[INSERT MAP.]

EXHIBIT B

EMISSION REDUCTION DESIGN FEATURES

The project shall incorporate the following Emission Reduction Design Features:

The project will incorporate the following on-site features:

1. Utilization of land use designs which create walkable communities and encourage pedestrian travel.
2. Utilization of interconnecting sidewalks, walking paths and/or bike paths in order to encourage travel by means other than motor vehicle.
3. Utilization of appropriate landscaping to create reasonable shade canopies for streets, parkways and parking areas.
4. Utilization of roadway designs, which enhance pedestrian safety by appropriate signaling, signage and separation from traffic.
5. Design requirements, which incorporate natural gas hookups and electrical outlets on patios.
6. Design requirements, which prohibit the installation and use of wood burning stoves and wood burning fireplaces.

Prior to issuance of grading permits for the Project, Developer shall prepare and submit to District dust control plans for the areas to be graded, in accordance with District Regulation VIII. The plan shall be prepared consistent with District Regulation VIII and must be reviewed and approved by the District prior to commencement of grading activities. Each contractor working on the Project site shall implement the dust control measures outlined in the approved dust control plan. The dust control measures selected shall be incorporated as a note on each grading plan.

District maintains New Source Review requirements that direct owners/operators of certain types of stationary equipment to obtain an Authority to Construct ("ATC") and Permits to Operate ("PTO") from the District. As part of this process, the need for emission control equipment is assessed and the District determines whether a Health Risk Assessment ("HRA") must be prepared.

Owners/operators of all stationary sources for which such approvals are required should show proof of compliance with District Rules and Regulations prior to issuance of certificates of occupancy.

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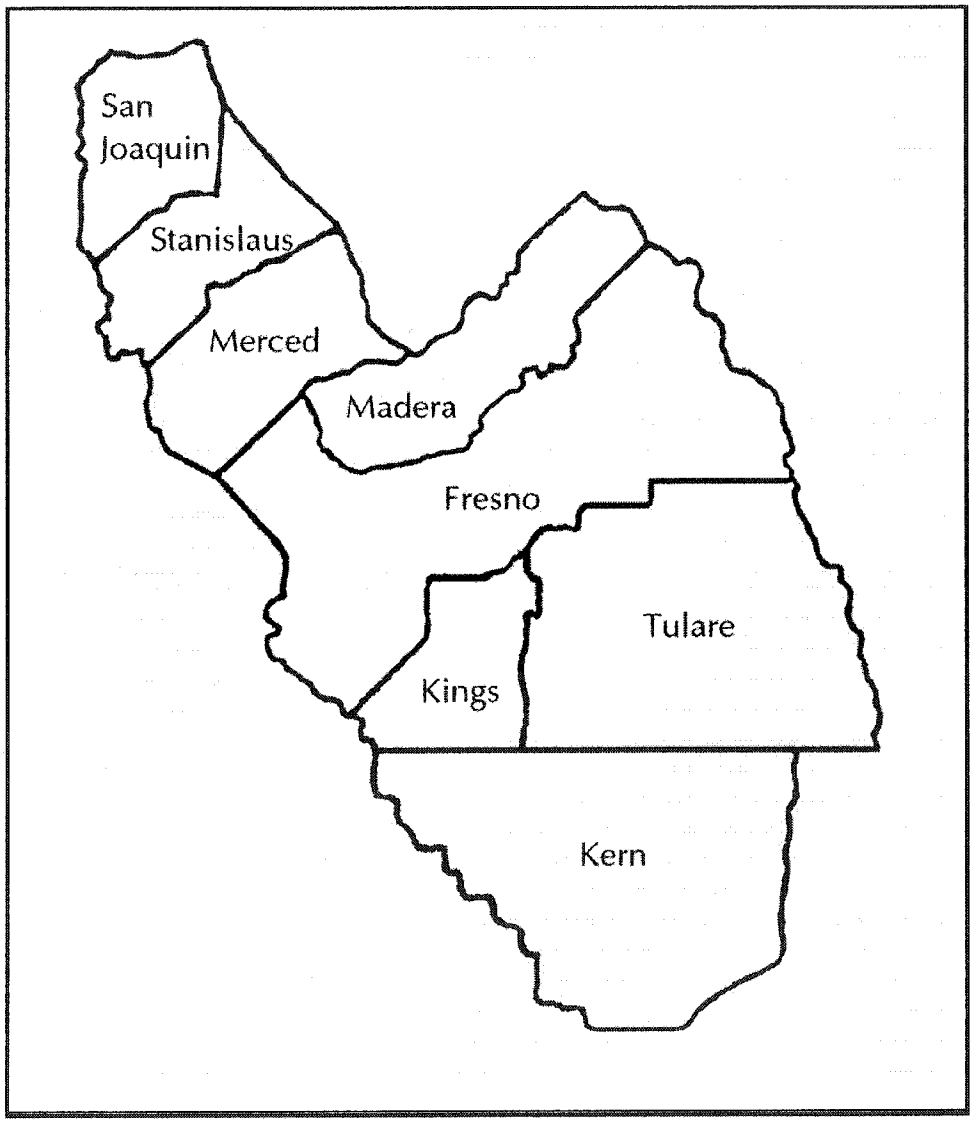
EXHIBIT C

DISTRICT BOUNDARIES



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SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT

FINAL DRAFT STAFF REPORT

December 15, 2005

Rule 9510 – Indirect Source Review (ISR)
Rule 3180 – Administrative Fees for Indirect Source Review

Prepared by: Chrystal Meier, Air Quality Specialist
Jennifer Barba, Senior Air Quality Specialist
Dave Mitchell, Planning Manager
Tom Jordan, Special Projects Administrator
Scott Nester, Planning Director

I. SUMMARY

A. Reasons for Rule Development and Implementation

The San Joaquin Valley Air Basin (SJVAB) is classified as a nonattainment area for the state and federal health based ambient ozone and PM10 standards by the California Air Resources Board (ARB) and the U.S. Environmental Protection Agency (EPA). The SJVAB is currently classified as serious nonattainment for the 24-hour and annual National Ambient Air Quality Standards (NAAQS) for particulate matter 10 microns in size and smaller (PM10), serious nonattainment for the new federal 8-hour ozone standard, non-attainment for the new federal PM2.5 standard, and severe nonattainment for the 1-hour state ozone standard.

Legislation

SB 709, Florez, was passed by the state legislature, was signed by Governor Gray Davis, and codified into the Health and Safety Code in §40604 in 2003. This requires the San Joaquin Valley Air Pollution Control District to adopt, by regulation, a schedule of fees to be assessed on areawide or indirect sources of emissions.

PM10 Plan Commitment.

The San Joaquin Valley Unified Air Pollution Control District (District) adopted its 2003 PM10 Plan on June 19, 2003, which projects attainment of the NAAQS for PM10 at the earliest practicable date of December 31, 2010. As part of its PM10 attainment strategy, the District is required to reduce directly emitted PM10 and the PM10 precursor oxides of nitrogen (NOx). The 2003 PM10 Plan commits the District to develop new rules or amend existing rules to achieve these emission reductions. The Indirect Source Rule (ISR) is one of the commitments contained in the 2003 PM10 Plan

to meet these requirements. The ISR commitment will be implemented through Rule 3180 and Rule 9510. Indirect sources are land uses that attract or generate motor vehicle trips.

Ozone Plan Commitment.

Emission reductions from Rule 9510 are also important for attaining state and federal ozone standards. As an extreme nonattainment area, the SJVAB was required by the Federal Clean Air Act (CAA) to attain the NAAQS for ozone by November 15, 2010. In order to achieve attainment by 2010, the Extreme Ozone Attainment Demonstration Plan contained commitments to reduce a precursor of ozone, NOx and volatile organic compounds (VOC). These commitments included NOx reductions from indirect sources. Although the federal one-hour standard has been revoked, the plan commitments must still be implemented to ensure progress is made toward attaining the new more stringent 8-hour ozone standard. By 2007, the District will be required to prepare a plan to comply with the federal 8-hour ozone standard that is expected to require additional reductions. Additionally, the California Clean Air Act (CCAA) requires the District to adopt all feasible control measures to attain the standards.

Health Impacts of Non-Attainment

Since 1996 there have been more than 800 new scientific studies published that associate the effects of airborne particulates on human health. Overall the studies validate earlier research and confirm the relationship between particulate air pollution, illness, hospitalization and premature death. Infants and children, particularly asthmatic children, are especially sensitive to the effects of fine particulate pollutions. For additional information on particulate health impacts see the 2003 PM10 Plan, Chapter 1.

Ozone research has produced strong evidence that correlates exposure to ozone and adverse health effects. In humans, ozone can irritate and inflame the respiratory tract, particularly during heavy physical activity, which results in heavy coughing, throat irritation, and breathing difficulties. For additional information on ozone health impacts see the District's Extreme Ozone Attainment Demonstration Plan, Section 2.3.

B. District Authority and Limitations

Authority

The primary provision of state law giving the District authority to regulate indirect source emissions is part of the California Clean Air Act legislation adopted in 1988. The provision, incorporated into Health and Safety Code, Section 40716, states that "a district may adopt and implement regulations to … reduce or mitigate emissions from indirect and areawide sources of air pollution." To further clarify, a California Attorney General opinion issued in 1993 states that

> *"a district's regulations may require the developer of an indirect source to submit the plans to the district for review and comment prior to the issuance of a permit for construction by a city or county. A district may also require the owner of an indirect source to adopt reasonable post-construction measures to mitigate particular indirect effects of the facility's operation. Such regulations could be enforced through an action for civil penalties…"*

Indirect source mitigation programs are also consistent with ARB's interpretation of the CCAA all feasible measures requirement:

> *"every feasible measure to mean that, at a minimum, a district consider regulations that have been successfully implemented elsewhere. They should also consider going beyond what has already been accomplished by evaluating new technologies and innovative approaches that may offer potential emission reductions. Further, districts should consider not only technological factors, but also social, environmental, economic (e.g., cost-effectiveness), and energy factors which prevail in the district, along with the resources realistically available to the district to adopt, implement, and enforce the measures."*

Health and Safety Code 42311(g) allows districts to adopt a schedule of fees on areawide or indirect sources which are regulated, but for which permits are not issued, to cover the costs of District programs related to this source. SB 709, Florez, was passed by the state legislature, was signed by Governor Gray Davis, and codified into the Health and Safety Code in §40604 in 2003. This requires the San Joaquin Valley Air Pollution Control District to adopt, by regulation, a schedule of fees to be assessed on areawide or indirect sources of emissions.

Finally, the District has the authority to control indirect sources, defined in the Clean Air Act (CAA §110(a)(5)(C)) as, "… a facility, building, structure, installation, real property, road, or highway which attracts, or may attract, mobile sources of pollution"(emphasis added). This authority comes from the CAA §110(a)(5)(A)(i):

> *"Any State may include in a State implementation plan … any indirect source review program."*

Analysis of Nexus Applicability

The District analyzed the applicability of Nexus requirements for Rule 9510 and 3180. The District's legal council's analysis found that the Rule and supporting documentation likely meets the federal 'reasonable relationship test'. In addition, the analysis found that the California Mitigation Fee Act (CGC §66000 et seq.) does not apply to Rule 9510 and 3180. The analysis similarly found that California Proposition 13 and 218 do not apply to Rules 9510 and 3180.

California's Mitigation Fee Act (CGC §66000 et seq.) establishes authority and limitations on fees or taxes charged, "by a local agency to the applicant in connection *with approval of a development project*." CGC §66001 (a) states, "In any action establishing, increasing, or imposing a fee *as a condition of approval* of a development project by a local agency on or after January 1, 1989, the local agency shall do all of the following," and §66001 (b), "In any action imposing a fee *as condition of approval* of a development project. (Italics added)." The District cannot impose on the local land-use authority and will not be approving or disapproving development projects. As such, the District cannot place 'conditions of approval' on a project. Therefore, the Mitigation Fee Act does not apply to the ISR Rule. The District does not consider the action of approving or disapproving an air quality analysis and assessment of fees as a discretionary action.

Limitations

The District will not be approving development projects, but the air impact assessments associated with development projects. In this approval, the District will assess air impacts, the amount of reduction required by the rule, the amount of applicant-specified on-site emission reductions, and the amount of off-site emissions reductions needed, if any. The District recognizes the land-use authority of SJVAB Cities and Counties and does not have land-use authority itself.

II. RULE DEVELOPMENT PROCESS

As part of the rule development process for this project, District staff held public scoping meetings in Fresno, Modesto, and Bakersfield in October 2003. At the scoping meetings, District staff presented the objectives of the proposed rulemaking project, collected information, and received comments from interested parties, local agencies, the building industry, real estate associations, consultants, and trade associations. The comments received were incorporated into the draft rules and staff report. In March of 2004, the District presented a draft Rule 9510, and several other documents. In June of 2005, the District presented draft Rule 9510 and draft Rule 3180, as well as associated appendices. The comments received were incorporated into the draft rules and staff report. In addition, District staff held a public workshop September 1, 2005 and solicited input on the draft rule and associated documents. The District received comments from interested parties and affected entities. Information obtained throughout this workshop process was used to develop and modify the draft rules and staff report.

Pursuant to state law, District staff is required to perform an assessment of the socioeconomic impacts prior to the adoption, amendment, or repeal of a rule that will have significant air quality benefits or that will strengthen emission limitations. As a part of the District's socioeconomic analysis process, District staff held a Focus Group meeting on August 11, 2005 to assist in the collection of socioeconomic data for the

implementation of the new proposed program. The Focus Group consisted of a limited number of representatives from interested groups.

Final drafts of the proposed rules, staff report, emission reductions analysis, cost effectiveness analysis, on-site emission reduction checklist, socioeconomic analysis, and rule consistency analysis, will be published prior to a public hearing by the Governing Board to consider the adoption of proposed Rules 3180 and 9510. The tentative schedule for the public hearing to consider the adoption of the newly proposed rules by the District Governing Board is for December 15, 2005.

III. BACKGROUND

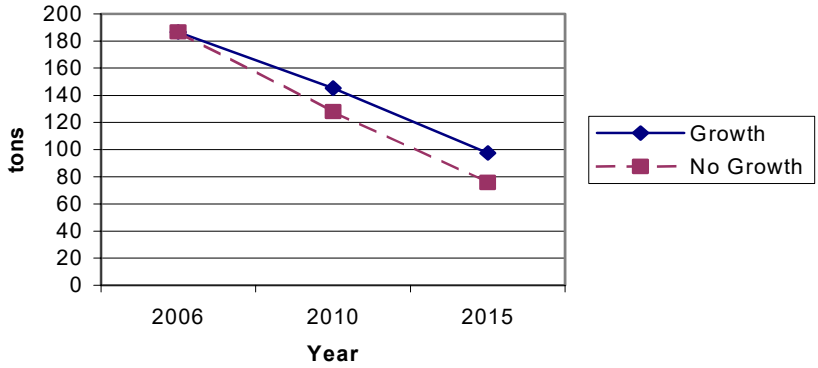
A. Growth and Emissions

The District exceeds state and federal air quality standards for ozone and PM10, despite significant reduction of air pollution from both mobile and stationary sources, primarily because of increases in population and vehicle miles traveled (VMT) in the SJVAB.

Reductions

Federal, state and local efforts have led to approximately 30 percent reduction in smog precursors and a ten percent reduction in PM10 (overall) in the SJVAB since 1990[1]. Significant reductions from stationary sources have been achieved, so that mobile sources now produce 69 percent of all NOx emissions in the District. Today's new cars pollute about 90 percent less than models produced 25 years ago due to California's strict vehicle emissions standards. By 2003, the average new car in California will pollute 75 percent less than 1994 models[2]. Although these standards will continue to greatly improve air quality, large increases in population and driving partially reduce the benefits of cleaner motor vehicles. The following chart shows how much lower the emissions from motor vehicles would be if growth were not to occur.

Figure 1
Difference in NOx Emissions for All Vehicle Types



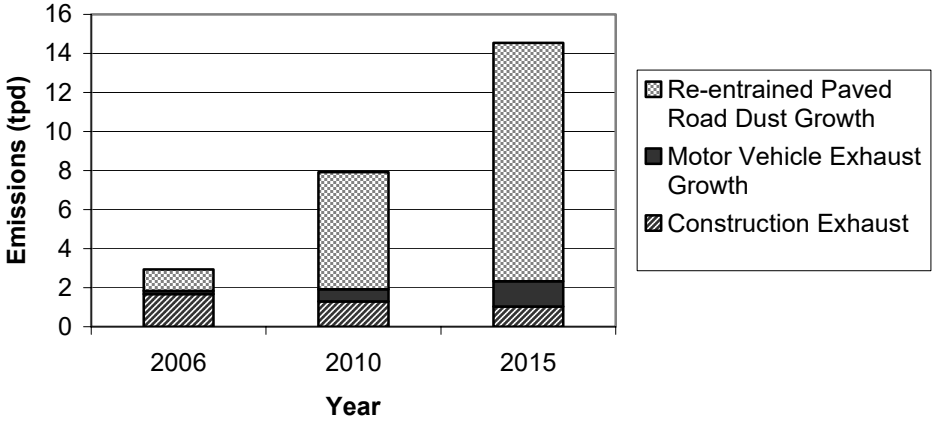
Population Growth

The SJVAB has experienced a large increase in population in the past several decades. The total population in the District increased by 22% between 1990 and 2000, and California's Department of Finance is projecting that the SJVAB will see an overall increase in population of 24% between 2000 and 2010. Each county varies, with the highest expected growth in terms of percentage increase in Madera, and the lowest expected growth in Fresno, but in terms of numbers of people, Fresno is expected to see the largest increase[3]. With increased population there is an increase in emissions from area sources, such as consumer products, fuel combustion, landscape maintenance equipment, etc.

VMT Growth

The total number of vehicle miles traveled (VMT) in the District has increased at a faster rate than population growth. The District witnessed a nine percent increase between 1999 and 2002, and is expecting a 27 percent increase from 2002 to 2010[4]. Entrained and re-entrained paved road dust and corresponding PM10 emissions, increase as VMT increases. The ozone and PM10 precursor NOx, also increases as VMT increases.

Figure 2
PM10 Emissions from Development



Increased Emissions From Growth

The past and projected increases in population, associated development and construction emissions and vehicle miles traveled, and the slower than expected introduction of technological advances in automobile and truck emission controls, have significantly slowed progress toward attainment. The ISR program can reduce and offset some of the growth in emissions and is required for attainment of the federal ozone and PM10 standards by the dates required in ozone and PM10 attainment plans.

B. Existing Indirect Source Programs

The District identified several examples of air pollution agencies in California that are currently reviewing land use projects for indirect source impacts and/or collecting mitigation fees in their districts. Five air pollution agencies have adopted and implemented an indirect source rule or policy. The methods and authority over development projects vary from air district to air district. Brief descriptions of these programs are provided below.

Mendocino County Air Quality Management District (AQMD) outlines their permitting process for indirect sources in Rule 1-200. The rule requires any indirect source to obtain an Authority to Construct (ATC) prior to starting construction. When Mendocino AQMD receives an application, they perform a California Environmental Quality Act (CEQA) determination. The ATC is not issued until a Notice of Determination is completed and filed.

Great Basin Unified Air Pollution Control District (APCD) also has an indirect source permit rule in place, Rule 216. This rule defines indirect sources as a secondary source, which is any structure, building, facility, equipment, installation, operation, or aggregation thereof. The application and associated informational documents are reviewed, and an analysis on expected emissions and air quality impact is performed. Public notice is published, and the general public is allowed to review and comment. The District then considers comments and imposes conditions on the approval of the permit or denies a permit if it is determined that the secondary source will contribute to a violation of any air quality standard. The fees imposed on secondary sources in Great Basin are outlined in Rule 301. Those fees are based on the size of the commercial unit and the number of parking spaces, or the number of residential dwelling units.

Colusa County APCD has an indirect source fee rule, Rule 4.8. The fees are assessed for building permit applicants during the city or county's permit process. The fees are based on the square footage of commercial or industrial projects, or by residential unit. The city or county may retain an administrative fee of ten percent. The fees are used to offset the District's costs, and any excess is used to mitigate air quality impacts.

Placer County APCD has instituted a "Policy Regarding Land Use Air Quality Mitigation Funds." During CEQA review, the APCD assesses total emissions that are estimated to occur during the ozone season from a particular project. The emissions are estimated by utilizing URBEMIS, which will be mentioned later in this staff report. After estimating emissions during the ozone season from URBEMIS, Placer County APCD requires 40% mitigation of a project's impact or to below a significance threshold, either on-site, off-site, by paying a fee, or a combination of those options.

Shasta County AQMD has adopted Rule 3:16, which allows Shasta County to place reasonable conditions on any fugitive, indirect or non-traditional source. At the current time, Shasta County utilizes the rule to mitigate the impact of new residential dirt roads by requiring paving or paying a fee. Their Resolution 84-2 authorizes an in-lieu buy out schedule for road paving, which is currently set at $800 per parcel below 1,000 feet in elevation.

In addition to the above examples, numerous government agencies in the SJVAB have created impact fee programs that have proved useful in drafting this program. The most common are transportation/transit impact fees for cities such as Bakersfield, Lathrop, and Visalia. The City of Stockton and the City of Turlock also have air quality impact fee programs in place.

C. Program Options

The District considered several options for the initial approach to the ISR program. The options were developed to coincide with the normal development process as a condition of application completeness during the environmental review with a city/county, or while compiling conditions of permit approval as part of the cities/counties development processes.

District Permit Program: This option would require permit applicants to obtain a permit from the District prior to paying the city/county's building permit fees. The District could require applicants to provide specific documents needed to determine the emissions from the project using URBEMIS. The District could then require on-site emission reduction measures as conditions of approval of the permit and/or calculate a fee. Under this option, the District could collect the off-site fee prior to issuing the District permit or defer the fee until the city/county issued the building permit.

City/County Review & Administration: This option would allow the city/county to review the emissions generation of an applicant's project, likely using URBEMIS. Under this option, the city/county would collect the off-site fee, if any, and transfer the fee to the District's off-site fund account(s). The city/county could also operate the entire program including expenditure of funds on emission reduction projects if the city/county adopted a program at least as effective at reducing emissions as the District's rule.

District Review & City/County Administration: Under this option, the District would require the applicant to provide documents necessary to perform an emissions generation analysis, likely using URBEMIS. The District would calculate the off-site fee amount based on total emissions and identify credits for specific on-site emission reduction measures included in the project. Prior to authorization of a building permit, the city/county would review the list, check which on-site measures have been incorporated into the project, and collect the fee, if any.

Simple Fee: This option would allow cities/counties to charge an off-site fee based on certain criteria, such as size or number of units. If this option was pursued, most likely the per unit fee would be based on the Institute of Transportation Engineers (ITE) trip generation rates for the different land uses and emissions calculated by URBEMIS. Under this option, the city or county would assess and collect the fee. An appeal program or a rebate program would be a possibility to give credit for any on-site measures that were performed or incorporated into the design of the project.

District Review & Administration: Under this option, the District would require the applicant to provide documents necessary to perform an emissions generation analysis, likely using URBEMIS. The District would calculate a required reduction amount based on total emissions and identify credits for specific on-site emission reduction measures included in the project. Required reductions not achieved by voluntary on-site measures would be achieved off-site through an offset fee. Offsite reductions would be subject to criteria including (but not limited to) being quantifiable and surplus. The District would conduct annual reporting to analyze the effectiveness of the off-site emission reduction program.

The District chose to pursue the 'District Review & Administration' option for several factors. Primarily, the District chose to craft the ISR rules to be compatible with local land-use authorities decision-making processes, and to have the ability to be worked into CEQA documents at the Lead Agencies' discretion. The District includes the options for voluntary on-site emission reduction measures that would allow a reduction in off-site fees.

IV. PROPOSED REGULATIONS

A. Proposed Rule 9510

The purpose of proposed Rule 9510 is to reduce emissions of NOx and PM10 from new development projects. The rule applies to development projects that will seek to gain a discretionary approval for projects that, upon full build-out will include any one of the following: 50 residential units, 2,000 square feet of commercial space, 25,000 square feet of industrial space, 20,000 square feet of medical office space, 39,000 square feet of general office space, 9,000 square feet of educational space, 10,000 square feet of government space, 20,000 square feet of recreational space, or 9,000 square feet of uncategorized space. The rule also applies to transportation projects whose construction exhaust emissions will result in a total of two tons per year of NOx and PM10 combined. However, there are several sources that are exempt. These include transportation projects that meet certain conditions, reconstruction projects that result from a natural disaster, development project's whose primary functions are from District permitted stationary sources. Also, development projects that have a mitigated baseline below two tons per year for NOx and PM10 shall be exempt from the

mitigation requirements of the rule. Anti-circumvention language was added to prevent piecemealing of development projects.

Applicability

Rule 9510 applies to any applicant that applies for a final discretionary approval for a development project which will include any of the following: 50 residential units; 2,000 square feet (sf) of commercial space; 25,000 sf of light industrial space; 100,000 sf of heavy industrial space; 20,000 sf of medical office space; 39,000 sf of general office space; 9,000 sf of educational space; 10,000 sf of government space; 20,000 sf of recreational space; 9,000 sf of space not identified, and; transportation and transit projects where construction exhaust emissions results in a total of 2 tons of NOx and PM10 combined.

Exemptions

Transportation and Transit projects are only subject to the construction emission reduction requirements of the rule. Development projects subject to the rule that reduce their operational emissions to less than 2 tons per year of NOx and PM10 each not subject to the rule's operational or construction emission reductions requirements.

Reconstruction of a development that was damaged or destroyed that is rebuilt to essentially the same use and intensity is similarly not subject the rule's requirements. In addition, development projects whose primary functions are regulated by District permits are exempt. Those stationary source projects are exempted because the projects' primary emissions are from stationary sources that are currently regulated by District rules and permitting requirements.

Application

Rule 9510 requires applicants of new development projects to submit an Air Impact Assessment (AIA) application to the District prior to or at the project's application for a final discretionary approval with a public agency. The application would include the information necessary for the District to perform an assessment, project location and description, an on-site emission reduction checklist, and an assessment by the applicant (if desired). An AIA would consist of inputting project data into an APCO-approved model to estimate emissions, and inputting on-site emission reduction measures that are components of the project design and/or other project specifics to calculate emissions reductions. This will be performed by the District and may be performed by the applicant. The emissions and emissions reduction outputs will be used to calculate the amount of on-site emission reduction is achieved, and what the off-site emission reduction fee would be, if any. Proposed Rule 9510 specifies the use of an APCO-approved model (Draft Rule 9510 Section 3.2), which in most cases will be URBEMIS. In the event that URBEMIS is not suitable for the proposed land use (i.e. does not have ITE trip rate), the District may approve another model, or review and approve off-line with project-specific calculations. If project-specific data is entered into

the APCO-approved model and overrides defaults, the applicant shall document and justify those project-specific inputs.

On-Site Emission Reduction Checklist
The measures listed in the checklist have a known quantification methodology in URBEMIS 8.7. The methodologies can be found in the URBEMIS User's Guide, available at South Coast AQMD's website http://www.aqmd.gov/ceqa/urbemis.html. The on-site emission reduction checklist shall identify which measures have been voluntarily selected by the applicant, the enforcement mechanisms available for those measures, and the reasons for not selecting the remaining measures. All measures selected that are above District or State requirements, regardless of enforcement mechanism, will count towards emission reductions for the project, in accordance with the methodologies in URBEMIS. The measures for the On-Site Emission Reduction Checklist can be found in Appendix C.

On-Site Enhancing Measures
The District has identified several measures that are known to have an air quality benefit. However, at this time they do not have a quantification methodology for project-level emission reductions. These measures still have a beneficial air quality impact. For this reason, the District will maintain a list of 'On-Site Enhancing Measures' and make it available to applicants. There are no requirements on selection of measures from the On-Site Enhancing Measures list. As emission reduction methodologies are determined for these and other new measures, they can be incorporated into URBEMIS. The list is available in Appendix C.

Monitoring and Reporting Schedule
For projects that select on-site measures that do not already have an enforcement mechanism, a proposed SJVAPCD On-Site Monitoring and Reporting Schedule (MRS) will be completed. The District will provide a standard form for the MRS, and the applicant is responsible for completing the MRS. The District will then work with the applicant to finalize the MRS. Draft Rule 9510 §5.4 discusses the components of a MRS.

Fee Deferral Schedule
In addition to the AIA application, the applicant may propose a Fee Deferral Schedule at the time of application or during application review in anticipation of a possible off-site fee, or within 15 days of receiving an off-site fee invoice. The District will provide the Fee Deferral Schedule format. The applicant can choose the schedule of payments, but all fees for a development or phase thereof must be received *prior* to construction of that development or phase thereof. Draft Rule 9510 §5.5 discusses the components of a FDS.

Completeness Finding
The District will have 10 days to determine whether or not the application is complete. After the District deems the application complete, the District has 30 days to approve

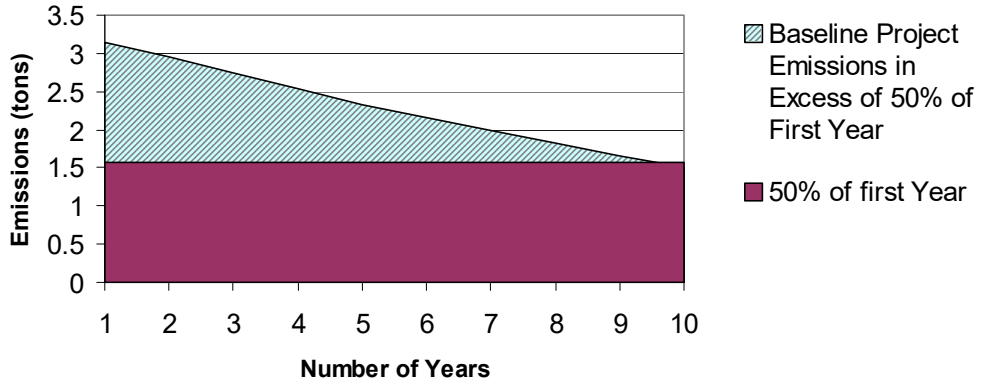
the application and notify the applicant of the estimated fee amounts. In addition, the application and MRS will be submitted to the applicable public agency for voluntary review. The public agency may provide comment at their discretion. The applicant may have the assessment modified to incorporate more on-site measures, if desired. Once the proposed MRS is approved, the District and the applicant shall finalize the MRS. If there are changes to the project that will impact the emissions total or schedule of build-out, the applicant shall notify the District of that change within 60 days of said changes, or prior to the start of project construction, whichever is first. As stated above, if a project mitigates to less than two tons of operational NOx and PM10, it will not be subject to the required emission reductions stated in the draft Rule 9510 §4.3.

Required Emission Reductions

Proposed Rule 9510 would require applicants to reduce NOx and PM10 emissions. The rule is designed to reduce the impact of the development projects to the extent needed for the District to reach attainment of ozone and PM10 standards. The District calculated the level of reduction needed on a per-project basis that would achieve the emission reduction committed to in the PM10 and ozone attainment plans. Draft Rule 9510 Section 6.0, et seq., describes the required emission reductions.

Although the majority of the NOx emissions associated with a project are due to motor vehicles, there is a decline in NOx emissions over time due to ARB's tailpipe controls. The NOx mitigation fee is structured to account for a 50% decline in annual NOx emissions from motor vehicles over ten years. Thus, the rule requires mitigation of the cumulative NOx emissions in excess of 50% of the project's operational baseline emissions (the emissions at the first year of buildout) until the project's emissions reach half of the project's first-year baseline emissions, which is approximately 10 years. This method ensures that a project does not over-mitigate its emissions. Draft Rule 9510 Sections 3.8 defines baseline emissions. Rule 9510 Sections 3.10 and 3.27 define construction baseline and operational baseline, respectively. Rule 9510 Section 3.20 defines 'mitigated baseline'. Project emissions and the required mitigation can be visually represented as follows:

Figure 3
NOx Project Emissions and Reductions Compared to 50% of the First Year Emissions



In essence, the NOx mitigation required for Rule 9510 is represented above by the triangle, which is equal to one third of total project emissions during the first ten years. The applicant can reduce the emissions represented by that triangle by using on-site mitigation measures, by paying the District a fee to fund emission reduction projects off-site, or through a combination of the two. The fee amount would decrease or be eliminated depending on the amount of on-site mitigation incorporated by the applicant into the design of the project.

The PM10 mitigation requirement is different from NOx. Operational PM10 emissions from a project do not decline over time – they remain constant. Accordingly, Rule 9510 will require mitigation equal to half of the emissions for the first year after build-out for 10 years (the same period of time required for NOx mitigation).

Proposed Rule 9510 would also require applicants to reduce NOx and PM10 construction equipment emissions. The rule requirement is to reduce construction NOx emissions by 20% and PM10 emissions by 45% beyond the statewide average. In determining the level of reduction for construction emissions, the District researched what other air districts had set, and found those targets are achievable. There are several options available for controlling NOx and PM10 emissions from equipment used for construction on-site. Options can include, utilizing newer equipment, altering fuel type, modifying an engine, or using exhaust after-treatment devices, to meet the rule requirements. New equipment can provide a high percentage of emissions reductions, depending on the horsepower and the year of the equipment. The reductions are achievable with existing technology with a mix of newer equipment and retrofit devices, and will allow applicants applying moderate effort to pay no fee on construction.

Achieving Emission Reductions

If on-site mitigation measures are chosen by the applicant, the applicant shall submit a MRS to the District for the those on-site mitigation measures that do not have built in enforcement mechanisms. All on-site emission reductions measures that are above District and State requirements will be credited to emission reductions for the project. The MRS will identify enforcement mechanisms, which may include identifying specific funding mechanisms, as well as monitoring, recordkeeping and reporting. The Proposed MRS shall be forwarded by the District to the public agency for review. It is important to note that the percent reduction achieved onsite results in a greater reduction of the NOx fee. While on-site mitigation is not required, the "bigger bang for the buck" is achieved with as much on-site mitigation as possible. For example, when onsite NOx reductions exceed the excess emissions above 50% of the first year's baseline, the NOx fee becomes zero. Additionally, if the onsite measures reduce the NOx and PM10 to less than 2 tons per year each at buildout (baseline), no additional reductions are required. See Table 1 for examples of on-site emission reductions and the associated off-site fee reduction. See Table 2 for a list of simple measures that small projects can achieve, and a list for larger projects. If the emission reductions required by the rule are not fully achieved on-site, off-site fees would be required.

The use of off-site fees is strictly limited to procurement of off-site emission reductions. Absolutely no off-site funds may be used for District staffing or budget. The District shall provide annual reporting per draft Rule 9510 Section 10.4. Annual reports shall include, at a minimum: the total amount of off-site fees received; the total monies spent; total monies remaining; any refunds distributed; a list of all projects funded; the total emission reductions realized, and; the overall cost-effectiveness factor for the projects funded.

Off-site mitigation would consist of paying a fee to fund emission reduction projects for required emission reductions that are not reduced on-site. Rule 9510 contains pollutant-specific fee formulas in Section 7.0, et seq. Appendix B shows how those formulas were developed. The off-site fees are strictly tonnage based. This means that all projects are treated equally, and assessed on the amount of emissions associated with the project. The fee formula applies equally to all applicable projects, accounts for the amount of on-site emission reductions. The fee would be payable in 60 days upon notification of fee amount, unless the applicant has arranged a FDS with the District.

Both the NOx and the PM10 fee formulas include a Cost of Reductions for one ton of that pollutant. These values were determined based on historical grant programs with the district and project fund use, and represents an average value for a range. Appendix E contains a greater description of how those values were derived.

Rule 9510 directs the District to administer the fee use to achieve emissions reductions that the fees were based on, in a cost-effective manner. There are numerous emissions

reduction projects available. Potential projects are as follows: projects currently qualifying for the District's Heavy-Duty Engine Incentive Program including, alternative fuel low-emission school buses, transit buses, and other vehicles, diesel engine retrofits and repowers for trucks, PM efficient street sweepers powered by natural gas, agricultural water pumping engine replacements, locomotive repower/retrofits, electric forklifts, etc. Other potential projects include gross polluter replacement, biomass subsidies, electric vehicle or lawn equipment rebates, truck refrigeration unit plug-ins at distribution centers, woodstove replacement/retirement, video-teleconferencing systems, and telecommuting start-up costs. Potential PM10 reduction programs include paving or treating unpaved traffic surfaces and shoulders and PM10 efficient street sweeper purchases. Some projects will achieve reductions of NOx and PM10. The funds will be managed by a grant-like program and allocated as applications are received. If a sufficient amount of applications to fund projects are not received, the District will consider a directive program that would be approved by the Governing Board. The District recognizes the sensitivity of the geographic distribution of the funds. Any emissions reduction project will provide a localized benefit to the area of fee origin.

Table 1
On-Site Reductions and Associated Operational Off-Site Fee Reductions.

Example Project 150 Single-Family Units in 2006 <u>On-Site Package</u> - Increased Density (from 50 to 30 acres) - No Wood Stoves - Increased Energy Efficiency by 10% - Located near local-Serving Retail - Bus Service Nearby - Traditional Street Design - Sidewalks on Both Sides of Street - Bikelanes on 20% of streets - 10% of units Deed-Restricted Below Market Rate	On-Site Emission Reduction (%)		Operational Off-Site Fee Reduction (%)	
	NOx 12%	PM10 36%	NOx 36%	PM10 72%
Example Project 200 Multi-Family Units 40,000 sf Strip Mall 60,000 sf General Office <u>On-Site Package</u> - No Wood Stoves - Increased Energy Efficiency by 10% - Located near local-Serving Retail - Bus Service Nearby - Traditional Street Design - Sidewalks on Both Sides of Street - Bikelanes on 20% of streets - 5% of units Deed-Restricted Below Market Rate - Commercial and Retail implement Transportation Demand Measures - Commercial and Retail Reduce Parking Supply	On-Site Emission Reduction (%)		Operational Off-Site Fee Reduction (%)	
	NOx 23%	PM10 29%	NOx 68%	PM10 59%

Table 2
Basic On-Site Measures for Small and Large Projects.

Small Projects	Large Projects
All Land Uses: Traditional Street Design Increased Energy Efficiency Include Sidewalks on all streets Locate near mass transit stops Locate near a mix of uses Residential: No Fireplaces or Woodstoves Locate near local serving retail Locate near jobs Non Residential: Reduce parking supply Locate near residences Implement Transportation Demand Measures Include Bike Racks	Same as Small Projects, Plus: All Land Uses: Include a mix of uses Install Bike Paths or Bike Lanes and/or Pedestrian paths

AIA Approval

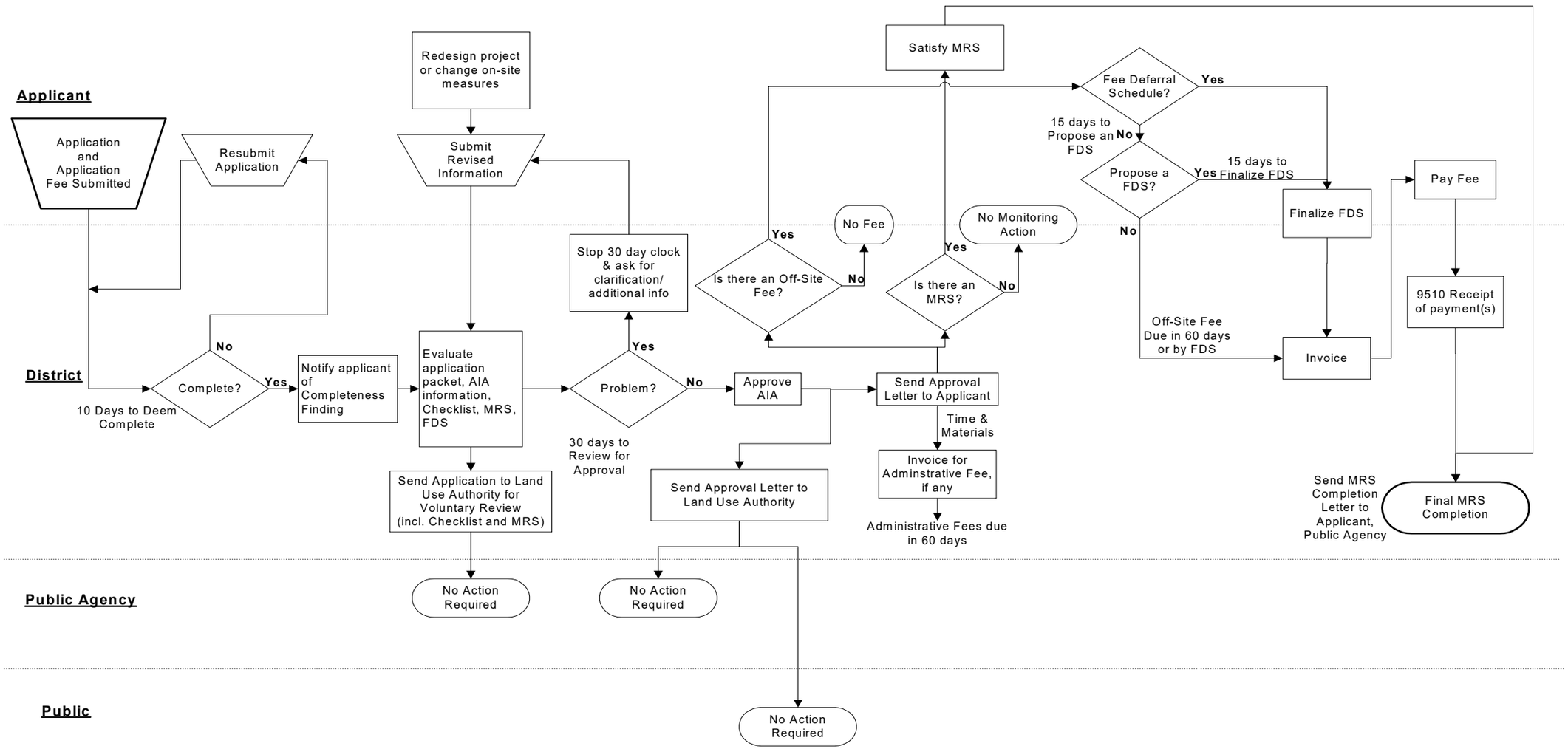
The District will provide a decision on the AIA application within 30 days of finding the application complete. The District will approve the AIA application or disapprove the AIA application. It is important to note that the District will not be approving a permit or other discretionary action as a result of Rule 9510. In addition, the District will not be approving or disapproving the development project itself, but the Air Impact Assessment application for that project. The authority for land-use decisions lies with the local land-use agency. The AIA application approval is ministerial and will not involve conditions of approval.

MRS Maintenance

For those projects that have a MRS with the District, the applicant is responsible for implementing those measures identified. The District is responsible for monitoring and receiving reports for on-site emission reduction measures. The District shall provide a tentative compliance letter to the applicant, public agency and public upon request. Upon completion of the last MRS requirement, the District shall provide a letter of MRS completion to the public agency and applicant. The District shall also make the letter available to the public.

If the applicant committed to on-site construction emission reductions, the applicant is responsible for submitting the construction equipment schedule to the District prior to applying to the public agency for a grading permit. At that time, the District will verify construction emissions for the project. If the on-site emission reductions specified by the applicant are not achieved, the District shall assess and invoice for off-site fees required by the rule.

ISR Application Flow Chart



B. Proposed Rule 3180

The purpose of proposed Rule 3180 is to recover the costs of administering Rule 9510. The proposed rule includes a non-refundable application-filing fee to be paid when an application is submitted to the District. Once an application and the application fee are received, district staff will log the total staff hours spent on the project using the District's automated Labor Information System. The application evaluation fee will comprise those hours at a weighted average labor rate, minus the application-filing fee, so that only the cost of the actual hours spent on the project will be recovered.

Rule 3180 also contains a fee equal to 4% of the offsite emission reduction fees to recover the cost of administering off-site emission reduction projects. The 4% would be payable when the offsite emission reduction fees are collected.

C. Program Implementation - Streamlining

The process identified in Rule 9510 may be completed prior to or concurrent with the City/County permit review process. Specifically, Rule 9510 has been designed for non-interference with the City/County land-use and California Environmental Quality Act (CEQA) processes. However, information from the ISR process may be used by a Lead Agency in environmental documents, at their discretion. Currently, air quality impact assessments are usually required for projects with potentially significant air impacts. Since the NOx and PM10 pollutants will be addressed through ISR, it will not place an added burden to the applicant, and should provide a foundation for or replace the ozone precursor and PM10 emission analysis included in that environmental document. The On-Site Emission Reduction Checklist will help applicants identify quantifiable mitigation alternatives and provide justification for feasibility or infeasibility. The MRS will identify enforcement mechanisms for on-site emission reduction measures that were selected by the applicant.

The District will provide information on the District's website, such as application forms and guidance documents. The District will revise its Guidelines for Assessing and Mitigating the Air Quality Impacts (GAMAQI) document as needed. In addition, the District will work with Cities and Counties on additional measures to facilitate communication and streamlining of the application and review process.

Finally, the ISR program is set up to allow the applicant to provide the AIA. However, the applicant is not required to provide modeling or emissions calculations. The District will prepare the AIA based on the project-specific information provided in the AIA application. The District will not charge a specific fee for modeling, but will invoice for any time and materials beyond that covered by the application filing fee. The application filing fee was estimated based on the average time expected to review and AIA application and conduct emissions calculations/modeling for the project.

D. Use for Environmental Review – CEQA

The ISR program operation is not subject to CEQA requirements. The review conducted on applications for the program is a ministerial action not subject to CEQA, per PRC §21080 *Division Application to Discretionary Projects; Nonapplication; Negative Declarations; Environmental Impact Report Preparation* (b)(1):

> *(b) This division does not apply to any of the following activities:*
> *(1)Ministerial projects proposed to be carried out or approved by public agencies.*

The ISR Program will require an amount of emission reductions from certain development projects subject to the rule. Implementation and compliance with the rule will reduce the cumulative NOx and PM10 impacts of anticipated growth to less than significant because the reductions attributed to this program were identified in two attainment plans as necessary to achieve the applicable standards. CEQA Guidance document § 15064 (h)(3) states-

> 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 requirements in a previously approved plan … which provides specific requirements that will avoid or substantially lessen the cumulative problem (e.g. … air quality plan).

The GAMAQI will be updated with any necessary changes to District CEQA policy and provides a suitable location for changes to defaults and guidance on model usage.

E. APCO- Approved Models

Proposed Rule 9510 specifies the use of an APCO-approved model, which in most cases will be URBEMIS. URBEMIS stands for "Urban Emissions Model." URBEMIS was originally developed by the California Air Resources Board (ARB) as a modeling tool to assist local public agencies with estimating air quality impacts from land use projects when preparing a CEQA environmental analysis. The model was developed to estimate construction, area source, and operational air pollution emissions from vehicles from a wide variety of land use development projects in California, such as residential neighborhoods, shopping centers, office buildings, etc. Originally designed as a 'sketch planning' tool for CEQA project review, it has been continuously enhanced with each new version to provide greater capability and accuracy. URBEMIS is used statewide by air agencies and public agencies and contains air basin-specific information. URBEMIS has substantial flexibility to accommodate project specific travel and vehicle information when available. The model also includes a mitigation component that allows the user to select specific measures and quantify emission reductions associated with the selected measures[5].

The District undertook an extensive effort to ensure that URBEMIS is the right tool for this program. The District hired a consultant, TY Lin International/CCS, to review

available land use emissions models, recommend which model is most suitable for this program, and identify areas of improvement. The consultant recommended URBEMIS as the best tool for ISR for several reasons, including:

- URBEMIS contains the latest California-specific emission factors with motor vehicle emission factors based on EMFAC2002,
- URBEMIS is the only model that contains emissions calculations for PM10
- URBEMIS contains emissions calculations for area sources
- URBEMIS contains motor vehicle activity based on trip rates from the Institute of Transportation Engineers (ITE)
  ITE rates are nationally accepted, are widely used and have withstood legal challenges.
- URBEMIS does not require large amounts of input for an emissions estimate (it is easy to use)
- URBEMIS inputs are objective and quantifiable.
  For Example- For sidewalk coverage, the input fields include percent of streets with sidewalks on both sides and the percent of streets with sidewalks on one side.
- URBEMIS contains the flexibility to modify defaults if project-specific information is known.
- URBEMIS is free.

TY Lin International/CCS made recommendations on the improvements to the area-wide mitigation component and hired a sub consultant, Nelson/Nygaard, to make detailed recommendations for improvements to the operational mitigation component. Nelson/Nygaard researched the latest studies on land use, what design features consistently reduced vehicle activity (and consequently emissions) in the real world and by how much. Nelson/Nygaard then created emissions reduction calculation methodologies based on those studies and submitted a report to the District. The District then initiated an extensive statewide effort to update the URBEMIS model with the resulting recommendations. The District, TY Lin International/CCS, and Nelson/Nygaard met with the URBEMIS working group, which is a group of representatives from air districts throughout the state of California, as well as the California Department of Transportation (CalTrans), and presented the recommended changes to URBEMIS. Once the URBEMIS Working Group made recommendations that were incorporated into the report, the report was then peer reviewed by several well respected researchers in the field of land use and travel activity. The peer review comments were incorporated into the report and approved. The final report was incorporated into URBEMIS 8.7, released to the public, and is included in this document as Appendix D.

The URBEMIS model would require, at minimum, the following inputs: type of land use, number of units, and any mitigation measures selected. However, there are numerous defaults that can be modified if more precise information on the project is available.

These can include: trip rate(s), emission factors and usage rates for specified area source emissions, year of project use, fleet characteristics in terms of percentage of and fuel use of vehicle types, trip speeds, trip lengths, trip percentages, ambient seasonal temperatures, variable start percentages, and emission reduction inputs. Emission reduction inputs can include increased density, zero hearth options, percent energy efficiency beyond Title 24, percent of landscape equipment electrically powered, number of housing units and study area employment (job to housing ratio), the presence of local serving retail, the number of transit stops, intersections per square mile, percentage of streets with sidewalks, percentage of bike lane coverage, percentage of housing units below market rate, numerous transportation demand management measures, number of actual parking spaces, and controls on fleets. Based on those inputs, the model calculates total area source emissions, total vehicle emissions, total overall emissions and total reduced emissions in terms of lbs/summer day, lbs/winter day, or tons/year.

In addition to the benefits of URBEMIS, this model was chosen over other potential models for various reasons. A different option was to use transportation models used by the COGs for conformity purposes. Transportation models, while appropriate for their current use, are not appropriate for ISR for the following reasons:

- There is not one model used valley-wide.
    - *There are eight different models. Some cover only one county, others cover multiple counties.*
- The eight models do not use the same modeling basis, making for inconsistencies of software if multiple models are used.
- The analysis requires subjective inputs.
- Certain trips are not accounted for in the transportation model.
  For example- While URBEMIS will account for the very-short trips associated with new gas stations (passby trips), transportation models do not include the short drives into gas stations.
- The transportation models include deviations from known trips.
    - *They do not account for 10-15% of trips on Arterial Streets*
    - *They do not account for 15-35% of trips on Collector Streets*
    - *Trips on local streets are not included*
- The trip types come from old, 1970's data that is only periodically updated.
- Does not include new area emissions, which are wholly attributable to new developments.
- Transportation modeling requires many inputs, and is not easily used by an average applicant.
- Transportation modeling is not free

It is the view of the District that URBEMIS is the best tool available. As stated above, URBEMIS has a solid, proven basis (EMFAC2002, ITE, peer-reviewed quantification), is flexible and allows changes to various calculation inputs when project-specific information is known. Comments received by the District pointed out that URBEMIS

contains some information that may need refinement. Particularly, the fleet mix and the on-road silt-loading factor. The District agrees that new, more accurate information should be incorporated into URBEMIS when that information becomes available Concerning the on-road silt-loading factor, the District concurs with the air basin specific factor received in comments and will be recommending using the factor of .031 for analyses prepared for the rule and will incorporate that factor into the San Joaquin Valley portion of URBEMIS. To remedy the fleet-mix issue, the District has hired a consultant (VRPA) to investigate and recommend new land-use specific fleet mixes. In addition, the District is participating in a statewide effort to improve the construction portion of URBEMIS. In the interim detailed guidance and sample construction inputs will be provided by the District to assist applicants.

F. Other Issues

The 2003 PM10 Plan also included a one-ton per day PM10 emission reduction commitment for Metropolitan Bakersfield by 2010. That commitment is being addressed through a "task force" composed of staff from the City of Bakersfield, Kern County, and the District. The task force is identifying the projects that would provide the greatest impact on ambient PM10 levels in the area.

Input from the public during the scoping meetings and from written comments suggested that the proposed indirect source rules should include existing sources as well. There are several types of land uses that generate significant trips that could be considered: event centers, distribution centers, and regional shopping centers. The District has performed some preliminary research on distribution centers and warehouses. There are well over 2600 distribution facilities in the SJVAB, with an average size of 800,000 sq ft, according to District estimates. The District will continue to consider regulations on these types of sources for some time in the near future.

The District will work to coordinate the ISR program with the public agency land-use approval process. The District will be coordinating review with the public agency through-

1. Making the ISR process concurrent with or prior to the public agency process;
2. Forwarding a copy of the AIA application (upon determination of completeness), a copy of the AIA approval package (upon approval), and a letter of Final Compliance to the public agency for voluntary review and commenting;
3. Communicating with the public agency when necessary during the application review process; and
4. Incorporating ISR AIA data into the District's CEQA commenting process.
5. Providing a letter of project status to the public agency upon request.

In addition, the application and approval will be made available to the public.

V. EMISSIONS AND EMISSIONS REDUCTIONS

The District committed to reduce the PM10 and NOx emissions from indirect sources in the 2003 PM10 Plan and the Extreme Ozone Attainment Demonstration Plan, which could be achieved by on-site emission reduction and/or emission based fees that would be used to fund off-site emissions reduction projects. Both plans contained emissions reduction commitments from growth that were necessary to demonstrate attainment. Appendix B contains an estimate of total emissions and emissions reductions expected from new development projects by 2010, which are 5.4 tons per day of NOx and 5.8 tons per day of PM10.

The ISR program is expected to achieve the emission reductions committed to in the PM10 and ozone plans. However, the District realizes that those emission reductions may not be achieved for a variety of reasons. If the emission reductions are not achieved because growth becomes less than that forecast in the emission inventories, the District will not need to adjust the program to make up the reductions. This is because the need for emission reductions was based on the projected growth. If growth occurs at a level less than that predicted, then the level of emission reductions needed will similarly be reduced. However, if other circumstances are encountered and the emission reductions are not achieved, the District will have to make a SIP revision, possibly substituting another measure for the remainder of emission reductions required or adjusting the off-site mitigation fee program to obtain greater reductions.

The District based its estimate of emission reductions achievable by the ISR program on total growth in the emission inventory that is subject to the rule accounting for rule mitigation requirements, exemptions and applicability thresholds. The District considered using a bottoms-up estimate of emissions based on the number of projects and units expected each year. Statistics on residential development were available for this type of analysis; however, due to the wide variety of uses and limited data on the numbers and sizes of non-residential uses, a comprehensive bottom-up analysis was not feasible.

VI. COST EFFECTIVENESS – OFF-SITE EMISSION REDUCTION PROJECTS

District staff has prepared a draft cost effectiveness analysis of the estimated costs of emission reductions required in the proposed Draft Rule 9510. The cost effectiveness analysis is attached to this staff report and labeled Appendix E. This analysis details the types, quantities and costs of projects available for funding from the off-site fees collected by the District, and provides an example mix of projects to demonstrate how the fees may be used. The District shall use 100% of the off-site funds received for

emission reduction projects. No off-site funds may be used for the District's budget, staffing or other administration.

Off-Site fund use accountability is written into the Draft Rule 9510. The District shall provide annual reporting per draft Rule 9510 Section 10.4. Annual reports shall include, at a minimum: the total amount of off-site fees received; the total monies spent; total monies remaining; any refunds distributed; a list of all projects funded; the total emission reductions realized, and; the overall cost-effectiveness factor for the projects funded. Annual reports shall be made available to the public.

For off-site emission reduction projects, the duration of the contract will vary depending on the project. Some contracts will be completed upon installation, while others may require reporting for 5 years or longer. For example, a road-paving project would have a contract that is completed upon installation, whereas an engine contract typically contains a 5-year reporting requirement.

VII. SOCIOECONOMIC IMPACT ANALYSIS

Pursuant to state law, the District is required to analyze the socioeconomic impacts of any proposed rule or rule amendment that significantly affects air quality or strengthens an emission limitation. The provisions of Draft Rules 9510 and 3180 will reduce PM10 and NOx, emissions by requiring pollutant specific mitigation through measures incorporated in to the design of a new project, and/or paying a fee to fund emissions reduction projects; therefore, District staff solicited volunteers from affected entities to participate as members of the socioeconomic focus group for these rules. District staff held a focus group meeting, to identify the socioeconomic impacts of the draft rules. District staff will use the socioeconomic analysis to further refine the draft rules. The socioeconomic report was released to the public for comment and review and was presented at the final workshop. The report was incorporated into this staff report as Appendix F. The final socioeconomic report will be presented to the District Governing Board at the public hearing for adopting the proposed rules.

The implementation of ISR fees may have socioeconomic impacts on certain development types that are summarized below and described in the socioeconomic impact analysis. Although impacts may occur, the program has been designed to minimize economic impacts and to allow options to developers that minimize their fees. However, the District recognizes that some businesses and individuals will be impacted, but believes that the impact is justified by the benefits of the rule to the Valley. The rule is designed to reduce emissions of pollutants contributing to poor air quality in the entire air basin and will provide a health benefit through its implementation. The District is required to attain federal air quality standards by specific dates with reductions contained in District attainment plans. These plans rely on reductions from ISR that if not achieved will result in sanctions that would cause a far greater impact to the Valley's economy than

implementing the rule. If ISR were not adopted, rules on other industries with as great or greater economic impacts would still be required.

A. RESULTS

SINGLE-FAMILY RESIDENTIAL. The Socio found a less-than-significant impact on Single-Family Residential project applicants for 2006, 2007 and 2008. The Socio found a minor increase in the price Single-Family Residential buyers would find in the average Valley City for 2006, 2007 and 2008. See Appendix F Tables 19-21 and associated text.

MULTI-FAMILY RESIDENTIAL. The Socio found a less-than-significant impact on Multi-Family Residential project applicants for the average Valley city for 2006, 2007 and 2008. The Socio found a minor increase in the price Multi-Family Residential buyers and renters would find in the average Valley City for 2006, 2007 and 2008. Multi-family residential development in small and medium sized bedroom communities is projected to experience a significant impact in 2007 and 2008. Small rural/farming communities could have a significant impact in 2008. The reason for the greater impact in these particular areas is the lower overall cost of housing in those areas making the fee a higher percentage of the housing cost. This impact is mitigated to some extent by the rule threshold of 50 units and 2 tons per year of emissions. Many projects in those areas are small. Some locations qualifying as bedroom communities are seeing very rapid growth in housing stock that is as expensive or more expensive than in the large urban areas. This trend may also limit the areas of impact. Due to the ability of the developer to pass on or absorb at least part of the cost and for consumers to amortize the cost in a mortgage or through rents, the District believes that this impact is not significant. See Appendix F Tables 23-25 and associated text.

INDUSTRIAL. The Socio found a less-than-significant impact on industrial project applicants for 2006 and 2008. The Socio found a less-than-significant impact on industrial renters in 2006 and 2008. See Appendix F Tables 28 and 29 and associated text.

OFFICE. The Socio found a less-than-significant impact on office project applicants for 2006 and 2008. The Socio found a less-than-significant impact on office renters in 2006 and 2008. See Appendix F Tables 28 and 29 and associated text.

COMMERCIAL. The Socio found a less-than-significant impact on industrial project applicants for 2006, but a significant impact in 2008. The Socio found a less-than-significant impact on commercial renters in 2006, but a significant impact in 2008. Commercial uses with a small footprint but high trips due to customer turnover experience the greatest impact. Commercial and other development types may reduce their fees with on-site measures. Many measures are available that may be required for other purposes and add no cost to the development, but can add amenities and value to the project. This would provide a mechanism to reduce the impact of the fee. Overall, the District concludes that with mitigation options and the ability to pass costs

on to project tenants, this impact should not be considered significant. See Appendix F Tables 28 and 29 and associated text.

PROSPECTIVE HOME-BUYERS AND SMALL BUSINESSES. Socio Section 6.4 addresses the impact on small business and includes a discussion of potential disproportionate impact on home-buyers and small business. The socio concludes that the increased costs due to the fees would have a temporary impact while the consumer responds to the costs with changes in purchasing decisions or increases income.

VIII. ENVIRONMENTAL IMPACTS

Pursuant to state law, District staff has conducted an initial study to identify any possible environmental impacts of this program and prepared a proposed negative declaration for draft Rules 9510 and 3180. The 30-day comment period for the proposed negative declaration ends on December 5, 2005. The District Governing Board will consider approving the negative declaration at the December 15, 2005 public hearing for the rules.

IX. RULE CONSISTENCY ANALYSIS

Pursuant to the California Health and Safety Code, Section 40727.2, District staff has prepared a rule consistency analysis of the program and is included in this staff report as Appendix G. The Rule consistency analysis shows the rule is non-duplicative, and consistent with existing District, state and federal rules.

X. REFERENCES

1. California Air Resources Board, Emissions Inventory, www.arb.ca.gov.

2. California Air Resources Board, *Status Report,* 1994

3. California Department of Finance, Population Projections, www.dof.ca.gov/HTML/DEMOGRAP/projco.pdf

4. 2003 PM10 Plan, Appendix B

5. South Coast AQMD website, Frequently Asked CEQA Questions, http://www.aqmd.gov/ceqa/faq.html

APPENDIX A

Responses to Comments on Proposed Rule 9510 (Indirect Source Review) and Rule 3180 (Administrative Fees for Indirect Source Review)

December 15, 2005

SUMMARY OF COMMENTS AND RESPONSES ON THE RECEIVE AND FILE OF DRAFT RULE NOVEMBER 17, 2005

Public Comment
Date November 5, 2005
Multiple Letters- Signed by

Kaaren Page	Betty Sanderson	Theresa Stump
Stephen Page	J Wesley Sanderson	Bill Moffit
Warren A. Minna	Georgette Theotig	Deb See
Nancy Faisselman	Isabel Stierle	Rosmarie Grabski
Nany Bacon	Li?? Wa???	Monte Harper
		Emid Harper

As a resident of the San Joaquin Valley, I am very well aware that the Valley is rated as '*extreme non-attainment*' when it comes to meeting federal air quality standards. We must take bold steps to clean up our air while allowing reasonable housing growth.

The best way to reach this goal is through your proposed Indirect Source Rule Package (Rules 9510 and 3180) that the District is sponsoring. This is accomplished two ways: allowing housing and commercial developments to be designed to reduce air pollution and to charge a fee for that air pollution that cannot be eliminated, with the fees being used to fund other projects that reduce air pollution.

1. **COMMENT:** I support a strong version of the rule that offers a real chance to improve the air in the valley and at the same time allow developers to use innovative design features to reduce our dependency on automobile transportation.

   Our lungs, our health, and our children deserve no less.

   RESPONSE: Comment Noted

California State Department of Housing and Community Development:
Date: November 29, 2005

Thank you for the continued opportunity to comment on the San Joaquin Valley Air Pollution Control District's (District) proposed Draft Rules 9510 and 3180 (Rules). The Department has reviewed the draft Rules as revised November 17, 2005 and the District's "Response to Comments" found in Appendix A of the draft Rules. The Department appreciates the District addressing some of the issues raised in the

comment letters of July 25, 2005 and September 15, 2005. However, as discussed below, the Department continues to have a number of concerns with the revised draft of the Rules.

Proposed Rule 9510 does not comply with the "clarity," "consistency," and "nonduplication" requirements set forth in Health and Safety Code Section 40727, and an adequate nexus has not been established to support these rules. In addition,

2. **COMMENT: The proposed inclusion, followed by the deletion of, an exemption for housing directly assisted by federal, State, or local government is of particular concern.** The District's response to comment #92 indicated the government supported housing exemption (affordable housing) was removed "based on the District's internal analysis of applicability and impacts….". Although affordable housing qualifies as a mitigation measure, it is unclear how the URBEMIS model assesses and credits affordable housing. Affordable housing is often a catalyst for the type of transit-oriented development that is encouraged by the District's policy recommendations as described in District's *Air Quality Guidelines for General Plans*. According to the Air Resources Board's study, *The Land Use – Air Quality Linkage*, densities found in affordable housing developments are generally high enough to provide the ridership needed to support transit service (page 15).

   RESPONSE: As stated in the November 17th Staff Report (p. 11) and in the September 1, 2005 Response to Comments, the methodology for emission reduction is detailed in the URBEMIS User's Guide (http://www.aqmd.gov/ceqa/urbemis.html). Basically, the trip reduction benefit of below-market-rate housing will be credited to a development that includes this feature. In addition, Appendix D- Recommended Changes to URBEMIS details the research supporting the emission reduction and the methodology for the reduction on pages D-38 through 39 and includes the following statement:

   … Thus, the total reduction is as follows:

   *Trip reduction = % units that are BMR * 0.04*

   A development with 20% BMR units would thus gain a 0.8% reduction. A development with 100% BMR units would gain a 4% reduction.

3. **COMMENT:** There is also insufficient information in the draft Rule analyses to discern whether and to what extent affordable housing developments, despite qualifying for some mitigation credits, might be subject to fees for off-site emissions reductions. This has the potential to render projected affordability levels or the projects themselves, infeasible as proposed. Affordable housing development proposals, are already subject to significant development constraints despite their acknowledged benefit potential relative to air quality.

Applying Rule 9510 to these projects would subject them to an additional and ambiguous permit requirement. This effect would be inconsistent with State laws which require affirmative actions to promote affordable housing opportunities. Accordingly, the Department urges the District to reinstate the exemption for housing projects in which at least 49 percent of the units are reserved for lower-income households and which are directly assisted by federal, State, or local government.

RESPONSE: The staff report and socio-economic impact analysis recognize that any fee would increase costs, but that market forces so far outweigh the effect of the fee that they render it insignificant. The District disagrees that the rule is contrary to state law promoting affordable housing. Rule 9510 is being adopted to reduce the air quality impacts of new development, including housing projects serving all market segments. Since the rule contains provisions to reduce potential fees for developments that contain affordable housing, it encourages affordable housing to be included in more projects.

4. **COMMENT:** Having deleted the exemption, the District must now amend those documents that were based on the exemption being part of the project. This includes the CEQA initial study which describes the project as exempting some sources including “certain low-income housing projects” (page 4). By removing the exemption, the District has redefined the project.

RESPONSE: The District does not concur that removing the low-income housing exemption substantially changes the project analyzed in the CEQA initial study. First, the socioeconomic impact analysis that is the basis of the initial study discussion on impacts on housing and population indicated that low-income households were already unable to afford new homes and rental units affected by the rule. The revised socioeconomic impact analysis was based on the latest rule version and arrived at the same conclusions regarding impacts with and without the exemption. Therefore, the impacts examined in the initial study are also the same. Second, by removing the exemption for "certain low-income housing projects", the language of the Rule would result in a slight reduction in air quality impacts, as some additional housing projects would now be subject to the Rule. The change in language does not substantively affect the analysis of environmental impacts. On the contrary, the language change would result in an environmental benefit.

5. **COMMENT: Although the District does have the authority to implement regulations to accomplish the reduction or mitigation of emission from indirect sources, it does not have the authority to operate a permitting system for the operation or construction of these sources and has failed to show the required nexus.** The proposed Rules would impose an (off-site) fee

on development projects which are unable to incorporate on-site measures adequate to reduce indirect emissions to a specified level. The fee is determined via an application (Air Impact Assessment Application (AIA)) which is required to be approved by the District before a final discretionary permit is issued for the construction of the development project. Unless the AIA application is submitted, the project cannot go forward without the developer incurring civil penalties. In such circumstances, contrary to the assertions of the staff analyses, a fee is being imposed as a condition of approval of a development project. A 1993 Attorney General Opinion explained that "the Legislature has recognized indirect sources as essentially different from other sources of pollution and consequently has made them exempt from ordinary permitting requirements" (Ops. Cal. Atty. Gen. 92-519). The opinion goes on to clarify that "permits may not be required of indirect sources under either the general permitting authority (Government Code Section 42300) or the special permitting authority provision relating to the attainment of State ambient air quality standards (Government Code Sections 40910-40926). Further, the imposition of fees as a condition of permit approval is subject to the nexus requirements of Government Code Section 66000 et. seq. and the District has failed to show the "reasonable relationship" nexus as required.

RESPONSE: The author is mistaken about the nature of the ISR program and how the rule is designed to be implemented. The rule is consistent with the Attorney General opinion cited in that it does not require permits. Under the commenters theory, any fee is a de facto permit. Developers are subject to civil penalties if they fail to follow any District regulation. For example, failure to comply with Regulation VIII – Fugitive Dust Rules during construction or Rule 4901 – Residential Wood Combustion fireplace installation limitations may result in civil penalties. Similarly, failure to comply with the mitigation requirements of Rule 9510 may result in civil penalties, but cannot stop a development from being constructed. The District will not be implementing a permitting system for the operation or construction of projects. The ISR program will not be a permitting system, have discretionary actions, or have any land-use authority. The author states:

> The fee is determined via an application (Air Impact Assessment Application (AIA)) which is required to be approved by the District before a final discretionary permit is issued for the construction of the development project.

However, this is not the case. The application is required, but is not tied to the *issuance* of a discretionary permit. The purpose of the application is to provide information necessary to determine if a fee must be paid and the amount of the payment if one is required. The application must be submitted concurrent with the *application* to the local land use authority for a final discretionary permit. This timing is to allow the applicant to take credit for reducing project air impacts during the local agencies approval process. The District does not require completion *prior to* issuance of a permit by the local agency, nor does the District

have the authority to stop the project from being issued a final discretionary permit by the local agency.

The District's action is ministerial, and does not involve conditions of approval. All projects are subject to the same requirements, and must fulfill the requirements. The District does have the authority to enact penalties for non-compliance; however, this does not make the actions of the District discretionary or make the program a permitting program. Further, the fee is only enacted if a project is, "unable to incorporate on-site measures adequate to reduce indirect emissions to a specified level". The required emission reduction applies to all applicable projects equally, and must be satisfied. The project applicant has the *option* to reduce the fee through on-site measures. There is no discretion on the part of the District. The author's statements on applicability of laws regulating permitting actions do not apply to the ISR program, as it is not a permitting program.

The District continues to assert that Rule 9510 is not subject to Government Code Section 66000 et. Seq. Regarding the reasonable relationship requirement, the District has clearly made this demonstration. The air quality impacts of construction, area source and indirect source emissions from development projects and the methods used to quantify these impacts are clearly identified in the staff report and are undeniably contributing to the air basin's serious air quality problems. The emission reduction projects that will be utilized to mitigate a portion of these impacts are also clearly identified. Sufficient checks and balances are in place in the rule through an elected Governing Board and EPA oversight of this state implementation commitment to ensure that the mitigation funds will be used effectively on the impacts created by the development projects.

6. **COMMENT: The consistency analysis (Appendix G) fails to include analysis and findings relative to other State laws and regulations, including directly related provisions of the California Environmental Quality Act (CEQA).** The District already has existing procedures for permit review pursuant to CEQA, which are put forth in its "Guide for Assessing and Mitigating Air Quality Impacts". Proposed Rule 9510 should be subjected to a rule consistency analysis with this guide, as well as requirements for air quality analysis and mitigation pursuant to CEQA which is undertaken in the permitting process of local governments. The Department remains concerned about the duplication of assessment and potential duplication of mitigations pursuant to CEQA and the proposed Rule 9510. The District's decision to modify its CEQA handbook *after* the adoption of the proposed rules (G-2) is inconsistent with the requirement of Health and Safety Code 40727.

RESPONSE: The Guide for Assessing and Mitigating Air Quality Impacts (GAMAQI) identified by the author is a voluntary guidance document for use by lead agencies addressing air quality in CEQA documents and is in no way regulatory. Under CEQA, for most development projects the District is a commenting agency. As a commenting agency the District provides comments to the Lead Agency to the following aspects: the potential significance of air quality impacts of a project; applicable District Rules; potential mitigation measures; and if an analysis is provided to the District, the adequacy and accuracy of that analysis. Requesting comments from the District is voluntary by the Lead Agency, and comments and mitigation measures suggested by the District are non-binding. CEQA requires *disclosure* of environmental effects for discretionary actions by a public agency, and requires reasonable and feasible mitigation of effects that are determined to be significant. Nowhere within CEQA can the District require a reduction in emissions from a development project. Voluntary CEQA commenting is not parallel to an ISR program. Mitigation required by CEQA is not the same in intent, requirements, or in practice with the emission reduction requirements of the ISR program. ISR is not duplicative of any mitigation required by the lead agency since the rule provides for credit for all measures and features included in the project that reduce emissions when project emissions are calculated. The District disagrees that modifying the District's GAMAQI after adoption is inconsistent with the California Health and Safety Code (CH&SC) Section 40272 for all the reasons stated above.

CH&SC Section 40272(b)(4) states:

> **"Consistency" means that the regulation is in harmony with, and not in conflict with or contradictory to, existing statutes, court decisions, or state or federal regulations.**

CH&SC Section 40272(b)(5) states:

> "Nonduplication" means that a regulation **does not impose the same requirements** as an existing state or federal regulation unless a district finds that the requirements are necessary or proper to execute the powers and duties granted to, and imposed upon, a district.

CH&SC Section 40727.2(a) states:

> **…** the district shall identify all existing **federal air pollution control requirements,** including, but not limited to, emission control standards constituting best available control technology for new or modified equipment, **that apply to the same equipment or source type as the rule or regulation proposed for adoption or modification by the district…**
>
> ***And***
>
> **…**The analysis shall also identify **any of that district's existing or proposed rules and regulations that apply to the same equipment or source type, and all air pollution control requirements and guidelines that apply to the same**

equipment or source type and of which the district has been informed pursuant to subdivision (b)

CH&SC Section 40727.2(h) states:

Nothing in this section limits the existing authority of districts to determine the form, content, and stringency of their rules and regulations. In implementing this section, it is the intent of the Legislature that the districts retain their existing authority and flexibility to tailor their air pollution emission control requirements to local circumstances.

The District has performed the analysis required by CH&SC 40727 et. seq, in Appendix G: Rule Consistency Analysis. First, no person has identified any existing federal or state requirement or guideline that applies to the same type of source that the District is proposing to regulate per CH&SC Section 40272(b). Second, the District identified few District rules for consistency analysis, and no US EPA rules or guidelines that apply to development projects in terms of New Source Performance Standards, Control Technique Guidelines, Maximum Achievable Control Technology or National Emission Standards for Hazardous Pollutants.

The District has found that the proposed ISR program is consistent with existing District rules, and has determined that there is no conflict or duplication with existing state law and CEQA.

7. COMMENT: The direct and indirect costs imposed by the Rules on the residential development process will result in increased housing costs. The preparation of the AIA (which not only calls for a detailed Urban Emissions analysis (URBEMIS)), but also for ongoing monitoring of selected mitigation measures), is likely to result in increased costs. In some instances, despite the assessment of the socio-economic analysis, the mitigation fees could have a detrimental impact on the economic feasibility of developers of market-rate mixed-use and workforce housing. These types of developments are already financially burdened since they typically have a more difficult time obtaining financing and quickly bringing a project into the market place.

RESPONSE: The cost of the preparation of a typical AIA is included in the application-filing fee— $400 for residential projects and $600 for non-residential projects, regardless of number of units. Worst case for a 50 unit residential subdivision would be $80 per housing unit. The modeling required for an AIA will be done by the District if not provided by the applicant. Monitoring of mitigation measures selected will only occur for measures that are not already required by another public agency, and the costs will be born out of the administrative fees from the rule (assessed at 4% of the off-site fee amount). Therefore, there are no costs additional to those discussed in the Socioeconomic Analysis.

8. **COMMENT: By proposing to control emissions through fees that will be used to fund other projects, the District would be treating housing developments as direct sources when they are in fact indirect sources**. The CEQA initial study for the proposed rules describes the project's purpose as being to "reduce emissions of NOx and PM 10 from new development projects" (page 4). If the fees collected under the Rules are a mechanism to control emissions from new development projects, then the District is adopting a market-based incentive program and is subject to the Economic Incentive Program (EIP) requirements, as was asserted by the Environmental Protection Agency (EPA) in their comments. Market-based programs may only be used for direct sources. "An EIP is a regulatory program that achieves an air quality objective by providing market-based incentives or information to ***emission sources*** (emphasis in original). By providing information or flexibility in how sources meet an emission reduction target, an EIP empowers sources to find the means that are most suitable and most cost-effective for their particular circumstances. By setting a price on pollution and pollution reductions through a fee-based approach or a trading program, some sources can realize an economic reductions for less than the cost imposed by a fee (*Improving Air Quality with EIP, EPA-452/R-01-001, January 2001 at 23)*. The proposed Rules allow a developer to either use the on-site emissions controls or to pay a fee and thus "realize an economic gain or avoid additional costs by making the reductions for less than the cost imposed by a fee." The District has failed to show the proposed Rules are consistent with EPA's EIP guidance and is treating new developments as direct sources.

RESPONSE: The District disagrees that EIP guidance applies. Although there are similar elements in EIPs, Rule 9510 contains both voluntary elements (onsite mitigation) and mandatory elements (mitigation fees) that preclude the use of the EIP guidance in its entirety. Still, the rule meets the SIP submittal criteria that apply to all rules of being surplus, enforceable, quantifiable, and permanent for the time required in the SIP and meets the fundamental EIP principles of integrity, equity, and environmental benefit.

9. **COMMENT: It is impractical, and an excessive and unnecessary burden for applicants to be required to include justification of mitigation measures not selected, as is proposed by Section. 5.3.2.** The on-site checklist contains a number of emission reduction measures, which will often be inapplicable. As a result, Section 5.3.2 should be deleted. As proposed, the provision implies, for example, that all 18 of the on-site measures listed in Appendix C for residential projects (or 39 if the "on-site enhancing measures" also required justification) could be applicable for all projects. Measures which would not be routinely feasible or applicable, include but are not limited to:

- An on-site bike lane would not likely be warranted or feasible on the site of a 50-unit apartment building (R-7) nor would an apartment building involve the design of street patterns (R-10).

- "Reduce Wood Fireplaces and/or Woodstove above that required by District Rule 4901" would not be applicable to most new apartment buildings (R-14).

- All new subdivisions cannot be sited within half a mile of an existing transit stop, and it is beyond the ability of applicants to have a transit stop added within a half a mile of a new subdivision (R-2), independent of where the project is located.

RESPONSE: The District does not agree with the author's statement that it is impractical, excessive and/or an unnecessary burden to include justification. The purpose of the justification is to encourage developers to examine the potential measures more closely and not immediately reject a measure without considering its feasibility. Onsite measures have permanent air quality benefits and typically create value and provide other benefits to the development. Measures included as mitigation measures in the lead agencies CEQA document, as most are expected to be, will not require District long term monitoring. If a measure is impractical or not applicable to a project, the applicant needs only to state that in the justification. The District does not see how this is an undue burden. Finally, onsite measures are implemented voluntarily by the developer and are not required by Rule 9510.

10. **COMMENT:** As a result of these concerns, the Department respectfully requests that the District not adopt the Draft Rules as proposed and continue to work with all interested parties on needed revisions. Thank you for your consideration of these concerns. For further discussion or to set-up a meeting, please contact Linda Wheaton, Assistant Deputy Director, at (916) 327-2642.

RESPONSE: Comment Noted.

City of Porterville
Date: November 29, 2005

11. **COMMENT:** The City of Porterville appreciates and encourages the District's efforts to improve air quality in our Valley, however, the District staff report does not clearly define how the additional fees acquired through adoption of the DESIGN program would result in a quantifiable improvement to air quality in the San Joaquin Valley air basin beyond the measures already in place. Further, neither rule dictates a funding source to compensate local jurisdictions for the

additional efforts resulting from approval. Please provide clarification of these points in the final rules. Thank you for the opportunity to comment.

RESPONSE: First, Appendix B – Emission Reduction Analysis, Attachments 2 and 3 show the tonnage of offsite reductions that are estimated to occur as a result of the adoption of the ISR rules. By 2010, it is estimated that the ISR will achieve 5.4 tons per day (tpd) reduction of NOx, and 5.8 tpd reduction of PM10 from growth. The amount of off-site reductions (from the fees) are 4.7 tpd and 4 tpd of NOx and PM10, respectively. These estimates are based on the amount of reduction required by the rule, and assume an amount of that reduction is achieved on-site. The off-site fees will be used to achieve this reduction, as specified in Appendix E: Cost Effectiveness Analysis, which states how much in off-site fees is expected and how that money will be spent to achieve quantifiable reductions. Specifically, Appendix E: Cost Effectiveness Analysis, Attachment 1 (p. E-13 through E-33) details potential projects, the amount of reduction achievable, the cost of those reductions and a potential spending plan.

Second, the rule does not dictate a funding source to compensate local jurisdictions because there are no requirements placed on local jurisdictions. The local jurisdiction is not required to review, assess or otherwise act on ISR projects. The District is committed to including local jurisdictions in the process through informing them of projects and project-specific information received by the District, and District actions on those projects just as it does now when it provides comments on local agency CEQA referrals. However, neither the ISR rules nor the administrative process require 'additional efforts' from local agencies.

Visalia Unified School District

Date: October 25, 2005

On behalf of the Visalia Unified School District ("the School District"), I respectfully submit the following comments and questions to Draft Rules 9510 and 3180 of the San Joaquin Valley Air Pollution Control District ("the Valley Air District"). I am unclear about several items in the Valley Air District's proposed fee and plan to decrease emissions' impact from new development in the area. The School District's main concern is that the Draft Rules lack sufficient clarity to allow the School District to analyze what the potential impact of the new fees may be and whether the fees would actually be applicable to our projects. The School District is particularly concerned because any fees that must be paid as a result of the enactment of the Draft Rules will reduce the School District's financial ability to provide classrooms to students in these newly developed areas.

12. COMMENT: Applicability of Draft Rules to the School District

It is unclear whether the Draft Rules apply to the School District's construction of new schools. Section 2.1 of Draft Rule 9510 states that the rule applies "to any developer that seeks to gain a final discretionary approval for a development project… of … 9,0000 square feet of educational space." The Draft Rules define "developer" as any person or entity that undertakes a development project. Also, the definition of a "development project" includes any project that it "subject to a discretionary approval by a public agency" where the discretionary approval "requires the exercise of judgment or deliberation."

The school District takes the position that the Draft Rules do not apply to it because it does not operate as a "developer" and the School District school construction projects are not development projects since they are not "subject to the discretionary approval by a public agency." However, according to the Draft Rules, if a developer is constructing a school facility on behalf of the School District, then due to the definitions in the Draft Rules, the fee may be applicable.

RESPONSE: If the approval to site and construct a new school is not subject to a discretionary permit, then the author is correct that the ISR rules would not apply. Otherwise, schools have many options available in onsite measures that would substantial reduce any potential fee.

13. COMMENT: <u>Fee Calculation</u>

In addition to the question of the fee's applicability, the formula to be used in calculating the air impact mitigation fee is extremely confusing. A more straightforward formula from which the estimates of fees can be made would prove beneficial to those impacted by the Draft Rules. If these Draft Rules are intended to apply to the School District's development of new schools, a more concise formula would help us in the planning and estimating process.

RESPONSE: Although the fee formula is somewhat complex, it is the most accurate and equitable way to assess fees based on emissions to achieve the emission reduction committed to in the District's SIP. The District has found that using an excel file to calculate fees is easy and accurate. The District will make a calculator with the formula built in available to the public prior to implementation. Prior to that, the District is willing help applicants and agencies create an excel file that calculates emission reductions required and fees required.

14. COMMENT: <u>Requirement of Nexus</u>

The School District has reviewed comments to the Draft Rules submitted by other associations that are impacted by these rules. One major problem noted by many of the commentators related to the fact that the Draft Rules fail to comply with the nexus test required by AB 1600, enacted as Government Code

Sections 66000 et seq, and as required by case law such as in *Ehrlich v. City of Culver City* (1996) 12 Cal4th 854.

Similarly, we would like to express our concerns that the fees proposed do not appear to demonstrate a reasonable relationship to the cost of implementing the air pollution mitigation program. It appears to us that there is a huge disparity between the cost of implementing the mitigation program and the fees to be collected. Further, the Draft Rules and supporting analyses are largely silent on the actual mitigation measures to be funded that will reduce emissions' impact resulting from a given project. It would be helpful if the Valley Air District provided details of the actual measures and projects that will be undertaken to reduce emissions' impact as well as the benefits accruing to the public as a result of these measures.

RESPONSE: Please refer to the September 1, 2005 Response to Comment #125 about the analysis of nexus applicability that the District performed. The District disagrees that there is a disparity between the fees to be collected, estimated as up to $103 million between 2006 and 2008, and the cost of achieving off-site reductions. In Appendix E: Cost Effectiveness Analysis, Attachment 1 (p. E-13 through E-33) details potential projects, the amount of reduction achievable, the cost of those reductions and a potential spending plan.

15. COMMENT: Notice to Those Impacted by Draft Rules

Although the School District is within the San Joaquin Valley Air Basin and is subject to the jurisdiction of the Valley Air District, we feel we were not provided with adequate notice of the Draft Rules. If the Draft Rules are held to apply to the School District, the fees imposed will greatly impact our ability to plan for the development of new classrooms and educational facilities. Therefore, in the future, we request written notice of proposed rules and regulations that are intended to apply to the School District.

RESPONSE: The District regrets that the School District did not receive notice of the proposed rules; however, this rule was noticed in accordance with all legal requirements. The District will add the School District to the ISR mailing list. In addition, the District suggests that the School District visit the District website at http://www.valleyair.org/lists/list.htm. The School District can receive District news, workshop notices, and other important information for this or other plans via e-mail by subscribing to one of the District's e-mail notification lists. The e-mail notification lists are setup and maintained by the end user and not by District staff. Individuals may add or delete their names from these lists at anytime.

California League of Food Processors (CLFP)
Date: November 22, 2005

16. **COMMENT:** First, CLFP supports the amendments proposed by the District that would exempt canning and food processing from Rule 9510. Most of the primary activities performed by food processors are already regulated by the District and are subject to Rule 2201 (New and Modified Stationary Source Review Rule) and Rule 2010 (Permit Rule), so the proposed exemption will avoid redundant or confusing new regulations.

RESPONSE: Comment Noted

17. **COMMENT:** Second, CLFP and other organizations have expressed concern to the District regarding the cumulative cost of complying with the various new air pollution control requirements imposed on manufacturers in recent years. The food processing industry is one of the major sources of employment in the San Joaquin Valley and the firms operate in a very competitive economic environment. The financial resources available for complying with new regulations are very limited. CLFP appreciates that the District has responded to industry concerns by recognizing the cumulative impact of air regulations and the major investments made in stationary source emission controls.

RESPONSE: Comment Noted

California Building Industry Association
Date: November 29, 2005

On behalf of the California Building Industry Association (CBIA) and its Affiliate Associations located in the San Joaquin Valley, I am entering into the formal record comments on the proposed Draft Rules 9510 and 3180 (the "ISR"). CBIA member companies provide housing that is the cornerstone of quality of life in the San Joaquin Valley.

18. **COMMENT:** The Federal Clean Air Act, 42 U.S.C. Section 7410 (a)(2)(F), requires that approvable control measures provide quantifiable, surplus, enforceable, permanent, and adequately supported reductions in air emissions. The proposed Draft ISR does not provide sufficient analysis or findings to establish that the proposed Indirect Source Mitigation Program meets these criteria. Indeed, the document barely addresses these fundamental topics. Because these criteria have not been met, the Indirect Source Mitigation Program does not meet the Federal Clean Air Act test for full approval and inclusion in the State Implementation Plan ("SIP").

Indirect Source programs, on the scale proposed by the San Joaquin Valley Air District, have not been adopted or implemented successfully anywhere in the United States. We note that USEPA has never approved a proposed indirect source rule for emission reduction credit.

RESPONSE: The District has complied with the cited Clean Air Act section. EPA has recognized that areas with a long history of air regulation must pursue new and innovative ways to reach emission reduction requirements since the stationary sources in many cases are already in their second or third retrofit requirement with rapidly diminishing air quality returns. This had led EPA to produce guidance on voluntary and emerging measures and for taking SIP credit for mobile source incentive programs. Although Rule 9510 is unique, it still meets all control measure approvability criteria. See also the District's response to EPA's comment letter on the September 1, 2005 draft.

19. COMMENT: The expected emissions benefits are not properly quantified. The URBEMIS model-based approach proposed to calculate project travel and emission impacts is inconsistent with the SIP inventory methodology. The SIP emissions inventory used the California Air Resources Board's EMFAC-2002 model to establish the NOX and PM10 emission reductions targeted by the ISR rules. One of the key components of EMFAC is a regional travel demand model ("TDM"). The TDM is used to calculate regional travel impacts such as vehicle miles traveled ("VMTs") and trips within the SIP inventory. The SIP calculations that identify further emission reductions needed for the San Joaquin Valley to attain federal ambient air quality standards are, in turn, based on vehicle travel activity forecasts from TDMs.

New project impacts determined under the ISR rules should be calculated in a manner consistent with the SIP targets to ensure no over- or under-compliance. There is an inconsistency between the way URBEMIS and TDMs calculate new or net added vehicle miles traveled (VMT) and vehicle trips. The fundamental difference between TDMs and URBEMIS is that TDMs robustly account for the interaction effects between multiple land uses, while URBEMIS does not.

Interaction effects refer to the fact that when considered together, each individual land use (or project) "competes" with others for vehicle trips. Where these land uses are located within a metropolitan area or county and how well the regional roadway network provides access to each land use affects the number of trips taken and their length (and thus VMT). For example, locating a new shopping center near an existing residential area would likely shorten the length of existing shopping trips taken from the residential area (and thus reduce VMT). It may also increase the number of shopping trips from the residential area due to its proximity compared to the location of existing shopping centers.

The Draft ISR relies primarily on URBEMIS to calculate project level impacts, even though the District's own modeling consultant has stated that this model was designed to be a "sketch planning" tool, and was never intended to provide a detailed numerical analysis of project level air quality impacts. If the travel activity (VMT and trips) of all the URBEMIS-based individual ISR project analyses were added together, they would overstate the net travel impacts determined when jointly simulating the same new projects using a TDM. This conclusion is based on a side-by-side comparison of impacts of a hypothetical but typical new residential project performed by Sierra/Dowling using URBEMIS and the Fresno County TDM. Correcting the existing biases in the URBEMIS default assumptions does not change this result because URBEMIS treats each new project and its interaction with existing land uses and other new projects separately.

The District has attempted to account for this fundamental difference between TDMs and URBEMIS by applying a 50% discount factor in the NOx and PM10 fee formulas to require mitigation of only half or one direction of two way trips between a new project and existing land uses. While in concept this approach could eliminate the double counting problem, simply slicing URBEMIS impacts in half does not demonstrate SIP consistency.

On top of this fundamental discrepancy with the SIP methodology, URBEMIS overstates residential project emissions by over 70% as a result of multiple technical shortcomings. On this basis alone, URBEMIS cannot be considered a reliable and accurate gauge of project emissions. URBEMIS' technical problems as an emission estimation tool are documented in detail in Sierra Research's comment letter of July 22, 2005.

RESPONSE: The author states that the "emission reduction benefits are not properly quantified". The District assumes the author is discussing the emission reduction benefits from implementation of the rule, which were properly quantified in Appendix B: Emission Reduction Analysis, using the known growth data (provided to the state by the COGs), and applying a standard rule penetration, estimated on-site emission reduction achievement, and applying the emission reduction requirements to the growth emissions. This analysis is considered 'top-down' and is standard practice. The analysis did not rely on URBEMIS, a project-level model or 'bottom-up' analysis, for valley-wide emissions estimates from valley-wide growth.

The District has repeatedly addressed the "70%" overestimation cited by the author as a distortion of fact. The District has stated that project-specific data is acceptable when available and has committed to addressing the few issues that have been raised concerning URBEMIS default values, and will provide guidance on those items prior to ISR implementation.

The District could not find any reference in the Clean Air Act or in EPA guidance that prescribes implementation to use the same methodology as the SIP. Indeed, the District did not find any reference prescribing a model or methodology to assess mobile and area emissions from development projects. The author's assertion that the methodology itself must be the same for the SIP and implementation is not based on any statute, guidance, or on historical methods of rule implementation. What is important is that the rule achieves the amount of reduction committed to in the SIP, and that the model produce consistent and repeatable results and be based on widely accepted inputs and methods, all of which apply to URBEMIS.

The author mischaracterizes the fee formula's use of a 50 percent baseline as a discount factor used to correct a deficiency in URBEMIS. URBEMIS correctly uses ITE trip generation rates to show the impact of all trips associated with a development project including those generated and those attracted to the site. The purpose of the 50% of the baseline in the fee formula is to meet the nexus requirements and to meet the intent of Health and Safety Code 40717.5(a)(1) for Districts to… "make reasonable and feasible efforts to assign responsibility for existing and new vehicle trips in a manner that equitably distributes responsibility among indirect sources." By basing the fee on half the emissions, the District is ensuring that only trips from the project site are assigned responsibility. Furthermore, URBEMIS has the capability to account for reductions for passby trips where someone stops on their way to their primary destination and diverted linked trips where the trip length is shortened to account for trips that although not directly on the route to the primary destination, still result in a shorter trip length than would occur if someone went there directly. Finally, URBEMIS can accept project specific trip generation information based on market studies and local traffic studies when a proposed project may produce different results than would be expected using default trip information. We believe this a reasonable and feasible effort to meet the Health and Safety Code requirements.

The District believes the best model should be used based on the needs and parameters of the project. For SIP inventory purposes, regional TDMs are the most appropriate model for estimating emissions. However, as admitted by Sierra Research (letter November 29, 2005, Comment #29 below), TDMs are regional models that are inappropriate for project-level analysis and TDMs contain their own flaws. These flaws are ignored in the author's 'URBEMIS vs. TDM' discussion. For instance, TDMs do not account for some trips on arterial and collector streets. TDMs require a large amount of data input, are not easily used, were not developed to estimate land-use impacts, and are not available to the public. Simply, TDMs are too broad of tools to accurately estimate the emissions from individual projects. A side-by-side comparison of a project-level analysis using URBEMIS and a TDM would be misleading, as a regional TDM was never meant to be, nor should be, used to estimate and individual project's emissions.

URBEMIS uses emissions factors derived from EMFAC2002, the same model used in the SIP. Several issues raised with URBEMIS (silt loading, fleet mix) will be remedied prior to implementation. URBEMIS is maintained by a statewide working group of technical experts and air districts. URBEMIS is used in CEQA analysis across the state, and is commonly used for Environmental Impact Reports (EIRs) to assess project-specific air quality impacts. URBEMIS has been used by the District and applicants in assessing air emissions for Mitigation Agreements, as well as other agencies to assess air impacts for mitigation settlements. The District has more than adequately shown URBEMIS to be the best model for the job.

The 'fundamental flaw' raised by the author simply does not exist. It has been well demonstrated that URBEMIS is the best program for ISR's needs, and it is widely recognized across the state by other air districts, local land use agencies, and other agencies as an appropriate tool for assessing specific project-level air impacts. It is the District's assessment that the author compares TDMs to URBEMIS in raising 'SIP methodology consistency' as a 'fundamental flaw' to discredit URBEMIS; and, since TDM's are inappropriate for project-level analysis, leave the District with no available model to use.

20. COMMENT: There is no discussion of whether the emissions are surplus. New development is already controlled by existing and proposed District rules, some of which overlap the ISR proposal. Dozens of cities and counties with the San Joaquin Air Basin have adopted ordnances creating local traffic mitigation and congestion relief programs, funded by fees on new development and, in the case of several counties, increased sales taxes. In addition, large scale developments, such as planned communities, are increasingly entering into air quality mitigation agreements within the context of the environmental review process mandated by the California Environmental Quality Act ("CEQA"). All of these measures address the same concerns as the Draft ISR, improved traffic flow and reduction of tail pipe emissions.

The failure of the Draft ISR and the supporting documentation to discuss or quantify the emissions reductions attributable to these other programs undercut the ability of the measure to provide surplus and quantifiable emission reductions as required by statute.

RESPONSE: The emissions growth estimates used to develop the rule are from the District's emission inventory that includes the benefit of all adopted local, state, and federal regulations and so are surplus to adopted control programs and regulations. Local regulations that have been adopted as transportation control measures currently have no emission reductions claimed in the District's SIP. Congestion relief measures and other transportation impact fees are

required just to keep emissions from exceeding emission budgets and do not provide additional SIP creditable reductions. Local programs and ordinances that do provide a surplus benefit will now be able to provide credit to their communities through the onsite mitigation component of the rule and will reduce the fees paid by developments contributing to those programs. In addition, reductions obtained through CEQA measures and Development Mitigation Agreements will be credited toward the emission reduction requirements of the rule.

There are no existing or proposed District rules that overlap the proposed ISR program. Appendix G: Rule Consistency Analysis describes other District rules and analyzes potential for inconsistency—none were found.

21. COMMENT: The proposed Indirect Source Mitigation Program does not contain an enforceable commitment. The permitting process in the Draft ISR operates independently of any other relevant regulatory process. Numerous parties have commented that the air quality impacts attributable to new development are also subject to CEQA. Early attempts by the Air District to reconcile or streamline the ISR with the normal environmental review process have been abandoned for the time being, replaced with a statement that the Air District will revise its existing Air Quality CEQA Guidelines at some future date to minimize conflicts between the two processes. By separating the Air District permit process from CEQA, the Air District has removed any responsibility for enforcement from local agencies with the land use authority necessary to enforce on-site mitigation measures.

RESPONSE: First, the ISR program is not a permitting program. Second, the ISR program is enforceable, the same as all other District Rules, and does not need to rely on 'other relevant regulatory process' and does not conflict with other regulatory processes. This enforcement authority comes from state law. In fact, most of the District's rules "operate independently of any other relevant regulatory process" as they are stand-alone rules not dependant on other regulations. Please see District Rule 1040 (Enforcement).

The District does not need to revise the Guide for Assessing and Mitigating Air Quality Impacts (GAMAQI) in order to make the rule enforceable. The District will be revising the GAMAQI in order to clarify for those undergoing the CEQA process how ISR will affect their projects. This is no different than how the GAMAQI currently addresses other applicable rules. For instance, Regulation VIII (Fugitive PM10 Prohibitions) is discussed in the text of the GAMAQI. However, the GAMAQI discussion does *create* the enforcement of Regulation VIII, but acts to inform lead agencies, consultants, project applicants, and the public.

22. **COMMENT:** In addition, no legal nexus between the proposed mitigation program and the fees imposed on individual development projects has been established. The cost and ultimate success of the mitigation measures are speculative. The Air District's proposed mitigation program, based upon after-the-fact grant applications and the funding of primarily off-site mitigation, has not worked well in other situations, such as the South Coast Air Quality Management District's Mobile Source Reduction Commitment program. Until nexus can be demonstrated, no enforceable commitment is possible. The language of SB 709 did not repeal the independent, Constitutionally-based requirement that that "rough proportionality" between the impact created and the cost of its mitigation be established. This comment has been made several times, both in writing and testimony, and the Air District has never fully responded to this issue.

The Air District cites the USEPA approved PM10 and Ozone Attainment Plans along with SB 709 as authority that it must impose ISR. In doing so, the District is arguing backward from a conclusion, sidestepping the fundamental issue of whether an enforceable commitment exists. Such backstops are not a substitute for establishing whether an enforceable commitment exists for purposes of the Federal Clean Air Act.

RESPONSE: Although the District believes it has adequately responded to each comment regarding nexus 'rough proportionality', here is a synopsis of how the District makes this demonstration:

> The District developed an estimate of growth in mobile source emissions from new development by using the SIP emission inventory growth-only projections. This allows us to estimate the amount future emissions will increase only accounting for growth. This information was used as the basis for the ISR control measure in the 2003 PM10 Plan. Construction and area source emissions are entirely the responsibility of the development project. The emissions attributable to growth were then reduced to account for projects that will be exempt from the rule. The mitigation requirements were then applied to the emissions subject to the rule to determine the potential emission reductions. The emission reductions are cumulative since each year additional mitigation is accomplished and the benefits from prior years continue to provide a benefit. This information is provided in Appendix B of the staff report.
>
> Once the overall emission reduction target for the ISR control measure was identified, the next step was to determine the method to calculate the fair share of the emissions attributable to individual projects. As has been thoroughly discussed elsewhere, it is not appropriate to use the SIP inventory method to calculate emissions from individual projects. URBEMIS was identified as the best tool for conducting project level estimates. See Appendix D of the staff report.

With the emission estimation tool selected, the District then used URBEMIS to estimate emissions from a variety of different land use projects using basic default inputs. The basic factors used to estimate project mobile emissions are the number of vehicle trips, the length of the trips, and the average vehicle fleet emission rates. Based on comments received on early drafts, the District replaced default values for PM10 silt loading values, and activated the commercial passby trips component. The purpose of this analysis was to estimate the potential emissions and fees from an individual development. The results were then used in socioeconomic impact analysis to determine the potential impacts of worst-case fee amounts.

The next step in determining rough proportionality is to verify that the individual project impact is roughly proportional to the mitigation achieved with the fees that are collected. This is accomplished by using an emission based fee formula to determine the amount of funds collected and a fixed cost of reductions for the emission reductions to be purchased by the District. The cost of reductions was developed for future years based on recent cost-effectiveness history with District grant programs, a determination that the reductions will be continue to surplus to any adopted regulations, the emission inventory for the sources, and the technical and economic feasibility of the projects. This analysis is adequate to confirm that the District will be able to maintain rough proportionality between the emissions generated and the emissions reduced through the fees.

The District has several options for corrective actions should the average cost of reductions achieved by the ISR Program be significantly higher or lower than predicted. Since staff will be continuously monitoring the projects funded, we will be able to identify early if costs are on target. If costs of reductions are coming in high, the first option would be to focus the project mix on more cost-effective projects until the average approaches the target amount. If insufficient low cost off-site projects are available, the cost of reductions could be increased by amending the rule. If costs of reductions are coming in low and it appears that the lower-than-expected cost-effectiveness can be sustained, the fee amount may be lowered. The District may also modify the incentive amounts offered to attract preferred, highly cost-effective projects where potential applicants may be reluctant to participate when the incentive amount offered may be inadequate to cover costs of implementing the project. Modified incentive amounts could also be used if the District has difficulty attracting sufficient projects.

The comparison to mobile source emission reduction credit programs is not valid. The reason those programs have not been highly successful is because stationary sources needing ERCs have been able to obtain those reductions at lower costs using traditional banked ERCs than could be achieved by mobile source reductions. Grant programs throughout the state have been extremely successful in obtaining emission reductions from a wide variety of sources. Since ISR reductions can be obtained from any source of surplus, quantifiable, and enforceable reductions, it can be expected to do even better than the existing grant programs in attracting projects.

23. COMMENT: There is no finding that the benefits of the proposed measures will be permanent.

The Draft ISR assumes that the measures will be in effect for ten years. Because of the passive nature of many of the on-site mitigation measures, there is no guarantee that purchasers of newly developed property will leave those mitigation measures in place. Likewise, there is no documentation that the emission reductions associated with the proposed control measures will persist throughout the life of the SIP. As discussed previously, the benefits are speculative, have not been quantified and documented, and as a result the longevity of the benefits are equally speculative.

RESPONSE: The ISR program differentiates between onsite and off-site measures when demonstrating the permanence of the reductions for SIP purposes. The onsite measures are most closely related to measures covered by EPA's Voluntary and Emerging Measures Policy. This policy recognizes that land use measures are highly desirable, but more difficult to quantify than traditional measures. Once the project is constructed with the onsite features in place, the benefits continue indefinitely into the future. Measures like density, mix of uses, and pedestrian infrastructure are not likely to be eliminated after development. All on-site measures that are not required by the lead agency will be enforced by the District to ensure that the emission reduction benefits will occur for the full duration of ten years. Offsite projects funded with mitigation fees only take credit for SIP reductions during the life of the project. This is accounted for in the emission reduction spreadsheet in Appendix B. Offsite projects meet EPA SIP criteria for permanence. Applicants are under contract to utilize the cleaner equipment through the term of the contract. When the new equipment, device, or paved road reaches the end of its useful life, the new purchase must comply with regulations in place at that time and will use cleaner technology in many cases.

As the District has repeatedly demonstrated, the benefits are not speculative, have been quantified and documented. Please refer to the *entire* Staff Report, Appendix B: Emission Reduction Analysis, Appendix D: Recommended Changes to URBEMIS, and Appendix E: Cost Effectiveness Analysis.

24. COMMENT: The proposed Indirect Source Mitigation Program is not adequately supported. The Air District's socio-economic analysis focused on the narrowest viewpoint available, the impact on residential builders, and did not even attempt to analyze the larger impacts on other business sectors, employment, public services, etc. The proposed rulemaking provides no information on the commitments from other agencies that are necessary to implement the various measures. Finally, there is no indication that the proposed requirements have been integrated into local development plans.

RESPONSE: First, there are no "commitments from other agencies that are necessary" to implement ISR. Therefore, the District did not include "commitments from other agencies" as there are none.

The author mistakenly states that the socioeconomic analysis, "focused on the narrowest viewpoint available." The author is posing that the District did not thoroughly or adequately address the socioeconomic impacts of the ISR program, which is untrue. The socioeconomic analysis included analysis on the impacts to homebuilders, homebuyers, renters, low-income housing and housing affordability. In addition it analyzed the impacts to commercial, office and industrial builders, buyers and renters, and small businesses. The mitigation fees are spent on projects in the San Joaquin Valley that provide benefits to the Valley's economy as described in the revised socioeconomic impacts report.

ISR has been designed to work synergistically with the local development approval process. Developers may use mitigation measures and local requirements of the local development process to reduce their Rule 9510 fees, but are not required to do so. The proposed requirements of ISR, a prescribed amount of emission reduction for particular development projects, do not need to be integrated into local development plans, but may be used to demonstrate that air quality impacts of the project have been reduced. Developers wanting to use Rule 9510 as support for their air quality impact study for the local development approval process can time their application to the District such that it will fit seamlessly with the normal CEQA timelines. For the 'mitigation program', there are no up-front requirements for all projects. Applicants that voluntarily commit to certain measures that are not already requirements by other agencies must enter into an agreement with the District that details the schedule of monitoring and reporting for the District to enforce implementation of those measures. The 'mitigation program' requirements are to implement those measures the applicant has voluntarily committed to. The only possible conflict with local development plans is if a measure is not allowed by the local agency: in that instance, the District would remove that measure from the ISR project, and reassess emissions. Thereby avoiding conflicts with the local agency.

25. COMMENT: In summary, for the reasons stated above, the Draft ISR continues to be fundamentally flawed, and is unlikely to satisfy the requirements of the Federal Clean Air Act. As a result, the Air District will have a difficult time convincing USEPA that the ISR control measure will contribute to the emission reduction goals set forth in the SIP and the District should look to other measures to obtain PM10 and NOx reductions.

RESPONSE: As stated in Response to Comment #18, the EPA is supportive of the rule, and has not raised the 'flaws' that the author claims are present. The emission reduction goals in the SIP will primarily be achieved through grant and incentive programs that have been in operation for over a decade and that meet all SIP submittal criteria. Credit for new grant and incentive programs will follow the same SIP criteria and will comply with the same standards for quantification and verification as the existing programs. Each new program will go through a public review process and be approved by the District's Governing Board. The voluntary onsite measures will only be credited to the extent that they meet the criteria of EPA's Voluntary and Emerging Measures Policy.

Sierra Research – On Behalf of CBIA

Date: November 29, 2005

On behalf of the California Building Industry Association (CBIA), Sierra Research (Sierra) is pleased to submit the following comments on the revised draft Indirect Source Rules (ISR) 9510 and 3180 released by the San Joaquin Valley Unified Air Pollution Control District (District) earlier in November.

Our comments in this letter rebut District responses to earlier comments submitted by Sierra in September. As directed by CBIA, our comments focus on technical and modeling issues related to the use of the URBEMIS model under the proposed rules based on our independent review of the model and its underlying assumptions. In this review we were assisted by Dowling Associates, Inc. (Dowling), a transportation planning firm with extensive travel demand modeling experience supporting a number of the San Joaquin Valley Transportation Planning Agencies (TPAs).

Our rebuttal covers the following two issues:

1. URBEMIS modeling assumptions substantially overestimate residential project emissions. A combination of unresolved technical problems result in overstating both residential PM10 and NOx project emissions, and therefore ISR fees, by over 70%.

2. Rule 9510 consistency with SIP emissions inventory has not been demonstrated. The SIP travel model projects a different amount of travel (and therefore emissions and fees) from each project than URBEMIS calculates. Our Fresno County test case shows that URBEMIS produces higher project emissions than does the SIP methodology.

A detailed discussion of each of these unresolved issues is provided in Attachment A.

26. COMMENT: Summary

The following table summarizes each of the technical modeling issues identified by Sierra/Dowling during the ISR rulemaking process, their impacts, and the District's response to each issue.

Status of District Responses to Sierra/Dowling ISR Comments		
Issue	Emissions Bias	District Response
Residential Fleet Mix	NOx high by **20%**	Will fix, revised fleet mix to be determined
Silt Loading Factors	PM_{10} high by **50%**	Will fix
Average Vehicle Trip Lengths	NOx and PM_{10} high by **20-30%**	Will fix, unsure of approach
Residential Fleet Age Distribution	Exhaust NOx and PM_{10} high by over **20%**	Not convinced data provided warrant a revision
SIP Consistency	NOx and PM_{10} likely **high by unknown amount**	Handled by 50% fee discount?

Although the District has indicated a willingness to address some of the modeling issues we have identified, we believe the responses to our earlier comments on URBEMIS model issues are incomplete (in that corrections will not be made until after ISR adoption) or mildly dismissive (e.g., not willing to consider how revised residential age distribution impacts will be addressed). Some of the unresolved issues are fundamental and still need to be addressed before these rules can go forward

Furthermore, the District has not proven that the URBEMIS-based ISR approach will result in emission reductions that match SIP targets. From a policy standpoint, we believe this burden-of-proof lies with the District and that SIP consistency cannot simply be asserted.

These technical problems result in major discrepancies in estimating emissions and corresponding fees under Rule 9510. Thus, we respectfully recommend that the District delay its scheduled December 15 hearing on ISR adoption until these issues are fully resolved.

If you have any questions about the information presented above or in Attachment A, please feel free to contact Bob Dulla or me at (916) 444-6666.

RESPONSE: The District has determined that all items that the author raises have been adequately addressed. See the following Comments and Response to Comments #27 through #29.

ATTACHMENT A
UNRESOLVED RULE 9510 TECHNICAL ISSUES
THAT RESULT IN OVERSTATED EMISSIONS

27. COMMENT: URBEMIS Modeling Assumptions Substantially Overestimate Residential Project Emissions - In responses to our comments, the District acknowledged that many of the default modeling assumptions in the URBEMIS model do not accurately represent conditions in the San Joaquin Valley when applied to residential projects. These incorrect model defaults identified by Sierra and Dowling substantially overestimate residential project emissions by a minimum of 70% for both pollutants targeted under the ISR rules, oxides of nitrogen (NOx) and "fine" particulate matter (PM10).

The District's response to these URBEMIS model default issues is incomplete. In acknowledging these problems, the District responds only that these faulty model assumptions will be corrected in a future version of URBEMIS that will be released (presumably without opportunity for public review) after the ISR rules are adopted.

Although the District has indicated that a small part of these model corrections will be made prior to rule implementation, no timetable has been provided for revising URBEMIS, nor has it been made clear that these revisions will be publicly reviewed. The District has been aware of these modeling issues since July, yet no further action has been taken. The District's approach does not guarantee the release of a revised and fully reviewed model before implementation.

RESPONSE: The District does not "acknowledge that ***many*** (emphasis added) of the defaults… do not accurately represent conditions in the San Joaquin Valley". The District does acknowledge that a there are a few items that need refinement, specifically the on-road silt loading factor (easily adjusted by a known amount) and the fleet mix (less easily adjusted). The District had already hired a consultant to analyze and recommend a revised fleet mix, and results are expected prior to rule implementation. The author's assertion that "no further action has been taken" is misinformed and false. In addition to researching the fleet mix, the District is participating in the URBEMIS statewide working group (see paragraph below for more information). The model defaults ***do not*** overestimate residential project emissions "by a minimum of 70% for both pollutants". This claim is false, and the District has repeatedly addressed this claim.

The author is incorrect in his assertion that the District will make changes to URBEMIS "without opportunity for public review" and therefore without any review or safeguards. Changes to URBEMIS are made through a statewide working group that includes other air districts, model experts, technical experts and other public agencies such as CalTrans. As consultants such as Sierra Research use URBEMIS, they often find areas for improvement and correction. Any proposed changes impacting the statewide use of the model must be vetted through this group. The District cannot, nor does it propose to, make 'closed door', questionable changes to the URBEMIS model. If an applicant or a consultant can find better input data or another model that more accurately characterizes the emissions from their project, the District will consider them. If they apply broadly, the District is committed to make those changes available to all users. Sierra should recognize that all modeling is based on incremental improvement. The District will use the best information currently available and commits to continuous improvement in its emission estimating techniques and models.

The author states that a "small part" of issues will be addressed. The District finds only three items raised that are legitimate and only two that are substantial, one of which (silt loading) has been resolved, and the other (fleet mix) is currently being researched. As for a "guaranteed release" of a revised program prior to implementation, these *two* issues can be addressed through guidance. A revised program is not necessary to account for the refined default changes. As stated above, the District is participating in the URBEMIS statewide working group, which is currently expecting to release a revised program in more than one year. The District is committed to making URBEMIS as accurate as possible, and is working towards that goal. Any change that can be made through District guidance will be implemented quickly.

In addition, the silt loading factor issue was raised by Sierra Research, which proposed a new factor, and the District agreed that the proposed factor was more accurate. This revised factor has been publicly discussed, and has been included in ISR documentation.

28. COMMENT: In addition, the District did not act on the evidence presented by Sierra/Dowling based on U.S. Census and Caltrans Travel Survey data—that new residential developments exhibit newer vehicle fleet age distributions (and therefore have lower average emissions). The District's response indicates a need for further survey data to warrant revising the URBEMIS default vehicle age distribution when applied to new residential projects.

Would data from a third-party survey that gathered information on vehicles per household and age from a random sample of "new" residential households in the

San Joaquin Valley be sufficient to warrant a revision if it showed a similar shift toward newer vehicles in the existing Sierra/Dowling analysis? And if so, how will this be accomplished? The District suggests the possibility of an age correction factor to address the fact that the EMFAC model emission factors used by URBEMIS cannot easily be modified to account for a revised age distribution. Who would develop this age correction factor and how would it be developed?

RESPONSE: The District did not act on the survey data because we are not yet convinced that it is more accurate than the information currently used in URBEMIS, which is an age distribution from EMFAC2002 (See September 1, 2005 Response to Comments #121 through #153). As pointed out in your previous comment letter, providing a project-specific fleet-mix age for each land use type would not be easy and would not be possible to automate in the current models used to quantify project emissions. We are not sure if the survey data described is adequate for this purpose. Since Sierra previously stated that it wants any changes vetted through a public process, the District will first pass this information to the URBEMIS Working Group for assessment. If consensus is reached that a major overhaul to URBEMIS is needed to account for fleet age differences, then the District will work to raise the necessary resources to develop the model. The new model would need to be submitted to EPA for approval. The fleet age distribution currently in use is adequate for the ISR program until such a time as a model capable of using this information becomes available.

29. COMMENT: Rule 9510 Consistency with SIP Emissions Inventory Has Not Been Demonstrated We continue to disagree with the District's assertion that the URBEMIS model-based approach proposed to calculate project travel and emission impacts is consistent with the Statewide Implementation Plan (SIP) inventory methodology. This SIP emissions inventory and its underlying methodology were used to establish the NOx and PM10 emission reductions targeted by the ISR rules. Thus, it is critically important to ensure that new project impacts determined under the ISR rules are calculated in a manner consistent with the SIP targets to ensure no over- or under-compliance.

Our disagreement centers on the inconsistency between URBEMIS and regional travel demand models (TDMs) in calculating new or net added vehicle miles traveled (VMT) and vehicle trips. The TDM models are used to calculate regional travel impacts (i.e., VMT and trips) within the SIP inventory. The fundamental difference between TDMs and URBEMIS is that TDMs robustly account for the interaction effects[1] between multiple land uses; URBEMIS does not.

1 Interaction effects refer to the fact that when considered together, each individual land use (or project) "competes" with others for vehicle trips. Where these land uses are located within a metropolitan area or county and how well the regional roadway network provides access to each land use affects the number of trips taken and their length (and thus VMT). For example, locating a new shopping center near an existing

If travel activity (VMT and trips) were totaled across all the URBEMIS-based individual ISR project applications, we believe they would overstate the net travel impacts determined when jointly simulating the same new projects using a TDM. This conclusion is based on a side-by-side comparison of impacts of a hypothetical but typical new residential project performed by Sierra/Dowling using URBEMIS and the Fresno County TDM. Further, we believe this conclusion remains valid even after correcting existing bias in URBEMIS default assumptions. This is because URBEMIS treats each new project and its interaction with existing land uses and other new projects separately.

We understand and agree with the District that it is not practical to make developers run TDM simulations under each ISR application, and readily acknowledge that TDMs are not without flaws of their own. However, calculations performed within the SIP that identify further emission reductions needed for the San Joaquin Valley to attain federal ambient air quality standards (a portion of which are targeted by the ISR rules) are based on vehicle travel activity forecasts from TDMs.

The District suggests that this fundamental difference between TDMs and URBEMIS is accounted for by applying a 50% discount factor in the NOx and PM10 fee formulas to require mitigation of only half or one direction of two-way trips between a new project and existing land uses. We understand the concept in principle, but strongly believe that by simply slicing URBEMIS impacts in half, SIP consistency has not been demonstrated. We believe the acid test of SIP consistency consists of an analysis that compares summed URBEMIS vs. TDM simulated travel impacts for a package of specific projects that have been developed in recent years. We are not aware that this type of URBEMIS analysis has ever been done and is likely one of the key reasons why ISR rules have never been successfully adopted and implemented on this scale.

RESPONSE: Please see Response to Comment #19 above. The District agrees that the model used for the ISR program should be carefully chosen as to not over- or under-comply with the SIP reduction targets. However, the District maintains that the methodology for implementation does not need to be identical to the SIP methodology to achieve this. The author states that for the Valley, if URBEMIS is compared side by side to a TDM, URBEMIS over-estimates net travel impacts. However, a regional TDM was never meant to be, nor should it be, used to estimate emissions from an individual project. To take a project-level model and try to compare it 'side-by-side' to a regional model is inappropriate and misleading.

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residential area would likely shorten the length of existing shopping trips taken from the residential area (and thus reduce VMT). It may also increase the number of shopping trips from the residential area due to its proximity compared to the location of existing shopping centers.

Stop the Air Board Tax *We'll All Pay!*
Date: November 16, 2005
Signed by
City of Clovis – Mayor Nathan Magsig
San Joaquin Busniess Council – President Ron Addington
Visalia Chamber of Commerce – President and CEO Mike Cully
Kern County Taxpayers Association – Executive Director Michael Turnipseed
Greater Merced Chamber of Commerce – CEO Will Lee

30. COMMENT: A broad-based coalition of local chambers of commerce, local government officials, homebuilders, taxpayer organizations, agricultural groups, ethnic and community groups are formally opposing Rules 9510 and 3180 proposed by the San Joaquin Valley Air Pollution Control District (the District). These Rules will collect hundreds of million of dollars by imposing fees on every new home, small and large business, public facilities and other new construction projects within the Central Valley, with questionable air quality benefit.

Indeed, as Rules 9510 and 3180 are currently proposed, the District is proposing to collect more than $670 million in fees over the next five years- taken right out of the regional economy.

RESPONSE: First, the proposed rule does not apply to all new development nor does it impose fees on all new development. For instance, the following projects are exempt from the rule or the fees:

- Projects below the applicable size thresholds in the rule (e.g., 50 residential homes)
- Projects at stationary source businesses already regulated by the District
- New projects and expansions that do not require a new discretionary approval by the local land-use agency
- Projects that employ enough control features to reduce emissions to less than 2 tons per year

The District's most up to date estimate of the offsite mitigation fees is $103 million over the next 3 years. The authors' estimate of $670 million in five years is erroneous. The authors' estimate is based on incorrect use of the fee formulas and emissions estimates and record setting development rates. The District believes that it is not prudent to base revenue estimates on record development rates that would result in SIP commitments that fall short if not realized. Although the authors' estimates are overstated, it should be recognized that solving the Valley's air pollution problems is very costly as can confirmed by industrial sources that have invested billions of dollars on pollution control in the last three decades. The funds will not be taken out of the regional economy. All offsite mitigation fees will be used to purchase emission reductions here and will

result in the funds being reinvested in the Valley. The cost of administering the program is assessed at only four percent of the offsite emission fees.

Finally, the District has thoroughly documented, described and demonstrated that the proposed rules will have a real and substantial beneficial impact on air quality. For more information on the emission reduction analysis or spending plan, please see Staff Report Appendix B: Emissions Reduction Analysis (which used a standard, accepted emission reduction methodology) and Appendix E: Cost Effectiveness Analysis (which thoroughly demonstrates the availability of off-site reductions and a plan for off-site fee use).

31. **COMMENT:** As you are probably aware, the Air District recently released a revised version of these Rules and accompanying documents. In our opinion, the changes have failed to address some of the fundamental concerns of our coalition. Namely, the Rules continue to unfairly target new homeowners and businesses to disproportionately fund air emissions cleanup; the methodology and science remain flawed and they still significantly overestimate emissions and result in inflated fees; the fees still seek to impose enormous and unjustified new costs on businesses, new homeowners, public entities and ultimately all Valley consumers and our economy; and the rules still fail to provide for full accountability.

We all support the goal of cleaner air, but there are better and more effective ways to reduce air pollution in a manner that is balanced and less costly for residents and our economy.

As representatives of the coalition, we feel compelled to share the following key reasons we are respectfully urging you and other Governing Board members to oppose Rules 9510 and 3180 when they come up for a vote on December 15, 2005.

RESPONSE: Please see Response to Comments #32 through #42 below.

32. **COMMENT:** ISSUE #1 – LACK OF FAIRNESS, EFFECTIVENESS OR EFFICIENCY
Indirect source rules place a disproportionate burden on new housing, new businesses and new public facilities to pay for a regional problem that is the responsibility of ALL residents. Indirect source rules are just that – *indirect, unproven* and *inefficient* ways to go about calculating and mitigating air quality emissions. For this reason, no other air district in the nation has adopted this type of indirect source rule. The District should be pursuing more balanced solutions that equally apply to all residents and rules that more directly go after

the true source of emission – namely tail pipe emissions and the dirtiest pollution sources like diesel.

RESPONSE: The authors claim that new homeowners and businesses are being singled out unfairly for controls by this rule. This rule would be only one of many measures that the District has implemented and proposes to implement to control emissions from nearly every possible source category. The District has produced two comprehensive plans, one for ozone and one for PM10, that analyze current and future emissions, and lay out a strategy for emission reductions by a variety of controls and actions. For example, the ISR program is one of more than 20 rules identified in the 2004 Extreme Ozone Attainment Demonstration Plan.

The authors indicate that the ISR program attempts to 'burden' new development to pay for a regional problem. The ISR program only assesses and places requirements on the fair share of the emissions from new development to solve regional ozone and PM10 problems. Each project that would go through the ISR program would be responsible *only* for their own emissions.

In addition, the District has successfully and aggressively regulated existing sources of air pollution. Existing homeowners have contributed in the form of DMV surcharges to the tune $7 per year per vehicle, compliance with fireplace regulations, low-VOC architectural coatings, and smog check programs. New stationary sources must employ Best Available Control Technology and mitigate their new emissions with offsets.

33. COMMENT: ISSUE #2 – THE COST OF THE PROPOSED RULES
Two years into the rule-making process, the District still has failed to provide the public with a comprehensive estimate of the cost of the proposed Rules. Specifically, the socioeconomic analysis fails to address the cumulative impact on housing costs, on business costs, and on economic growth and job creating. The analysis discusses impact on only select segments of the business community, ignoring the full economic impacts of the rule. Our coalition has reviewed what information is available in the District's socioeconomic analysis and we were able to determine that the District will collect as much as $670 million in fees over the next five years.

RESPONSE: Concerning the adequacy of the District's analysis of economic impacts, please refer to Response to Comment #24 above. Concerning the '$670 million' in purported fees, please refer to Response to Comments #30 and #34.

34. COMMENT: Housing:

The District's analysis shows the fees will average more than $1,700 on every home by 2008. Cumulatively, we estimated that the cost on all new housing projects in the eight county region will exceed $225 million over the next 5 years, assuming the current pace of housing permits. That's why the State Department of Housing and Community Development warned that these Rules will negatively impact housing affordability in our region.

RESPONSE: The author has misstated the facts provided in the District's analysis and in the Socioeconomic Analysis. The fee estimates of $1,700 per home and the various numbers sited for industrial and commercial projects represent maximum worst-case fees that may apply if the developers choose to employ no on-site controls. Even so, this amount was found to not have a significant impact on the housing market in the socioeconomic impact analysis. If the high rates of development continue, the air impacts from housing will also be greater than predicted, and so those funds will be needed to offset some of that increase. The District believes that nearly all projects will be able to reduce their fees with on-site-measures since local land use agencies currently require some of the measures and many developers incorporate them as standard practice. The District has published an extensive list of control measures that would reduce the applicable fees. The authors' estimate assumes that all homes and industrial and projects will be built with no control features and is not realistic. In addition, the authors apply the worst-case fee to a higher, possibly unsustainable, rate of housing construction. The author then used this inflated fee amount and based the $670 million on a rough assumption of the ratio between housing and commercial/industrial development. The District finds this methodology of fee estimation to be inappropriate and inflated.

The District hired an independent consultant to perform a comprehensive socioeconomic analysis that assesses the economic impact of the proposed rule including any significant impact on housing affordability. This report concluded that rule would have a negligible impact on housing affordability.

35. COMMENT: New Business Developments:

The District's own assessment estimates the level of likely fees on selected properties to be significant. By 2008 it will cost $397,483 in new fees to build a local community shopping center and $131,000 in new fees to build a neighborhood shopping center. These developments are typically home to mom and pop businesses, restaurants and small retail shops and these fees will be directly passed along to these small business owners (and ultimately their consumers and employees). The District also reports that as much as 2/3 of the total fees they plan to collect will come from non-residential projects. Since the District's figures show that the total fees on housing may exceed $225 million, it

is conceivable that the cost to businesses and non-residential developments will exceed $400 million.

RESPONSE: The fees are based on emissions generated by each project. If a commercial development generated emissions that resulted in a fee of $397,483, it would be a very large development or one composed of many small retail establishments. If it were comprised of many small businesses, each one would be responsible for a fair share of the impact and the fee.

The author falsely states that, "the District's figures show …fees on housing may exceed $225 million." The District's figures ***do not*** show that housing fees will be that high. See Response to Comment #34 above, which illustrates how the authors distorted facts to generate an inflated number. In fact, the District's analysis shows that the District may receive up to $103 million from *all* types of development subject to the rule between 2006 and 2008. The 2/3 ratio cited by the author was provided by the District as a rough estimate arrived at by subtracting residential development emissions from all development related emissions. The District used the emission reduction analysis (Appendix B) for fee income analysis since the emissions growth data from the state is well accepted for this purpose. See also Response to Comment #30 and #34.

36. COMMENT: Public Facilities:

The Rules also apply to public and government facilities such as new schools, transit projects, government office buildings, fire houses, police stations and more – driving up the cost of public works projects and ultimately further burdening taxpayers with higher costs. The District's analysis is silent on these costs and their impact on local finances and fees.

RESPONSE: The District has drafted the rule to fairly allocate emissions among all indirect sources. Public uses are a substantial part of the growth in emissions that if not addressed here, would need to be addressed through other means. We agree that the cost of achieving air quality mandates could increase the cost of these facilities; however, we would expect most transit projects, fire houses, and police stations to be exempt since they would produce emissions below the two ton per year level. In addition, schools and government offices are well suited in many cases to incorporate features that enhance walking, bicycling and transit use and use low emission vehicles and equipment that could reduce the fees, possibly to zero.

37. COMMENT: ISSUE #3 – FLAWED SCIENCE

Members of our coalition and others have repeatedly demonstrated that the methodology and modeling that the District staff is using to calculate indirect sources of emissions – and resulting fees and mitigations – are fundamentally

flawed. These flaws result in grossly inflated fees and mitigation requirements. For instance, the URBEMIS model being used by the District (a computer program used to estimated emissions associated with land development projects), overstates vehicle emissions by over 70% (see public comments filed Sierra Research, July 22, 2005). No other air district in the nation uses URBEMIS to determine fees for vehicle emissions because, as the District's modeling consultant said, it's a "sketch planning" tool, not an accurate gauge of the specific emissions resulting from an individual project.

RESPONSE: In context, the term sketch-planning tool did not imply that it is not an accurate gauge of specific emissions resulting from an individual project. In fact, URBEMIS is a proven statewide model used by other air districts, including South Coast and Sacramento Metro Air Districts, in assessing emissions from project-level developments. URBEMIS is commonly used for CEQA analysis, and is also used by other air districts to determine off-site mitigation fees. In addition, the Development Agreements entered into by the District and applicants relied on URBEMIS for emissions estimates. See Staff Report pages 19 through 22 for a detailed discussion on why URBEMIS is the best model for the purposes of the rule. See also Response to Comment #19 above.

The CBIA and its consultant, Sierra Research, have provided comments (See September 1, 2005 Comments #123 through #162 and above comments #18 through #29) about the adequacy or implied lack thereof of the URBEMIS model. However, the District has shown that the 'flaws' stated by the author are not valid.

For example, the authors assert that the model overstates vehicle emissions by over 70%. The comments received by the District compared the URBEMIS model, which counts both ends of trips, to a regional impact model (admittedly inappropriate for project-level analysis- See Comment #19 above) that only accounts for one end of trips. The URBEMIS program does not overstate emissions, as asserted by the author, but accounts for emissions differently than a regional model. It should also be understood how the fee formulas work. Please see Figure 3 and 4 in Appendix B- Emission Reduction Analysis, which clearly show that half of the estimated baseline emissions are not assessed fees.

URBEMIS reflects the state of art in quantifying emissions from development projects. In fact, developers and local land use agencies routinely use URBEMIS to quantify project impacts during the CEQA process. The proposed rule allows for the use of other models that can better quantify emissions from various types of projects. The accuracy of URBEMIS will be further refined through the use of project-specific information in lieu of the otherwise applicable defaults. The authors' claim may have merit if the District rule only allowed for the use of URBEMIS defaults and disallowed the use of project-specific information such as proper traffic counts and vehicle mix. This is not case.

The District is part of a statewide working group that will continually work on refining and enhancing the accuracy of the URBEMIS model.

38. COMMENT: ISSUE #4 – DISTRICT'S OWN DOCUMENTS DEMONSTRATE THAT FEES CANNOT BE AVOIDED THROUGH ON-SITE MITIGATION.

District staff has continually and erroneously stated that if sponsors of new development satisfy the District's list of on-site mitigation measures, they won't have to pay any fees. According to the Air District's own documents and comments by their own staff, this is simply not true.

Even the District's newly revised staff report demonstrates that new homebuilders and businesses likely cannot completely mitigate indirect source emissions on-site (see Draft staff report page 15, 11/17/05). Perhaps this is why, at a recent meeting before the Bakersfield Chamber of Commerce, District Deputy Executive Officer Seyed Sadredin admitted most projects will not be able to mitigate their estimated air impact on site and will likely have to pay all or most of the fees.

Neither the text of the Rules nor the staff report provide useful guidance on how doing one or all of the proposed on-site mitigations will score against the proposed fees and it has provided no detail about the air quality benefits of each of the proposed mitigation measures. Accordingly, applicants have no way of determining how much on-site mitigation will reduce emissions or how it will reduce the fee they're obligated to pay.

Second, the District's proposed on-site mitigation checklist relies heavily on the existence of mass transit and other forms of transportation that don't exist to achieve emission reductions. Further, since there is no plan or realistic prospect of these necessary transportation projects being built in the near future, it is impossible for sponsors of development to comply with these types of on-site mitigations to avoid fees.

RESPONSE: The authors' comments are incorrect. The District has *not* stated that simply enacting the measures on the on-site list would result in no fees. The District has stated, and has conducted internal analysis that verifies, that it is possible to incorporate enough measures to result in no fees. The page referenced to from Staff Report *does not* assert or state that homebuilders and businesses cannot completely mitigate emissions on-site. The Staff Report does demonstrate how a certain percentage of on-site reduction achieves a larger percentage of fee reduction. District staff is unsure how the author misinterpreted the Staff Report, as the text states, "… the "bigger bang for the buck" is achieved with as much on-site mitigation as possible…..See Table 1 for ***examples*** (emphasis added) of on-site emission reductions and the associated off-site fee reduction".

Concerning guidance on how the measures "score" against the fees, and the air quality benefit associated with the measures, the authors should read page 11 of the Staff Report, which states,

> *The measures listed in the checklist have a known quantification methodology in URBEMIS 8.7. The methodologies can be found in the URBEMIS User's Guide, available at South Coast AQMD's website http://www.aqmd.gov/cega/urbemis.html.*

URBEMIS is a free, easy to use program that can be downloaded and used by the public, project applicants, public agency staff, and anyone else. See also September 1, 2005 Response to Comments #7 and #9. Applicants can easily see on their own how incorporation of measures reduces emissions through using the model (most simple projects take less than ½ hour), and can see how that reduces the fees by running the numbers through the fee formulas.

Finally, the checklist does not 'rely' on mass transit and other transportation for emission reductions, but provides a venue to credit emission reductions from those items. Project applicants are not required to 'comply' with the list, but fill in which measures apply to their project, and which measures do not.

The fees can be reduced significantly by employing the reasonable number of measures suggested by the District. We agree that it will be difficult to total eliminate the fees initially with the type of development that has historically occurred in the Valley.

On how to 'score' the emission reduction from the measures suggested by the District, all measures in the on-site lists have a quantification methodology in the URBEMIS model. These methodologies may be read in the URBEMIS User's Guide. The measures do not have a straight "credit" associated with implementation, but a calculated reduction based on various parameters, which may include interaction with other selected measures, amount input, and other parameters. The District will provide a great deal of assistance to the applicants to properly quantify the emissions and the applicable credits for measures employed.

ISSUE 5 – DISTRICT HAS FAILED TO ADDRESS SOME BASIC – BUT IMPORTANT – POLICY QUESTIONS RAISED THROUGHOUT THIS PROCESS

The following represent just a few of the many very important policy concerns that the Air District has failed to address or respond to, despites these questions being raised for many months. Governing Board members should take great pause before voting on Rules without getting answers to these very serious questions and concerns.

39. COMMENT: District has not quantified fees for the full 5-year rule period: The socio-economic and cost/effectiveness analyses provide an incomplete

accounting of fees that the District expects to assess over the 5-year rule period. No information has been provided in either appendix on the cost to public facilities including schools, parks, and roads. No information has been provided in any appendix on the overall economic impact to the Central Valley.

RESPONSE: The fee schedule holds fees past 2008 at the 2008 level. The socioeconomic impact analysis and cost-effectiveness analysis only assess 2006-2008 because those are the amounts being proposed in the rule. If the rule is amended to change the fee amounts by a significant amount, it would result in the preparation of new analyses. If fees are held to the 2008 level, socio impacts would be the same as the 2008 level. For cost effectiveness, the District is confident that targets are feasible through 2008, but past 2008 would be too speculative.

The District disagrees that overall impact on the economy in the Central Valley is not adequately addressed. Since the impact on the development industry was not significant and fees will be recirculated into the regional economy, it is logical to conclude that the rule would not have a significant adverse impact on the regional economy. See also Response to Comment #24 above.

See Response to Comment #36 regarding public facilities.

40. COMMENT: Incomplete Spending Plan: Although Appendix E offers a spending program for the fees collected by Rule 9510, it falls short of what is acceptable. First, it covers only three of the five years of the rule period. Second, the revenue projects cover roughly one-sixth of the Rule's potential revenue: $102 million vs. the potential $670 million in total fees that could be collected.

RESPONSE: As stated above, the first three years have enough information to be adequately assessed.. Second, the $670 million stated by the authors is based on incorrect information and misinterpretations of rule requirements (see above Response to Comments #30 and #34). District analysis, using factual data, shows that the District may receive up to $103 million between 2005 and 2008 based on the availability of the fee deferral option and historic development rates. The cost of reductions is more uncertain farther into the future. The District will reassess the cost of reductions prior to 2009 so that changes in regulations and the availability of new technologies can be taken into account.

The District has proposed a detailed plan in the staff report that will be considered by the Board at the December hearing. Additionally, as a part of the District's annual budget process, the plan will be reviewed and amended as necessary. The District will also provide routine reports on the quantity fees collected, projects funded, and emission reductions achieved per Rule 9510 Section 10.4.

41. COMMENT: Unresolved fee estimation issues: As noted above, the URBEMIS model overstates project emissions by over 70%. The District has not committed to fix URBEMIS prior to Rule adoption and implementation. Unless resolved, Governing Board adoption will result in projects paying fees that are exaggerated by as much or more than 70% due to improper default values that do not reflect actual conditions in the Central Valley.

RESPONSE: As stated previously (Response to Comment #19), the "70%" overestimation is simply not valid. Previous comments have pointed out refinements that should occur to some URBEMIS default values, such as the silt loading factor, and the District has committed to providing guidance prior to implementation and to update URBEMIS as soon as possible with the revised factors (see Response to Comments #19-22, #27-29, #37, and Staff Report pages 21-22). However, the statement that the model grossly overstates vehicle emissions is not valid.

42. COMMENT: Unresolved CEQA conflicts: CEQA already requires mitigation of air quality impacts associated with new development, yet the District states that Rule 9510 is not duplicative and is completely independent of the CEQA process. However, the District's response to EPA concerns is that it is counting on local agency CEQA requirements to make on-site mitigation measures enforceable. The District has not explained how its Rule will interact with local agency CEQA actions to achieve this result.

RESPONSE: Currently, for measures that are required by a local agency, that agency includes them in CEQA documentation and is required to enforce those measures. The District recognizes this enforcement mechanism through CEQA for those measures that are required by the local agency. Therefore, although the project applicant is taking credit for emission reductions from measures required by lead agencies, the District will not have to enforce those measures independently. For measures that are not required by the local agency, the District will be responsible for enforcement. There are no new requirements on local agencies, and no additional 'interaction' is required by the rules.

43. COMMENT: In closing, members of our coalition agree that improving the region's air quality is an important goal and one that demands that everyone in the Central Valley play a role. Accordingly, the District has a duty to convince the public of the value of its new policy and to win their trust in carrying it out. Regrettably, the District has failed to demonstrate the value or benefit of the proposed Rules.

Members of our coalition stand ready to work with the District on an alternative to proposed Rules 9510 and 3180 and towards achieving a more equitable, efficient and cost effective plan to reduce emissions.

In the meantime, we urge you to reject Rules 9510 and 3180 when they're brought before a vote of the Governing Board on December 15, 2005.

RESPONSE: Comment Noted.

SUMMARY OF COMMENTS AND RESPONSES ON THE SEPTEMBER DRAFT RULE SEPTEMBER 1, 2005

EPA:
Date: September 20, 2005

1. **COMMENT:** We are providing comments based on our preliminary review of the draft rule identified above. In general, we are very supportive of the District's effort to reduce emissions from new development projects and we recognize that this effort raises unique challenges. Please direct any questions about our comments to me at (415) 947-4115 or to Lily Wong at (415) 947-4114.

RESPONSE: Comment Noted.

2. **COMMENT:** 1. Program Evaluations and the EIP
This rule relies on market-based strategies to reduce emissions and, as a result, is subject to national guidance entitled, "Improving Air Quality with Economic Incentive Programs" (EIP), EPA-452/R-01-001, January 2001. Specifically, the DESIGN program has elements similar to Clean Air Investment Funds as described in chapter 9 of the guidance. As a result, the District's staff report should demonstrate that the program is consistent with the EIP guidance including, for example, provisions regarding environmental benefit, consistency with attainment/progress plans and automatic suspensions. Generally, we do not believe these demonstrations will be difficult to make. However, we believe the District should expand the scope of the annual program evaluation requirement (rule provision 10.4) to address elements identified in the EIP (sections 5.3(b) and (c)), including evaluation of the overall effects of the program, whether the Air Impact Mitigation Fees are appropriate based on the cost of reductions, and whether the program is achieving the projected emission reductions. The rule should also describe the procedures and criteria for the evaluations. Lastly, since the District will be responsible for obtaining emission reductions for off-site mitigation projects, the SIP submittal should include the District's commitment to rectify in a timely manner any shortfall in emission reductions.

RESPONSE: The District disagrees that the rule is a market based strategy subject to EIP guidance. Indirect sources are not seeking to use incentive funding as a substitute for controlling emissions directly. Although it is not an EIP, the District intends to demonstrate that the program will provide environmental benefit and is consistent with all plans and rules. The appropriate

mechanism to ensure program performance is with annual reporting and corrective action to make up any shortfall. This can be accomplished by focusing funding on more cost-effective projects and would not require any special rule provision to accomplish. In the event that the rule did not achieve a milestone and altering the project mix was not successful, contingency measures are in place in the SIP to make up the shortfall while revisions to the rule are made or new rule(s) are adopted to correct the situation.

3. **COMMENT:** 2. Mitigation
The District should ensure that on-site mitigation of emissions and off-site emission reductions are enforceable.

RESPONSE: The on-site measures are voluntarily chosen by the developer and, when included as a mitigation measure in the local agency environmental document, are enforceable under the California Environmental Quality Act (CEQA). These types of measures have a relatively large amount of uncertainty, but are highly desirable due to their ability to permanently change trip generation and miles traveled. Therefore the District proposes to account for emission reductions accomplished onsite under Voluntary and Emerging Measures guidance. Projects funded with off-site fees will be under contract with the District enforceable under contract law.

4. **COMMENT:** 3. Director's Discretion
The rule (provisions 3.2, 3.5, 5.3) allows the use of an "APCO-approved model" to calculate emissions and emission reductions from development projects. To avoid inappropriate director's discretion, the rule should identify, by name and version, all models that may be used under this rule, or require that the model or model revisions be approved by the District and EPA.

RESPONSE: The rule has been revised to reflect that the District and EPA will approve models and model revisions used under the rule. Since all emission reduction calculations are accomplished using emission factors approved by the ARB and EPA and are consistent with the emission inventory factors, this should allow for quick implementation of model improvements that will be developed over time.

5. **COMMENT:** 4. Surplus
The rule should include provisions and mechanisms to ensure that emission reductions from on-site and off-site mitigation projects will be surplus to the requirements of the plan (e.g., reductions required by Rule 8061), and are not otherwise relied upon in the plan (e.g., part of the planning or growth assumptions in the plan). At a minimum, the rule should define "surplus" to include consideration of rule requirements and planning assumptions, and include provisions to prevent the double counting of emission reductions. We note, for example, that the May 19, 2005 PM-10 Plan (p. 4-45) lists a few specific

activities expected to provide emission reductions for this rule. However, the URBEMIS model allows credit for on-site mitigation measures not included on this list such as fewer wood burning stoves, energy efficiency projects and off-road maintenance equipment. While the Plan may include assumptions regarding these emissions, the District should ensure that the rule achieves the emissions reductions that the Plan predicts for the rule and that mitigation measures do not result in double counting of emission reductions assumed elsewhere in the plan.

RESPONSE: The District will demonstrate that all offsite emission reduction projects submitted for credit are surplus in the documentation for each program developed to utilize the off-site funds. The District's Heavy Duty Engine Incentive Program is the prototype for how it will manage funding received from Rule 9510. This program has stringent criteria for determining if reductions remain surplus for the wide variety of projects. The District works closely with ARB in developing guidelines such as those adopted for the Carl Moyer Program. These guidelines pay particular attention to the issue of surplus reductions. New project types will undergo a similar rigorous process.

ARB: No comment received.

California State Department of Transportation:
Date: September 8, 2005

6. **COMMENT:** The purpose of this letter is to comment on the proposed San Joaquin Valley Unified Air Pollution Control District (District) Rule 9510 (Decreasing Emissions' Significant Impact from Growth and New Development) and the associated fees as stated in proposed rule 3180 (Administrative Fees for Air Impact Assessment Applications). When applied to the California Department of Transportation's (Department) construction sites, these rules attempt to regulate vehicular (mobile) emissions regardless of the District's lack of specific authority to regulate these emissions.

Both statutory and case law clearly establishes that "local and regional authorities have the primary responsibility for control of air pollution other than vehicular sources." (See *California Health and Safety Code* sections 39002, 40000, 43000 and 43013). The responsibility for regulating vehicle emissions belongs to the California Air Resources Board. The proposed District rules attempt to regulate mobile emissions from vehicles without statutory authority and therefore, it is our position that the proposed rules do not apply to vehicular emissions on Caltrans projects.

RESPONSE: Rule 9510 does not attempt to regulate emissions from vehicles. The rule would regulate the emissions resulting from the act of construction and

the emissions resulting from the act of operation. The distinction lies in the following:

- The rule does not set emission reduction requirements for individual engines or pieces of equipment
- The rule does not require retrofits, the use or purchase of certain pieces of equipment or prescribe any specific use of emission reduction technology
- The rule does not limit emissions through hours of operation or prescribe certain activities that reduce emissions
- The rule does not require emission reductions to be achieved through the equipment or engines used.

Simply, an amount of reduction is required by the rule, which can be achieved through any on-site or off-site means that are quantifiable and meet the requirements of the rule. The rule does not set a fleet average, regulate engines or vehicles or otherwise delve into the realm of mobile emissions, which the District does not have authority to regulate. The District does, however, have the authority to regulate indirect sources per Health and Safety Code, Section 40716:

> *"(a) district may adopt and implement regulations to … reduce or mitigate emissions from indirect and areawide sources of air pollution."*

The District has the authority to control indirect sources, defined in the Clean Air Act (CAA §110(a)(5)(C)) as, "… a facility, building, structure, installation, real property, road, or highway which attracts, or may attract, mobile sources of pollution"(emphasis added). This authority comes from the CAA §110(a)(5)(A)(i):

> *Any State may include in a State implementation plan … any indirect source review program.*

The Indirect Source Review Program that the District is proposing would review the emissions from that indirect source (the facility, building , installation, real property, *road*, etc.) that occur from the installation of that source (i.e. construction) and the operation of that source (i.e. area and mobile). For transportation projects, essentially road construction, the District would review only the construction emissions associated with that indirect source.

It is the District's position that the proposed rule is within the authority granted to the District by the federal Clean Air Act and the California Health and Safety Code.

California State Department of Housing and Community Development
Date: September 15, 2005

The Department of Housing and Community Development (Department) has reviewed the Draft Rules as revised September 1, 2005 and continues to have significant concerns about their impact on housing development and costs in the San Joaquin Valley. Many of the concerns expressed in the Department's July 25, 2005 letter have not been addressed by subsequent revisions or by the District's responses to our comments, and are reiterated below.

7. **COMMENT:** 1. The on-site mitigation measures for residential development proposed by the Draft Rule 9510 duplicate the type of mitigation measures already required by the environmental review and mitigation process pursuant to CEQA or the local land-use permitting process. For example, requirements for transit measures, tree canopies, bike trails, etc., are already imposed by local governments during the existing local permitting process. This duplication is of particular concern if the projects cannot receive credit for such measures already incorporated in the project, or if the duplication were to result in most projects being charged fees for off-site mitigation programs. It is not evident that imposing the same type of mitigation requirements as those already imposed by State law (or sometimes federal as well) is necessary for the District to execute its powers as required by Health and Safety Code Section 70727 (b)(5).

Recommendation: Clarify that projects will receive mitigation credits for on-site mitigation measures approved or required by the local government's permitting process.

RESPONSE: It is the District's intent that all quantifiable on-site measures that reduce a project's emissions be given credit in the ISR program. The District does not require the applicant to implement any of the measure listed, but requires the applicant to identify which measures will and won't be implemented. The applicant is required to identify measures that are a requirement of another agency so that the District can identify which selected measures will need District enforcement, and which measures will be enforced by another public agency. The measures listed in Appendix C have a known quantification within the URBEMIS model. Measures selected will be credited to the project. The District will amend the rule language and staff report to reflect this.

8. **COMMENT:** 2. Draft Rule 9510 will lengthen and complicate permit-processing times for new homes in a manner inconsistent with the Permit Streamlining Act, which is applicable to all public agencies (*Chapter 4.5 of the Government Code, commencing with Section 65920)*. Draft Rule 9510 does not meet the consistency standard of Health and Safety Code Section 40727 (b)(4)).

- Section 8.1 of Draft Rule 9510 has been revised to require the District to determine the completeness of Air Impact Assessment (AIA) applications in ten days instead of thirty. It is unclear whether this changes will result in a practical benefit, however, as the Draft Rule does not include a mechanism for facilitating concurrent review between the District and local planning agencies. Sections 5.0 and 8.2 suggest the District is cognizant of the need to coordinate with local agencies, but does not specify the timing and nature of the coordination. Without concurrent review, developers who are required to, or elect to, alter a project may be required to resubmit plans to the local planning agency for additional discretionary review. Such outcomes would have additional and redundant cost implications for permit processing. Further, projects which would otherwise be subject to ministerial permit processing only, should not be subjected to discretionary review because of the Draft Rules.

- Draft rule 9510, Section 8.8, proposes the District should have 90 days to take final action on an AIA application. Consequently, absent a concurrent review, process time could now take an additional 90 days. In some cases, Draft Rule 9510 thus has the potential to double existing processing times.

Recommendation: Revise draft Rule to include a mechanism or process for concurrent review by the District and local planning agencies to avoid impacts on local government. The Rule should not directly, or indirectly, prompt local governments to assess yet additional fees for responsibilities which may fall on them in implementing the District's Rule.

RESPONSE: Draft Rule language will be revised to make application submittal for ISR concurrent with local agency processes. Specifically, applications must not be submitted after application for a final *discretionary* permit in the San Joaquin Valley Air Basin, and may be submitted prior to that time. The rule will not place requirements upon the public agency for review or implementation of the ISR process. The public agency review (§ 8.2) has been revised to a voluntary review. The District will be coordinating review with the public agency through:

1. Making the ISR process concurrent with or prior to the public agency process;
2. Forwarding a copy of the AIA application (upon determination of completeness), a copy of the AIA approval package (upon approval), and a letter of Final Compliance to the public agency for voluntary review and commenting;
3. Communicating with the public agency when necessary during the application review process; and
4. Providing a letter of project status to the public agency upon request.

It should be noted that this rule will not apply to ministerial projects, nor will it prompt ministerial projects into becoming discretionary projects. That determination is made by the local land use authority.

9. **COMMENT:** 3. There is insufficient information or clarity in the Draft Rules regarding not only permit processing coordination, but also quantification and cost of mitigation measures. According to Health and Safety Code Section 40727 (b)(3), a rule or regulation adopted by a District board should be "…easily understood by the persons directly affected by it." Neither the Draft Rules, the Appendices, nor the Draft Staff Report describes the methodology the District will use to determine the number or value of mitigation credits to be associated with the various mitigation measures. Other aspects of the Draft Rules warranting clarification include, but are not limited to: ….*(District - see Comments 10 through 13 below)*

Recommendation: Revise Draft Rule 9510 to include a detailed description and analysis of the methodology the District will use to determine the number or value of mitigation credits to be associated with various mitigation measures. Clarify the items noted above in Draft Rules 9510 and 3180.

RESPONSE: The District will clarify the staff report to address how emission reductions from measures will be assessed. All measures within Appendix C have a quantification methodology in the URBEMIS model. These methodologies may be read in the URBEMIS User's Guide, available at South Coast Air Quality Management District's website http://www.aqmd.gov/ceqa/urbemis.html, and will be made available at the District's website. The measures do not have a straight "credit" associated with implementation, but a calculated reduction based on various parameters, which may include interaction with other selected measures, amount input, and other parameters.

10. **COMMENT:** Draft Rule 9510, Section 5.5 – Mitigation and Monitoring Report Program: The Draft Rule should specify if the applicant or the District is responsible for preparing this document.

RESPONSE: The rule language will be revised to reflect the following: The applicant is responsible for preparing a proposed document. The District will provide the format and recommended keys for the document. The District will then work with the applicant to finalize the document prior to approval. It should be noted that this will only apply to measures selected by the applicant that do not have another enforcement mechanism, such as being a requirement by another public agency.

11. **COMMENT:** Draft Rule 9510, Section 8.5 – Air Impact Mitigation Fee Estimate Acceptance: What amount of time does the developer have to respond to the estimate provided by the District?

RESPONSE: The draft Rule will be revised to reflect the following Unless the applicant has proposed a Fee Deferral Schedule (FDS) prior to AIA approval, the applicant must pay the fee within 60 days, or may propose a FDS within 15 days of receiving the fee invoice. If the applicant proposes a FDS within the allowed timeframe, the District then has up to 15 days to finalize the FDS with the applicant.

12. **COMMENT:** Draft Rule 9510, Section 10.2.3 – Administration of the Mitigation Funds: what, if any, limits are there on the duration of the contract between the developer and the District?

RESPONSE: A distinction must be drawn between the ISR applicant, and an applicant for the funds. Section 10.2.3 discusses the process between the District and the applicant for funds. The duration of the contract will vary depending on the project. Some contracts will be completed upon installation, while others may require reporting for 5 years. For example, a road-paving project would have a contract that is completed upon installation, whereas an engine contract typically contains a 5-year reporting requirement. The staff report will be amended to include this information.

13. **COMMENT:** Draft Rule 3180, Section 4.2 – Application Processing Time Log: How long does the District have to respond to a developer's request for a copy of the Log?

RESPONSE: The District uses an automated Labor Information System (LIS) to track project time by all staff working on a project. This allows the District to easily prepare the time log within a short timeframe. The District standard for this type of request is 10 days. The District will amend Draft Rule 3180, Section 4.2 to state the District has up to 10 days to provide the information.

14. **COMMENT:** 4. The direct and indirect costs imposed by the Draft Rule on the residential development process will result increased housing costs. The rationale for these increased costs as required by the Health and Safety Code Section 40728.5 are not adequately identified nor justified by the complete analysis.

The Department commends the District's decision to reinstate the exemption for housing projects directly assisted by federal, State, or local housing funds. Assisted projects, however, only account for a small percentage of the San Joaquin Valley's workforce housing stock. The majority of new lower- and moderate-income residents will occupy market-rate units. Increases in

construction costs resulting from the Draft Rules will ultimately be passed on to these residents in the form of higher rents and home prices.

Yet, as indicated below, the Executive Summary of the socioeconomic assessment the District prepared pursuant to the Health and Safety Code Section 40728.5 concludes that increases in the construction and housing costs are irrelevant because lower-income residents are already overpaying for housing and are thus dependent on public subsidies:

The analysis demonstrates that, even before the imposition of an air quality fee(s), most low-income (and) households in the Central Valley are priced out of newly constructed multifamily unit market, the rents for which need to be at levels that account for the price of land, development cost, developer fees, and an adequate level of profit, among other things. The analysis discusses how public subsidies can assist in enhancing the financial feasibility of a real estate project in which a certain portion of units are set-aside as below-market rental units (San Joaquin Valley Unified Air Pollution Control District. Socioeconomic Analysis Proposed Indirect Source Rule: Draft Rules 9510 and 3180. 24 August 2005.p.1.)

The demand for assisted housing far exceeds available resources of all levels of government. The District should not assume that higher rents and home prices can be solely addressed by government subsidies. Furthermore, higher housing prices are problematic because the affordability gap widens, forcing more San Joaquin Valley residents to overpay for housing and/or live in overcrowded conditions. Additional regulatory barriers that increase the cost of housing supply must be restructured and their benefit should exceed their cost impacts.

The Department also notes that the socioeconomic assessment does not address the impact of the Draft Rules on small business or analyze the availability or cost-effectiveness of alternatives, as required by Health and Safety Code Section 40728.5(b)(1), (b)(3), and (b)(4). For example, Part 6 (p. 26-32) includes generic information about impacts on single-family and multifamily homebuilders, but does not specify impacts on small homebuilders.

Recommendation: Revise the socioeconomic assessment to include: 1) a more thorough analysis of the impact of the Draft Rules on the economy of the San Joaquin Valley, including the number of consumers who will be overpaying for housing; 2) the impact of the Draft Rules on small residential developers; and 3) alternatives to the Draft Rules.

RESPONSE: The Socioeconomic Analysis will be amended to include analysis on the rule's impact on small businesses. In addition, the analysis does not discuss alternatives because there are no identified alternatives to adoption of the ISR rules.

Although the Socioeconomic Analysis does discuss the role of public subsidies, the District's conclusion is not that low-income housing impacts are irrelevant due to public subsidies. The Socioeconomic Analysis discusses public subsidies to show the options and availability of what subsidies exist. The conclusion of the Socioeconomic Analysis is that the impacts on housing costs (both to the developer and the buyer/renter) are less than significant. The District's conclusion is similar to how some pollutant thresholds of significance are set. For example, the District is in non-attainment for ozone and PM10. It could be argued that because the air is bad already, *any* increase is contributing to non-attainment and therefore is significant. However, the District finds it impractical and unwarranted to force every project that emits *any amount* of the applicable pollutants into the 'significant' category. Therefore, the District determines significance for PM10 and ozone precursors against a threshold that aims to truly differentiate between less-than-significant and significant impacts. Similarly, the Socioeconomic Analysis states on page 37:

For the most part, rents that low-income households should pay are substantially below the rents that the typical new multi-family units construction in the region should command, even before the imposition of the air fee.

That is to say, the market is such that low-income households are already priced out of most new dwelling units. Any increase in housing costs, regardless of origin, will exacerbate this disparity. However, the analysis shows that the potential increase in mortgage is, "*a small fraction of the original household income required to finance a new home in the event no air quality fees were in place*," and the potential increase in rents are, "*similarly small*." (p.1)

15. **COMMENT:** 5. Draft Rule 9510 would impose mitigation fees without adequately establishing a nexus. The Draft Staff Report and Summary of Comments and Responses from the June 30, 2005 public workshop do not adequately support the nexus between the expenditure of mitigation fees and the location of indirect sources. For example, while NOx occurs throughout the District, the impact of other pollutants, such as PM10, is more localized.

Recommendation: Clarify the nexus between PM10 and the expenditure of mitigation fees.

RESPONSE: The District has prepared documentation included in the staff report for the rule that provides the information necessary to demonstrate a nexus between project impacts and the off-site fee. See Response to Comment #125 for the findings of the District's legal counsel's analysis of nexus requirements.

16. **COMMENT:** In summary, the Draft Rules do not appear to comply with the "clarity", "consistency," and "nonduplication" requirements set forth in Health and Safety Code Section 40727(b). Than you for the opportunity to submit additional comments. Given the magnitude of the concerns identified in this letter, the Department recommends that the District not adopt Draft Rules 9510 and 3180 as drafted and continue to work with all interested parties on needed revision.

RESPONSE: The District disagrees that Rule 9510 conflicts with H&S 40727(b). The District prepared a consistency analysis that is provided as Appendix G to the Staff Report. The rule is being revised to improve clarity of the requirements and will provide detailed rule implementation guidance prior to implementation and typically uses compliance assistance bulletins when issues arise after implementation. The rule does not duplicate other requirements on indirect and areawide sources. Emissions estimates used in the rule account for existing controls on vehicles and equipment. The rule requires a reduction of a portion of the remaining emissions after control. Because of the Valley's rapid growth, a substantial portion of benefit of the controls is offset; hence the need for additional emission reductions to reach attainment by deadlines mandated for the District's PM10 and ozone plans.

Local Public Agencies:

City of Hanford
Date: September 23, 2005

17. **COMMENT:** I applaud your efforts to continue to evaluate methods to improve the air quality in the valley. However, I would request that the San Joaquin Valley Unified Air Pollution Control District take the time to further study Draft Rule 9510 and Draft Rule 3180.

RESPONSE: This rule has been under development for more than two years. The District has had three rounds of workshops, focus groups, stakeholder meetings and other outreach. We believe that the rule development process has been adequate.

18. **COMMENT:** On behalf of the City of Hanford, I would ask that you slow down the process and identify specific steps and programs that will be implemented to reduce air pollution; include additional input from representative agencies and clearly identify how the funds collected will actually improve air quality in the valley.

RESPONSE: See the Staff Report for more information on how the rule works to reduce emissions through on and off-site measures and how the District will use funds received as a result of Rule 9510 and Rule 3180. In addition,

Appendix E (Cost Effectiveness Analysis for Rule 9510) for details on the exercise that the District has completed to ensure that:

1. The emission reduction projects exist in a quantity to provide the reductions necessary, and
2. Those projects exist at a cost-effectiveness that can achieve the schedule listed in the rule in Section 7.2.1 and 7.2.2.

19. COMMENT: The incompatibility of the proposed regulations regarding the CEQA requirements poses additional concerns.

RESPONSE: The District believes that Rule 9510 is fully compatible with CEQA requirements. The rule provides a new opportunity to provide consistent air quality analysis and emission reductions on a Valley-wide basis. See Response to Comments #8.

20. COMMENT: Restraint must be used in determining actions that would have a significant impact on our residents, the business community and our local governments. Specifically, there must be a nexus for the fee's charged and the specific identification on how the generated funds would be used to remedy the problem which exists.

RESPONSE: The District has designed the rule to address only a fair share of the impacts caused by new development. We are confident that the rule will mitigate emissions in direct proportion to the impact caused by the project in keeping with nexus standards. The key to meeting the nexus is that impact will be estimated with best available tools and emission reductions obtained to offset the impact will be quantified with best available factors and methods. See also Response to Comment #125.

Council of Fresno County Governments (Fresno COG)
Date: September 9, 2005

At the request of our Transportation Technical Committee (TTC), the Council of Fresno County Government (Fresno COG) is submitting this letter regarding the Air District's DESIGN (Decreasing Emissions' Significant Impact from Growth and New development) program. The most recent draft of the DESIGN program was discussed by Fresno COG staff and TTC members at the September 7, 2005 meeting. Many of our member jurisdictions have significant concerns over the proposed rule and requested that we submit the following comments.

21. COMMENT: Inadequate Notice and Review Time
In some cases, Fresno COG and our member agencies received only a one-day notice for the September 1, 2005 workshop. This late notice prevented several agencies from attending on that day. On several calls with the Air District last month, Fresno COG staff indicated the need for improved communication and

coordination. This continues to be a concern, as the current rule development schedule allows only two weeks to review and comment on the draft rule.

RESPONSE: The District has a list serve for the rule that enables all interested parties to receive immediate notice of workshops and document availability. The District accepts comments up to and including the Governing Board hearing, allowing for more than a month of additional review time should it be needed.

22. COMMENT: Transportation Projects Subject to the Rule
The short review time is especially troubling given the recent addition of transportation projects (with construction emissions greater than 2 tons per year) as subject to the DESIGN rule. Fresno COG and our local agencies are unclear how this will impact the project approval process and need additional time and information to assess the impacts.

RESPONSE: The rule does not impact the project approval process since the District has no discretion over those projects. The rule just provides a mechanism to enable the agencies to reduce the impacts of project construction. See also the Staff report.

23 COMMENT: Demonstrate the Air Quality Benefits
Fresno COG requests that the Air District clarify how this rule will improve air quality. Please provide additional analysis of the air quality improvements and examples of how the revenue will be used.

RESPONSE: The Staff Report contains analysis that quantifies the projected air quality benefits of the rule. Additional details regarding the potential projects funded by the rule are included in the revised Appendix E. See also Response to Comment #18 on the use of off-site funds.

24. COMMENT: Improve Response to Comments
As noted by several commenters at the September 1st workshop and by our member agencies at our committee meeting, Fresno COG also requests that the District develop and adequate process to address comments received. The "Response to Comments" distributed at the workshop was organized by category, rather than submitting agency; this made it time-consuming to locate and review specific Reponses. In several cases, our local jurisdictions indicated that comments were not addressed and needed to be given sufficient consideration by Air District staff.

RESPONSE: The District has modified the Response to Comment format to address this concern. The District feels that the current format will allow commenters to find their specific comments and the associated responses.

25. **COMMENT:** Identify Rule Changes
Please provide a document on the Air District website that identifies and tracks changes made from previous drafts of the rule. This has been the practice with other rule modifications and is essential to reviewing and commenting on this document.

RESPONSE: The changes to the draft from this round of comments will be made in strikeout/underline format.

Fresno County, Department of Public Works and Planning
Date: September 15, 2005

26. **COMMENT:** We are concerned with the language of the rules as it relates to transportation projects. Should 2.2 say "two (2.0) tons" **per year** "of NOx and PM10 combined.", based on similar language in 2.3.4 and 4.2

However, looking more closely, these three are *not* identical in that:
- 2.2 says "NOx and PM10 combined"
- 2.3.3 says "NOx and PM10"
- 4.2 says "NOx and PM10 each"

If there is a specific reason for the differences, can you explain?

RESPONSE: Since construction emissions occur during a specific period, the emissions are based on the total during the construction period. For example, if a project emits 3 tons of combined emissions during a six month construction period, that amount is subject to the 20% NOx and 45% PM10 emission reduction requirement. If a project emits the same 3 tons of emissions over two years, the calculation is also based on the entire construction project.

Section 2.2 refers to construction NOx and PM10, which is based off of 2 tons of NOx and PM10 total tons combined. The District will revise the rule language to clarify that construction pollutants are total tons combined, and operational pollutants are tons per year non-combined. Section 2.3.2 will be revised to state "NOx *or* PM10" and be specific to operational emissions.

27. **COMMENT:** Also, please look at 8.8. Under it you have 8.7.3, but should that actually be 8.8.4?

RESPONSE: The section will be renumbered as noted.

Kern County Planning Department
Date: July 22, 2005

The Kern County Planning Department appreciates the opportunity to comment on Draft Rule 9510 and Rule 3180 which are being implemented to assist the District's attainment goals for State and Federal standards for ozone and PM10. The stated purpose of Rule 9510 is to provide a mechanism for development to mitigate construction, direct and indirect emissions from their projects through design features, on-site and off-site measures. Rule 3180 will provide for payment of the District's staff cost to implement the new rule.

As our comments have consistently stated, the DESIGN Rule, while using the language of CEQA (Significant Impact) avoids all relationship to CEQA and simply defers any questions to a later time after Rule Development is complete. The following is a preliminary list of questions, comments and concerns regarding this matter.

28. **COMMENT:** What is the basis for the exemption of projects that have mitigated baseline below two tons per year for each pollutant from the Rule? Is this basis evidence that 10 projects in the same area producing less then two tons per year each are not cumulatively considerable under CEQA?

RESPONSE: The District has made changes to the project submittal timing in the rule to ensure that the air analysis conducted can also be used to support the CEQA process for the local agencies discretionary approval.

The rule is designed to reduce the impact of the project to the extent needed for the District to reach attainment of ozone and PM10 standards. The District calculated the level of reduction needed on a per-project basis that would achieve the emission reduction committed to in the PM10 and ozone attainment plans. The rule sets levels that are in compliance with state law regarding indirect source regulations and are feasible to achieve. Based on the District's analysis, project's with emissions below two tons per year of operational NOx and PM10 were not required to reduce emissions to achieve the emission reduction required by the District's plans for attainment.

29. **COMMENT:** Why are only NOx and PM10 being addressed when CEQA requires all pollutants to be quantified and mitigated to the extent they exceed thresholds?

RESPONSE: The ISR program's primary purpose is to meet attainment plan requirements *not* as a CEQA compliance method; however, we believe that reducing one precursor, NOx, will reduce the cumulative impact on ozone from new development to less than significant levels.

It is not the District's intent to reduce the impacts of all pollutants in the valley through this rule. The rules are the result of the District's PM10 and Ozone Attainment Plans, as they identified the need to reduce directly emitted PM10 and NOx in order to reach the standards on schedule. Sufficient ROG was obtained from other control measures to enable the District to predict attainment without additional ROG control. Therefore, the rule was able to focus on those two pollutants and can make the case that ROG from predicted growth from new development will not impact the attainment strategy.

30. **COMMENT:** The District has an established threshold in the GAMAQI of 10 tons of ROG yet no provision for mitigation in the DESIGN rule. Why?

RESPONSE: See Response to Comment #29 above. The GAMAQI is the District's Guide for Assessing and Mitigating Air Quality Impacts, specifically written to help lead agencies, as identified in CEQA, address CEQA for air quality impacts and may be revised to reflect changes that are appropriate.

31. **COMMENT:** Section 6.2 requires mitigation of only apportion of the project's emissions (1/3 of the project's first-year area source and operational baseline NOx emissions over a period of ten years) and then states that it "represents cumulative emissions…". The use of the term "cumulative" should be deleted and replaced by another term to explain the Districts intention. An interpretation of the phrase "cumulative emissions" in a CEQA document, under current case law interpretation, does not include such a reduction as proposed by the District. This disconnect will lead to confusion and legal challenges of CEQA documents.

RESPONSE: The District believes that the term "cumulative" best describes the emissions being reduced by the rule. The NOx emissions are declining over time, so a project that reduces emissions to the extent described by the fee formula will be mitigating its cumulative impact. See also Response to Comment #28.

32. **COMMENT:** The District is the authority that provides guidance and direction for local government on air assessments for CEQA and has been recognized as such by the Courts. If the District has sufficient basis for establishment of this Rule with reductions in required emissions to be mitigated on " the concept that annual NOx emission from motor vehicles declines 50% over ten years.", then the District should include in this Rule making, clear direction from the Governing Board to amend the GAMAQI, through a Public Hearing process, to formally adopt this approach in Air Quality Assessment methodology for CEQA documents. This process, which would necessarily include the fact basis for the adoption of this standard, would provide clear direction for the connection of this Rule to CEQA and provide support of the Lead Agency in current challenges to Air Assessment methodology in CEQA documents.

RESPONSE: The primary purpose of the rule is to help the District meet its attainment plan commitments. The rule provides for emission reductions in a framework that provides strong assurance that reductions will be real, surplus, quantifiable, and permanent and therefore should strengthen environmental documents that rely on reductions to reduce significant air impacts. The District's GAMAQI is formally adopted by the Governing Board at a public hearing. Any revisions will also go through a public review process with a workshop and Governing Board hearing. See also Response to Comment #28.

33. COMMENT: The staff report states on Page 11 that "The current concept is that Rule 9510 will mitigate the cumulative impacts of anticipated growth since the reductions attributed to this program was identified in two attainment plans as necessary to achieve the applicable standards." Yet the next sentence weakly states that "The District may (emphasis added) revise the GAMAQI to define the exact role that Rule 9510 will have in the CEQA process, prior to adoption of this program." Please clarify why the District is not committed to amending the GAMAQI to clearly provide relief for local government in CEQA litigation in a matter, air impacts, for which the District is the recognized expert.

RESPONSE: The District is committed to providing guidance through the GAMAQI that accurately reflects the impacts of all adopted District rules and regulations on air quality.See also Response to Comment #28 and #31.

September 1, 2005 Workshop – Verbal Comments

Bakersfield

Dr. Adrian Moore – Reason Foundation

34. COMMENT: There is a lack of a causal link between new uses and an increase in emissions from new trips. If it is automobiles that are causing the pollution that the rule is targeting, then the District should be going after automobiles.

RESPONSE: There are more than twenty years of CEQA documents that have consistently found that new development has a significant impact on air quality. New development is constructed to accommodate growth. Prior to development of green field areas there are no trips and no construction emissions at the project site. The argument that some trips are displaced from another existing use are not valid except in the short term. When people move to a new house, someone can be expected to move into the existing home and replace the trips the old homeowner was making. When commercial uses open in a new growth area, they may temporarily divert trips from existing commercial uses, but in a growing area the most important factor is an expanding market area. When the community adds enough residents to support another like commercial use, the

trips will be drawn from the area farthest from the existing use to the new use, and overall the number of trips is increasing.

35. **COMMENT:** The sources listed in the District's staff report are not published or peer-reviewed. Specifically, Dr. Holtzclaw's study is not published.

RESPONSE: The Holtzclaw study provides analysis of VMT differences in areas with different levels of pedestrian and transit accessibility in California. The study has been available for all who wish to review it. In addition, the study has been referenced by other researches numerous times in peer-reviewed journals.

36. **COMMENT:** Additionally, the benefits from design identified in the staff report are likely the result of self-selection and not an actual shift in modal choices based on design. Therefore the reductions from the increase in the on-site measures implemented will not materialize from implementation of this rule.

RESPONSE: The author's comment is based on a false assumption that there are no people in the San Joaquin Valley that would choose different development designs if they were available. The District maintains that trip making behavior would change if onsite design measures were widely implemented. The causal link between new development and vehicle emissions has been well documented and is generally accepted. The issue of self-selection v. modal shift in development with 'smart growth', 'transit-oriented' or 'pedestrian-oriented' design has not been resolved. It is known that there is a real, verifiable correlation between land use design and vehicle use. Studies show that well-designed development that considers pedestrian, bicycling and transit generates less emissions than totally automobile oriented design.

The District recognizes that there is always uncertainty when predicting individual travel behavior. For this reason, the District proposes to submit reductions claimed for onsite measures as a voluntary and emerging measure that allows for this type of uncertainty in order to promote innovation.

37. **COMMENT:** If it is automobiles that are causing the pollution that the rule is targeting, then the District should be going after automobiles.

RESPONSE: State and federal controls on motor vehicles are not sufficient for the District to attain federal air quality standards within mandated timeframes. The District has authority to seek additional reduction from indirect and areawide sources to close the gap. Stationary sources must provide offsets to further reduce emissions beyond what is feasible onsite. Indirect source rules operate under a similar concept. See also Response to Comment #6.

38. **COMMENT:** Reducing trips doesn't create large reductions relative to increasingly clean vehicles, regardless of increasing VMT

RESPONSE: The heart of the problem is that although vehicles are increasingly clean, increases in travel and VMT are offsetting a substantial portion of the benefit, hence the need for an indirect source review rule.

39. COMMENT: The housing impact is not near accurate because the market could be in a bubble right now. The Socioeconomic Impact Analysis should use quintiles instead of an average; you would find a huge impact on low incomes with that methodology.

RESPONSE: First, the impact on housing stated in the Socioeconomic Analysis was based on the number of housing units used by the District, which were based on the state population forecasts. If the growth rate exceeds the projection, the impacts will be greater and so will the need for emission reductions. Also, a greater number of units subject to the rule would have no added impact on individual development projects. Second, the use of an average is appropriate because the impact of the fee filters out over time, so the effect, such as an increase in rent, isn't immediate. See also Response to Comment #49.

Arthur Unger – Kern-Kaweah Chapter of the Sierra Club

40. COMMENT: The studies in the District's materials regarding differences in trip generation from different types of development are published.

RESPONSE: Comment Noted.

41. COMMENT: Concerning the information provided in the Socioeconomic Impact Report – the prices of housing in the Valley are a result of supply and demand, not necessarily resultant from fees that are assessed.

RESPONSE: The Socioeconomic Analysis supports the author's comment. The report states, "it is apparent that larger market forces are the primary culprit behind the increases in housing prices…"

Carla Waleka – Construction Industry Air Quality Coalition

42. COMMENT: The Construction Industry Air Quality Coalition would like to see the construction calculator and know the assumptions and inputs.

RESPONSE: The calculations used in the rule were done using URBEMIS construction module. The construction calculator used by SMAQMD is proposed as a model for development of a San Joaquin Valley version. We are now proposing to continue using URBEMIS with the option for developers to use a construction calculator if approved by the APCO.

Renee Nelson – Clean Water and Air Matter, Bakersfield

43. **COMMENT:** The process laid out by the District does not comply with CEQA. The process will allow for negotiations with applicants behind closed doors with no option for public input, which is required under CEQA. In addition, CEQA states that mitigation can't be differed until later. The District also put forth a comment that CEQA timelines vary with jurisdiction, which is untrue.

RESPONSE: The ISR program does not involve discretionary approval of development projects, and therefore is not subject to CEQA. We expect local agencies to use the air analysis accomplished for the rule and o-site emission reduction measures agreed to by the applicant *and the local agency* to reduce air impacts in their CEQA process. If a citizen has an issue with the approval of a project due to air quality impacts they will have the same options that are currently available to them to challenge the project and the validity of the analysis used to support the decision made by the local council or board. See also Response to Comments #8 and #28.

44. **COMMENT:** This program must be aligned with CEQA and should not allow changes to a project behind closed doors.

RESPONSE: The rule is being revised to change the application timeframe to be concurrent with the local agency CEQA process. District has no authority to require applicants to include on-site emission reduction measures. We have traditionally worked with applicants to help them identify changes to the project that would reduce air impacts as early in the development process as possible and will continue this effort. The rule requirement is for the applicant to fill out the on-site emission reduction checklist; however, it does not prescribe a minimum or maximum number of measures that should be checked. The responses on the checklist are solely up to the applicant. The land-use decision making authority is with the local land use authority, not the District. The AIA information will be made available to the public. See also Response to Comments #8 and #29.

45. **COMMENT:** Does the ISR program apply to agricultural projects?

RESPONSE: The District believes the applicability section and the definition of a development project effectively exclude agricultural projects.

46. **COMMENT:** Will the ISR apply to waste-hauling projects?

RESPONSE: Hauling projects are not specifically stated as a project in the rule. ISR projects are land-use based, triggered by a discretionary permit in combination with new construction or increased use that generates construction and/or area and mobile emissions that exceed the ISR threshold. If a land use requires a discretionary permit, and meets or exceeds the applicability threshold, then the emissions from hauling would be subject to the rule. However, if the project is hauling operations alone then it would not be subject to the rule.

47. COMMENT: Where will mitigation funds be used in relation to the project assessed the fees?

RESPONSE: The funds will be spent within an area based on the type of pollutant. NOx is a regional pollutant, but every attempt will be made to fund projects in the vicinity of the project site. PM10 is a more localized pollutant, and PM10 funds would be spent closer to the project assessed the fees.

Brian Todd, BIA and Business, Industry and Government (BIG)

48. COMMENT: The District needs to tell the public about how much more fees will be in the Bakersfield area due to the need for additional PM10 reductions.

RESPONSE: The additional PM10 reductions cited by the commenter is the 1-ton per day by 2010 needed in the Bakersfield Metropolitan area. This rule does not address that reduction. ISR program fees are tonnage based and do not adjust by location. The 1-ton needed in Bakersfield is being addressed through a PM10 task force. Voluntary mitigation agreements in the area may be used to the extent that they mitigate beyond the requirements of Rule 9510.

49. COMMENT: The dynamic driving prices for housing in small and medium cities stated in the presentation is due to school fees. The ISR fees will exacerbate this problem. In addition, the housing market may be a bubble. Basing the fee on housing bubble numbers is a flawed methodology because the market is unstable, and the fee revenue depends on the number of houses.

RESPONSE: The District fees were not based on the number of housing units going in. The fees were based on the amount required to offset emissions, and is purely emission based. The expected *fee revenue* and *future impacts* are estimated from the forecasted population data from the state and the emissions from growth in residential and non-residential development.

It is important to note that the District will only be collecting fees to reduce as in there is development creating emissions to reduce. If the number of houses decrease (bubble burst), the District would have fewer emissions to reduce; therefore, the same fee brings the appropriate amount to reduce those emissions (less revenue). If the number of houses increases, the District would

have more emissions to reduce; therefore, the same fee brings the appropriate amount to reduce those emissions (more revenue).

Heather Ellison

50. COMMENT: What is the meaning of 'recreational space' and 'unidentified space' in the rule?

RESPONSE: Rule 9510 §13.7 defines recreational space for recreational uses such as soccer fields. Unidentified is a catchall category to indicate that other land use categories not listed are still subject to the rule if they generate emissions and are not otherwise exempt.

Mike Kelly – Western State Petroleum, Vector Environmental

51. COMMENT: Previous comments to the District were not adequately addressed in the previous response to comments. The law states that the District can regulate the increase in emissions. There is a concern that the Rule will trigger review of those discretionary permits that don't result in an increase in vehicle traffic, such as certain Conditional Use Permits (CUPs).

RESPONSE: The District typically consolidates similar comments and provides a single response. The District will consider providing individualized responses on a case-by-case basis.

The Rule applies to the *increase* in emissions resulting from land-uses changes that require a discretionary permit. Therefore, if project requires a discretionary permit, but does not result in an increase in emissions that meet the applicability threshold, then it would not be subject to the Rule. However, if the CUP allows for an increase in indirect or area source emissions or new construction activity that generates emissions, it would be subject to the rule if not specifically exempt.

Fresno

Bob Keenan – BIA, BIG

52. COMMENT: Fee collection and use is governed by the Health and Safety Code, §6600 subsection G. The rule does not meet those requirements.

RESPONSE: The author cites Government Code Section 66000 (The Mitigation Fee Act) as the impetus for promulgating a nexus document. The legislation clearly states that it is applicable to fees (§66000(b)), "in connection with approval of a development project." Section 66000(a) defines a development project as including, "a project involving the issuance of a permit for construction

or reconstruction, but not a permit to operate." In addition, Section 66001(a) states:

> *In any action establishing, increasing, or imposing a fee **as a condition of approval** of a development project by a local agency on or after January 1, 1989, the local agency shall do all of the following:*
> (Emphasis added)

Section 66005(a) also ties the legislation with 'condition of approval of a development project'.

1. The District will not approve or disapprove a development project, but will approve or disapprove the project's analysis to determine the quantity of emission reductions required to comply with the rule. The authority to approve or disapprove the development itself is the local land-use agency, not the District.
2. The District will not be issuing a permit, nor will the District give a discretionary approval of the project.
3. The District's ISR action is ministerial, and therefore will not include conditions of approval.

The District stands by its previous assessment. The Mitigation Fee Act does not apply to the ISR rules. However, the District has analyzed the applicability of nexus requirements to this rule. See Response to Comment #125 for the findings of the analysis.

53. **COMMENT:** Fees paid at the permit doubles to the buyer and prices people out of the market.

RESPONSE: Fee prices may price some people out of a particular house, but not necessarily out of the entire market. Currently, market forces are increasing the price of housing to a much greater extent than the fee would. In addition, the difference between paying prior to building permit issuance and at certificate of occupancy can't possibly double the cost unless the loan was at an astronomical interest rate. If the fee were financed in a mortgage at 30 years it may double, but it also doubles the amount they are paying for anything.

54. **COMMENT:** The fees from the program will drive up the costs of existing housing.

RESPONSE: Existing housing is not subject to the rule. Although the District realizes that sellers of existing housing may take advantage of a potential increase in new housing prices by artificially inflating the price of existing housing, the District does not have control over existing housing prices.

Increases in existing housing prices 'attributable' to the rule would be resultant of the seller, not of the District.

55. COMMENT: The impact of the fees resulting from implementation of the ISR program would ruin the Valley's economy.

RESPONSE: The commenter's position that ISR fees would ruin the economy is not supported by factual evidence. The Socioeconomic Analysis found the worst-case scenario of fees to be within the margin that can be absorbed by the economy. This is not to say that there is no impact, but that the impact is less than significant. In addition, the residential scenario in 2008 resulted in a fee of about $1,800 per house. This scenario had no emission reduction measures included; it had a density of 3 unit per acre (increased density decreases emissions), no sidewalks, or any other measure that reduces emissions (and thus fees). See also response to comment #56 and #14. Finally, housing prices have steadily increased in over the last ten years. This increase is far more than $1,800 *every year*. The District does not state this to justify the potential fee, but to illustrate what has occurred in housing prices and that the Valley's economy has not crashed as a result. It is illogical to suggest that a potential $800 per residential unit in 2006 to $1,800 in 2008 would ruin the Valley's economy. As stated in Response to Comment #14, the fee amount listed in the Socioeconomic report is likely much more than will actually occur.

56. COMMENT: The cost of on-site mitigation is not included in the socioeconomic impact report. Therefore, the report does not accurately reflect the impact of the rule.

RESPONSE: The Socioeconomic Analysis does not include the price of on-site emission reduction measures for a specific reason. That is, it is reasonable to expect that an applicant would not choose a more expensive option over a cheaper option. The 'worst-case', no on-site-measure fees are therefore the most that an applicant would pay. It is also important to note that on-site measures are entirely voluntary.

Also of note, many of the on-site measures that count towards reduced emissions are *already* requirements by local land use agencies. For example, most agencies require some amount of sidewalks or bicycle improvements with development that is adjacent to a street. URBEMIS calculates an emission reduction from the amount of sidewalks and bicycle infrastructure built in the project. Therefore, crediting certain on-site measures are of no additional cost to an applicant because they had already incorporated the measures into the project as a result of the public agency requirements.

Mark Stout - Fresno Metro Ministries

57. COMMENT: The proposed rule only mitigates a portion of the emissions. Why does the rule only reduce a portion of the emissions, and why the particular level- for example the 33% for operational NOx.

RESPONSE: The District calculated the level of reduction needed on a per-project basis that would achieve the emission reduction committed to in the PM10 and ozone attainment plans. The rule sets levels that are in compliance with state law regarding indirect source regulations and are feasible to achieve. The 33% is based on the area under the triangle that accounts for declining mobile emissions over time – see the fee formula.

58. COMMENT: A slide of the presentation showed huge NOx emissions increase from 2006 to 2010 from development. The number listed for reduction attributable to the rule seems rather small in comparison.

RESPONSE: The slide incorrectly showed the reductions attributable to construction as cumulative instead of temporary during the construction phase of development.

59. COMMENT: The District would benefit from making the URBEMIS runs available to the community groups. The community groups should be able to review what developers are inputting, and verify the modeling.

RESPONSE: The runs will typically be used in the CEQA process and included with negative declarations and EIRs. The files will be available with a public information request. The District will make this information public. See also Response to Comment #8.

Colby Morrow – Southern California Gas Company

60. COMMENT: Appendix C should be amended. PUC Energy Efficiency programs can be administered by energy companies and municipalities.

RESPONSE: Appendix C, page C-5 will be amended.

Cathy Crosby, Fresno County Public Works, Transportation and Planning

61. COMMENT: The response to comment format from the previous workshop made it difficult to find one's comments and the associated responses. The preferred format would be the EIR format, where the original comment letter is retained.

RESPONSE: The District has revised the response to comment format to address this issue. The format is a hybrid, retaining the original comment but not in the original letterform.

62. COMMENT: Several of the Fresno County July 22nd comments weren't addressed in the response to comments. Specifically:

- Transportation projects should be re-written to include non-vehicle projects, such as pedestrian projects.

RESPONSE: The definition of Transportation projects does not include non-vehicle projects because of the definition of an indirect source. The Clean Air Act (CAA §110(a)(5)(C)) defines and indirect source as, "… a facility, building, structure, installation, real property, road, or highway which attracts, or may attract, mobile sources of pollution". Pedestrian projects do not attract mobile sources of pollution, but pedestrians. It would be inappropriate to include non-indirect sources in with transportation projects to be subject to the requirements of the rule.

63. COMMENT: §7.2.2.2 of their letter describers the dissolution of community service districts.

Previous Comment
7.2.2.2- Community Service Districts (as a means to insure perpetual funding for operational mitigation): The Air District may want to evaluate under what conditions a Community Service District that funds any mitigation activity not directly related to health & safety may, after formation, discontinue assessment or dissolve the Community Service District by vote of property owners making up the District.

RESPONSE: All measures within the on-site checklist have an emission reduction benefit associated with their implementation. The District identified those on-site measures that reduce emissions from development projects, and help reduce the air impact of development projects. The goal of the rule is to reduce emissions from development project to achieve the emission reduction committed to by the PM10 and ozone attainment plans. Although each measure is indirectly associated with an air benefit (reduced emissions and attainment of the PM10 and ozone standards), the District considers the measures to be health-related. Therefore, funding of these measures constitutes a health-related activity.

64. COMMENT: Maintenance concern. Where will the funds for County enforcement of the rule come from?

RESPONSE: The County will not be required to enforce the rule. See Response to Comment #8.

Ray Leon – Latino Issues Forum

65. **COMMENT:** The District should clarify the PM2.5 and toxics issue. Suggests that the District break PM10 down further to strengthen the rule.

RESPONSE: This rule is a result of the PM10 and ozone attainment plan commitments. The rule controls NOx and PM10. Some fraction of PM10 is PM2.5 and will be reduced as a result of the rule. NOx reduces ozone during the warm months and reduces ammonium nitrate, most of which is PM2.5, during the cold months of the year.

The District recognizes the issue of toxic emissions from diesel engines, and the particular hazards of PM2.5. However, toxics are addressed through the District's permitting program, state regulation, and through CEQA commenting. District thresholds of significance for these pollutants are contained in the Guide for Assessing and Mitigating Air Quality Impacts (GAMAQI). In addition, PM2.5 will be addressed in the federal PM2.5 Attainment Plan due in 2005.

Mike Sanchez – City of Fresno

66. **COMMENT:** The city's July 22nd comments need to be addressed; they weren't addressed in the previous response to comments.

Previous Comments (paraphrased)

Nexus and Proportionality

- **A.** What is the Nexus determination for the project
- **B.** ISR rules address emissions from existing development; so, placing requirements on new development to remedy problems from existing development would be inappropriate.

Relationship of SJVAPCD and Rules 9510 and 3180 to CEQA and Planning Law

- **C.** Rule appears to defer or circumvent CEQA analysis because analysis and mitigation would be prepared after CEQA analysis. Also, it appears that the District would be issuing a construction permit, making the District a responsible or trustee agency.
- **D.** There may be differences in interpretation of mitigation measures and the reductions associated with them.
- **E.** Because the District is the appropriate agency to make a detailed determination of air quality impacts and appropriate mitigations, the District should fulfill its CEQA responsibilities by providing analysis and recommendations to the local land use jurisdictions so that the CEQA analysis work can be completed with this information.
- **F.** The District should not determine locations or patterns for development, this is the local jurisdiction's authority.

G. "Analysis and conclusions regarding land use and its vehicular emissions need to be rooted in data… recommend objective criteria"

Applicability of the Rules 9510 and 3180

H. It is not addressed if the rule applies to general, regional, community or specific plan adoptions. At that level, project specific information may not be known, and analysis may not be accurate. Therefore, they should be exempted from the rule**.**

I. Each public agency defines 'discretionary' and there is variability as to what each public agency considers discretionary. Therefore, the ISR rules will be applied inconsistently.

J. Language should be included in the rules to prevent piecemealing.

Timing and Project Tracking

K. Request ISR review to be shortened from 30 to 10 days to , "remain within the statutory CEQA timelines for responding to initial study requests" because URBEMIS runs are quick. The District should send the ISR project information to the public agency for incorporation into CEQA documents.

L. How will timing of construction be controlled for mixed use projects, since commercial often lags behind residential development?

M. How will the District track projects, such as multi-phase tract maps or shell buildings, for review and analysis.

Interagency Cooperation

N. "The ISR Rules propose that cities and counties withhold building permits pending satisfaction of SJVUAPCD requirements." There should be an agreement between the public agencies and the District that includes indemnification of the city.

O. "Local land use jurisdictions should be made a party to any mitigation agreements entered with the developer…(and) it would be ideal if such agreements were recorded as covenants running with the land…for which the … analysis was done."

Use of Mitigation Fees Collected Through ISR Rules

P. It appears that the ISR funds will be used to fund existing programs. New programs that expand mass transit and similar systems should be considered. "… the majority of the funding generated through the ISR rule should address vehicular pollution through measures to reduce traffic volume and relieve traffic congestion in the vicinity of the land use projects paying the ISR Rule-related fee."

RESPONSE:

A. See Response to Comment #125

B. ISR rules address emissions from *growth*, not from existing emissions. See Response to Comment #170. See also, Response to Comments #34 and #39.

C. Rule has been revised to be concurrent with CEQA analysis and Public Agency approval process. See Response to Comments #8 and #44. Also,

the District would not become a Responsible agency as a result of ISR implementation (See Response to Comment #52 and #187)

D. The measures listed in the On-Site Emission Reduction Checklists have a known quantification method associated with them. Applicants will identify the *specific* implementation of each measure, so there will not be interpretation of the amount of reduction. See also Response to Comments #7 and #9.

E. Although the ISR rules were not written to address CEQA, the reductions committed to in the PM10 and ozone attainment plans from this rule and individual project compliance can be used in CEQA documents at the public agency's discretion. See Response C above for timing of ISR implementation. See Response to Comment #8 for information on communications between the District and the land-use authority.

F. The District will not be making land-use decisions, and recognizes that that is the authority of the local land use agency. The land-use design considerations discussed by the District are discussed because they are known to reduce air quality impacts. The District provides these types of measures to encourage applicants to design projects submitted for city/county approval in ways that improve air quality and reduce potential ISR fees. The District has no authority over implementing land-use changes. Please note, the District will not require a minimum selection for the on-site checklist, measures selected are voluntarily identified by the applicant and are likely already part of the project. See also Response to Comment #43 and #44.

G. The measures listed on the on-site checklist have objective criteria, based on extensive research within URBEMIS. Please refer to Appendix D (Recommended Changes to URBEMIS for Rule 9510 and 3180) and the URBEMIS User's Guide (available at URBEMIS User's Guide, available at South Coast Air Quality Management District's website http://www.aqmd.gov/ceqa/urbemis.html). See also Response to Comments #7 and #9.

H. The ISR rules are applied to the last discretionary approval of a development project per Rule 9510 Section 2.1. The adoption of a general plan or specific plan is not usually the last discretionary approval a project will go through. Residential development may be rezoned, and must get a subdivision or tract map. Conditional Use Permits and Site Plan Reviews often apply to commercial and office development. However, the District recognizes that some projects may not require additional discretionary approval after the zoning is approved. Specifically, industrial development may not require additional approval. Therefore, the last discretionary approval will vary depending on the project. The District will provide outreach to developers and the public to ensure awareness of the rule; however, it is the responsibility of the applicant to be aware of the need, or lack thereof, for additional discretionary approval by the local land-use agency, and to apply at

the appropriate time. Additionally, applicants are encouraged to apply *prior* to the application for last discretionary approval with the land-use agency.

I. The District recognizes the variability of the application of 'discretion' in the Valley. As stated in H above, the last discretionary action is the trigger for the rule. This may cause inconsistency early in ISR implementation; however,

J. Language has been included. See Rule 9510 Section 2.3

K. First, the ISR program is not a CEQA compliance program (See Comments above). Analysis of the AIA application involves more than opening and running URBEMIS. The District will be analyzing the documentation for projects, running modeling program, finalizing MRS's, finalizing FDS's, etc. See the Draft Staff Report for additional information. The District will be sending information to the public agency. See Response to Comment #8.

L. The District does not have the authority to control construction timing. See Comments F, G and H above.

M. The District will be tracking projects through a database, and will be tracking project location primarily through APN. Multi-phase projects will be entered as such, with the applicable expected build-out dates. The applicant is responsible for identifying the use and build out of the projects. Should the project change, the applicant is responsible for notifying the District. If the project changes such that there is an increase in air emission and the applicant does not notify the District, they will be in violation of the rule and subject to District enforcement action. The District will share project information with public agencies to coordinate project tracking.

N. The District will not require or request that public agencies withhold building permits for ISR enforcement. However, the District may enter into an agreement with a public agency for information sharing that would facilitate District enforcement of the rules.

O. The District will be sending the public the on-site emission reduction checklist, as well as other information (see Response to Comment #8) during the review process. The District will consider the use of covenants for MRS compliance enforcement.

P. The District will not be using the ISR funds solely for existing emission reduction programs. The District has conducted an analysis of emission reduction projects available, and the cost effectiveness associated with them. This analysis can be found in Appendix E. See Response to Comments #18 for the use of funds, and #47 and #188 on the location of funding projects.

Modesto

Sally Rodeman – CalTrans, District 10

67. COMMENT: District 10 did not receive the notice for the meeting.

RESPONSE: You will be added to the rule mailing list. Other Caltrans staff received notice.

CalTrans District 10 is on the District's mailing list as a street address, to which the District has been mailing notices. District staff looked into the issue, and found that the CalTrans website lists a PO Box for District 10. The District will work to resolve this issue.

68. COMMENT: Is CalTrans a developer as defined by the rule?

RESPONSE: CalTrans would be a developer in those instances where the project meets the applicability of the rule.

69. COMMENT: Can the District put that in writing in the rule?

RESPONSE: The District does not specify or write out *who* a rule applies to, but write *what* a rule applies to. The rule is written so that all entities and individuals conducting activities subject to the rule must comply, so there is no need to list every possible agency or entity subject to the rule.

70. COMMENT: Does the Socioeconomic Impact Report account for impacts on the State of California, considering that the state is broke?

RESPONSE: The socioeconomic analysis provides the overall impact to the economy but does not specifically separate out impact to individual government agencies.

71. COMMENT: Does the District have a list of mitigation measures for construction?

RESPONSE: The Staff Report contains a discussion of measures that reduce emissions from construction activities.

Tom Carlson – Sierra Research

Thanks for addressing Sierra Research's comments from the last draft of the rule. Particularly, for Sierra Research's comments on silt loading, trip links and fleet mix.

72. COMMENT: How will the District be addressing the needed changes to the URBEMIS model?

RESPONSE: Updated default values will be provided as rule guidance. This information may be contained in the next update to the GAMAQI. The next upgrade to URBEMIS, beginning next year will include many of the new defaults and an improved construction module. The upgrade may take as much as a

year to complete, so in the interim, the guidance documents will be provided as needed.

73. **COMMENT:** What is the basis for the targets on PM and NOx reductions from construction?

RESPONSE: The District researched what other air districts had set for reductions, and found that those targets are achieved in practice. The reductions (20% NOx and 45% PM10) are achievable with existing technology with a mix of newer equipment and retrofit devices, and will allow applicants applying moderate effort to pay no fee on construction.

74. **COMMENT:** What is the District's response to the vehicle age distribution by age of project that Sierra Research had provided? Is the information provided by Sierra Research not adequate or substantial enough to change the modeling?

RESPONSE: The District is not currently convinced that the data cited would be valid in all circumstances, but will consider projects that provide evidence supporting a reduction for fleet age. There may be other factors that offset the possible benefit from newer vehicles such as higher rates of vehicle ownership (more vehicles per household).

75. **COMMENT:** URBEMIS is a sketch planning tool. Sierra Research believes the District should use a travel model. Sierra Research believes that a travel model is more accurate than URBEMIS, and found that URBEMIS estimates are 60% higher than the travel model estimates for the same project. In addition, as a sketch tool, URBEMIS is inconsistent with SIP methodology.

RESPONSE: The District believes that URBEMIS has been improved beyond its characterization as a sketch planning tool. Very few of the modules of the program are overly conservative. Most modules rely on statewide averages extracted from the emission inventory which should not be considered conservative estimates. The most important module is the mobile source module that includes the same emission factors used to build the emission inventory. It does a good job of arriving at a composite emission rate needed for a project level analysis. Models can always be made more accurate by individualizing more and more input factors. The District believes that URBEMIS balances data requirements with reasonable output accuracy and ease of use. The travel demand models described by Sierra Research are extremely data intense and would be very costly to run for the approximately 1,000 projects that will be submitted to the District each year. It is uncertain whether the demand models are more accurate for project level analyses than URBEMIS with local information**.**

Jan Ennenga – Manufacturing Council

76. **COMMENT:** There is a concern that the ISR program would apply to CEQA processes and permits for existing facilities that make modifications.

RESPONSE: ISR projects are land-use based, triggered by a discretionary permit in combination with new construction or increased use that generates construction and/or area and mobile emissions that exceed the ISR threshold. If a land use requires a discretionary permit, and meets or exceeds the applicability threshold, then the emissions from hauling would be subject to the rule.

77. **COMMENT:** What exactly does "primary source of emissions" mean for the exemptions section?

RESPONSE: The District had originally include an exemption for "A development project, whose primary source of emissions are from stationary sources…" However, the District is revising exemption to make specific land uses exempt. The District has completed a review of industries permitted by the District. This analysis details the amount of rules that apply to each industry and the amount of pollutants regulated by these rules. The intent is to remove the ambiguity of "primary" emissions and detail which industries will be exempt from the rule. In addition, industries with stationary sources may petition the APCO for ISR exemption.

Bill Zelocci – BIA CC, PSSP, StanCo (Affordable Housing)

78. **COMMENT:** The bill targets housing only. The fees, at least the biggest fees are from housing. The Rule doesn't affect other land uses that produce vehicle trips.

RESPONSE: The rule targets new development that results in area and/or mobile emissions. The rule contains an applicability section and an exemptions section. The rule *does not* target housing exclusively or charge higher fees for residential development. Housing constitutes about 1/3 of the development related emissions and therefore 1/3 of the potential for fees under the rule. Other land uses such as commercial office and retail generate more emissions and potential fees. Housing is used extensively in discussing socio-economic impacts because that is what concerns most people. Fees are emission based, not land-use specific. Fees apply to the broad categories of land uses specified in the rule. Certain land uses are exempted from the rule because their emissions are primarily from stationary sources, and they have been subject to extensive controls and requirements already. The sector targeted by the rule are those land uses without the majority of emissions from controlled stationary sources, which haven't been subject to rules or emission controls.

All fees are tonnage based, and the required reduction formula applies equally to all applicable projects. This means that a particular project only pays the off-site emission reduction fee for the required reductions that are not achieved on-site.

The Socioeconomic Analysis discusses the potential impacts to housing more extensively than the impacts to commercial or industrial, because the impact on housing affordability is of a greater concern to the affected industries and the general public than the impacts on commercial or industrial.

Certain land uses are exempted from the rule because their emissions are primarily from permitted stationary sources (the rule only covers area and mobile emissions), and they are and have been subject to extensive controls and requirements.

79. COMMENT: The rule should also address existing housing.

RESPONSE: The goal of the rule is to achieve an emission reduction from *growth* that was identified in the PM10 and ozone plans. Although VMT is increasing valley wide, the majority of new emissions are attributable to new development. It would be inequitable to assess fees on existing uses with the purpose of mitigating emissions from growth.

80. COMMENT: Part of the presentation used small, unreadable font. Please use a reasonably large font for presentations, so that people may be able to read what is on the screens.

RESPONSE: Comment Noted. The District apologizes for the illegible font-size, and will attempt to make future presentations clear and readable.

Randy Hatch – Planning Director, City of Ceres

81. COMMENT: There is a concern that the ISR program will cause changes to a project after a local agency has granted approval to the project.

RESPONSE: The rule has been changed to make the process concurrent or prior to the approval process by the public agency. The District defers land-use choices to the public agency and the applicant. See Response to Comment #8 for more information.

The District does not place requirements for land-use measures on the project. The on-site emission reduction checklist must be filled out by the applicant, but the District does not have a minimum or maximum requirement for the number or type of measures to be selected. Inclusion of measures is voluntary by the applicant (see Response to Comments #56). The District will not engage in negotiations to include on-site measures (See Response to Comment#44).

Therefore, the District will not be imposing measures that conflict with the local land use agency. It is the applicant's responsibility to make sure that those measures they have voluntarily selected are consistent and approvable by the local land use agency. In the instance that the identified measure is not acceptable by the local land use agency, the applicant is responsible for notifying the District and the on-site emission reduction checklist and emissions modeling will be revised to reflect the project at that time.

In addition, the rule and staff report will be revised to provide more interaction with the public agency and the District. See Response to Comment #8 for more information.

82. COMMENT: How do public agencies determine compliance with the rule, especially if the District's approval can occur after the approval by the public agency?

RESPONSE: The District will revise the ISR process to be concurrent with or prior to the approval process at the public agency. See Response to Comment #8 for more information. Specifically, the District will provide letters notifying the public agency of the Determination of Completeness, AIA Approval and Final Compliance, as well as providing a letter of compliance status to the public agency upon request.

83. COMMENT: What exactly is meant by 'parks' in the applicability section?

RESPONSE: Active recreation parks – parks that attract motor vehicles. It is not the intent of the rule to assess passive recreation parks. Parks will be assessed based on emissions the same as other land uses,

84. COMMENT: The City of Ceres suggests the District alter the application process to make it prior to the final public agency approval, perhaps by tying it to the application to the public agency. In addition, the City suggests the District include a predevelopment process. The City of Ceres has a predevelopment process that aids in the application process.

RESPONSE: The District will amend the rule language and the staff report to make the application to the ISR program concurrent with or prior to the final discretionary approval application to the public agency See Response to Comment #8 for more information. The District does not currently have a plan for formal pre-application consultations. However, the District will be available for consultations any time prior to actual application and encourages applicants to meet with District staff to clarify issues when needed.

Fresno

Kathryn Phillips – Environmental Defense

85. **COMMENT:** Concerning the view that land use does not have an impact on air quality (see comment #34) – that is a minority view. Most have realized that land use does have an impact on air quality.

RESPONSE: Comment Noted.

86. **COMMENT:** Concerning the issue of self-selection (see comment #36), the choice of good design should be available.

RESPONSE: Comment Noted.

87. **COMMENT:** The URBEMIS model is imperfect, but it is appropriate for this rule.

RESPONSE: The District concurs. The District is aware that there is not a 'perfect' model available, nor is there likely to be one in the future. However, the URBEMIS model is best available method for quantifying project emissions and benefits from on-site measures.

88. **COMMENT:** Rule 9510 section 2.1.8 has one threshold for recreation, but the definition includes movies. 'Movie theaters' are more commercial in nature, and should be moved to commercial. In addition, 'parks' should be defined.

RESPONSE: Comment Noted. 'Movie theaters' will be removed from recreation to commercial.

89. **COMMENT:** A 2-ton exclusion level (Rule 9510 section 4.2) is too generous. This level should be reduced.

RESPONSE: See Response to Comment #180.

90. **COMMENT:** Rule 9510 section 2.2 discusses transportation projects that have two tons or more of NOx and PM10 combined. How large of a project would fit this description? How large would a project be to be subject to the rule – a pothole or an interstate exchange?

RESPONSE: Small maintenance projects would not exceed the threshold. Construction of a one-half mile arterial road segment would exceed the threshold. The road project must also be subject to a discretionary approval to be brought into the ISR process.

91. **COMMENT:** Rule 9510 section 3.5 defines 'Baseline Emissions'. This section should be clarified. Where exactly is the baseline?

RESPONSE: The definition will be changed to the following:
Baseline Emissions: the unmitigated estimated NOx and PM10 emissions, output calculated by the APCO-approved model, in the units of tons per year.

In addition, the following will be added to the definition section of the rule to clarify the issue of baseline:

Construction Baseline: the sum of unmitigated NOx or exhaust PM10 for the duration of construction activities for a project or any phase thereof.

Operational Baseline: the entirety of NOx or PM10 emissions, including area source and mobile emissions, calculated by the APCO-approved model, for the first year of buildout for that project, or any phase thereof.

A development would have two construction baselines (one NOx, one PM10) and two operational baselines (one NOx and one PM10), if it does not have phase. For the purposes of this discussion, the four baselines will be referred to as a 'baseline set'. For projects with phases, each phase will have one baseline set. According to the off-site fee formulas, the equations are used for each baseline set.

As and example, one project has three phases. The rule contains four fee formulas: an operational NOx, an operational PM10, a construction NOx, and a construction PM10. Each of the four calculations are performed three times, once for each phase or 'baseline set'.

The operational baseline is calculated at the date of expected buildout, the construction baseline is calculated at the date(s) of expected construction.

92. **COMMENT:** Rule 9510 section 4.1.5 needs clarification of what federal, state and local funds for low income housing are applicable.

RESPONSE: Based on the District's internal analysis of applicability and impacts, the exemption for low-income housing has been removed. It has been determined that the Rule should apply to all new residential development that meets the applicability section of the Rule.

93. **COMMENT:** Rule 9510 section 5.3.2 discusses the application for the AIA. The District should list out what information will be in the application.

RESPONSE: The District will expand that section to include more specific information of what will, at a minimum, be included in the AIA application.

94. **COMMENT:** Environmental Defense recommends including ROG in the rule for emissions reductions.

RESPONSE: See Response to Comment #57 and #65.

95. **COMMENT:** Rule 9510 section 6.1.1.1 and 6.1.1.2 discusses the reductions required from construction emissions. The 45% reduction requirement for PM10 is too low. Applicants can get much higher results with existing technology. The 20% NOx reduction requirement may similarly be too low. In addition, Environmental Defense recommends requiring emission reductions by vehicle and suggests that the District talk to CARB about their in-use construction equipment regulations.

RESPONSE: See Response to Comment #57 and #65.

96. **COMMENT:** Rule 9510 section 10.2 (APCO administration of funds) does not contain the term 'permanent'. The District should aim for permanent reductions.

RESPONSE: Many of the projects funded by the District will meet the strict interpretation of permanent reductions. In some cases, the projects are expected to be permanent but the user of the clean equipment is only obligated to operate it during the contract period. After the contract period ends, it is highly likely that any replacement equipment will be as clean or cleaner than that funded by the District due to lower emission standards and improving technology over time for nearly all source categories.

97. **COMMENT:** The funding of projects with fees received from this rule is implied to be application-based. The rule should state if it is application based.

RESPONSE: Although current District programs are primarily open application based for as long as funding is available, for some source categories it may be more appropriate to have requests for proposals with deadlines and project ranking. Therefore, the rule language should remain the same.

98. **COMMENT:** The economic analysis and other supporting documents don't include health impacts and those costs. This information should be included to keep the purpose and goals of these actions in perspective.

RESPONSE: It is not feasible to assign a dollar amount to the health effects that will be avoided or lessened by the implementation of this rule. However, the District will include health-impacts information from the PM10 and ozone attainment plans in the staff report.

Kristine Foster – Asthma Coalition, Respiratory Therapist, Asthma Educator and CAC member.

99. COMMENT: Land use planning is important and the District needs to include education for the public.

RESPONSE: The District concurs with both of the commenter's points. The District currently believes that Rule 9510 will provide incentives for development that creates fewer impacts and will bring greater awareness of this issue to the public.

Bakersfield

Mike Kelley – Vector Environmental

100. COMMENT: Does the rule apply to the fraction of PM greater than 10 microns?

RESPONSE: No. The rule applies to PM10, the fraction of PM 10 microns or less in diameter.

Chambers of Commerce – Public/Private Organizations

The Greater Merced Chamber of Commerce
Date: September 14, 2005

101. COMMENT: The Greater Merced Chamber of Commerce urges the district to reevaluate the impacts of rules 9510 and 3180 will cause to the Central Valley. The District has no organized plan for the fees that will be charged and when asked, the district indicates grant money for clean air vehicles and other measures to reduce the pollution. Before these rules should be brought to the board for approval, a complete plan should be developed.

RESPONSE: The District has a history of funding more than $100 million in emission reduction projects. These existing programs are underway and the system is in place for processing projects funded by Rule 9510. The District has provided additional information on the types of projects available for the program in Appendix E. The District has identified more than $400 million in projects available at a cost-effectiveness that will allow the District to achieve plan commitments. As technology advances, even more opportunities for retrofit and replacement programs are expected.

102. COMMENT: These rules will make the housing costs rise to a level that will make housing in Merced more unaffordable and will hamper industrial and commercial development in the greater Merced area. A comprehensive study needs to be completed on the effect the rules will have on economic development and jobs in the valley. The valley leads the nation in unemployment figures and the need for jobs through out the Valley is extremely important. These rules ill affect new job creation.

The costs of these new rules will slow down growth that will be coming to the Valley. Without a clear economic study, these rules should not be approved. Growth will happen and proper planning is needed to make sure the growth is well-planned and well-implemented. These rules will create more problems than they will solve.

The Greater Merced Chamber requests more studies and a better economic plan be developed before the rules go forward to the board for approval. Thank you for your consideration of our concerns.

RESPONSE: According the Merced County Association of Realtors, the median home price in Merced County is $330,000. The proposed fee amounts not considering the potential for reductions due to project design are between $800 and $1800 per unit in the first 3 years of program operation. In percentage terms this ranges from .24% to .54% added cost to the median home. The funds

collected from the developers are used for air pollution projects in the area that will benefit the local economy.

Stanislaus Economic Development and Workforce Alliance (Alliance)
Date: September 13, 2005

I am the CEO of the Stanislaus Economic Development and Workforce Alliance. The Alliance is a public private organization comprised of representatives of Stanislaus County, all cities in the county and dozens of private business investors. It is the designated agency for all economic development and workforce activities in the county.

I attended the video conference of an APCD staff presentation at a public \meeting on September 1 in Modesto. I am very concerned about several aspects of that presentation and therefore the consequences of Rule 9510 and Rule 3180 proposed for implementation by the APCD.

My concerns are as follows:

103. **COMMENT:** Regarding the exemption for projects whose primary source of emissions that come from stationary sources, how is **primary** determined?

RESPONSE: The District has completed a review of industries permitted by the District. This analysis details the amount of rules that apply to each industry and the amount of pollutants regulated by these rules. The intent is to remove the ambiguity of "primary" emissions and detail which industries will be exempt from the rule. In addition, industries with stationary sources may petition the APCO for ISR exemption.

104. **COMMENT:** Regarding the submittal of applications no later than 30 days **after** last discretionary approval, what kinds of delays to projects will be experienced while APCD reviews the mitigation plans and does their calculations and assessments. My experience tells me the current workload precludes timely processing or even a return of phone calls regarding ATC requests and other permitting. Staffing is either insufficient or incompetent or both. What steps are contemplated to alleviate the existing gridlock and avoid additional bottlenecks in the future?

RESPONSE: See Response to Comment #8 for the ISR application changes. It should be noted that the ISR process is not a permit, nor is it a discretionary action (See Response to Comment #187). The District is working on producing a streamlined approval process that has clear information requirements and timelines (as listed in the rule). The Planning Department will be responsible for ISR project review and approval. The Planning Department, as well as all affected departments (Compliance, Emission Reduction Incentive Program – ERIP, and Administration), has produced a staffing analysis for implementation

of the ISR program. The Planning Department identified the steps in review and approval, the time associated with those steps, and in this process identified steps that could be merged or simplified. The staffing requests are listed in the Board Memo, and the District will provide a more detailed staffing request before the Board adoption hearing. However, the staffing analysis is for ISR adoption only, and does not address staffing for existing programs.

105. COMMENT: The APCD has not yet created an emissions calculator.

RESPONSE: URBEMIS will be used for Operations, District is working to determine if a modification to URBEMIS or a separate calculator will be needed for construction. However, methodology for construction is known. Take vehicle type, hours of operation and compare to emissions from the state-wide average. URBEMIS can come up with default fleet numbers, we are working about refining them.

106. COMMENT: Developers and business with the same degree of concern on this issue that the APCD exhibits, albeit with a different perspective, have expressed serious reservations about the integrity of URBEMIS. Are these concerns dismissed out of hand with no attempt to verify the soundness beyond your belief that it must be okay because you are using it.

RESPONSE: The Staff Report contains a detailed discussion of why URBEMIS is appropriate for this rule, and why it was chosen over other models. The District has completed extensive research, including hiring a consultant to review existing models to determine the most appropriate, comparisons of models, and detailed model research and has determined that URBEMIS is the most appropriate model for the rule. See Response to Comments # 157.

107. COMMENT: The socioeconomic impact predictions for Rules 9510 and 3180 were calculated using dated methodology (1995) that does not factor in the impact of the meteoric increases in valuations and costs and burden of stagnant incomes regarding affordability.

RESPONSE: The Socioeconomic impact report uses median price data up to 2005. Most data was no older than 2003. The methodology is standard for the air pollution rule development process and is not dated.

108. COMMENT: The financial windfall that will occur if these rules are implemented could total tens of millions of dollars per year in the valley. What accountability is associated with the “mitigation accounts”? Who determines and what is the definition of quantifiable and enforceable mitigation projects?” Is there an audit of these accounts and by whom? How were the fee levels determined? Are they equitable?

RESPONSE:

1. Accountability – The District has successfully managed over $100 million in grant money over the last decade. The District has an outside auditing company to provide assurance to the Governing Board and the public that funds are appropriately managed. The California Air Resources Board has also audited the District.
   Definition of quantifiable – The project to be funded must have emission factors, process rates, and use data, necessary to calculate baseline emissions and emission reductions after the project is implemented.3.
   Enforceable – The project must have a mechanism that ensures that the project will be implemented and that emission reductions will be achieved during the specified timeframe.
2. Fee level determination – The fee levels are based on the average cost of reductions projected for each year for each pollutant. See also Response to Comment #114.
3. The fees are equitable because they are based on emissions generated by the project and each project's emissions are quantified using the same well-accepted models and factors.

109. COMMENT: APCD's goal over the next ten years to reduce the ozone and PM10 emissions targets new development only. If the housing bubble bursts and the corresponding emissions from new growth cease, will the burden shift to commercial, industrial and/or existing housing in order to meet the goals?

RESPONSE: The emission reduction targets for ISR in the PM10 and ozone plan are based on the *predicted* growth in emissions from new development. ISR reduces, through on-site and/or off-site measures, emissions generated by new growth. If that growth does not occur as predicted, for example in a 'bubble burst' scenario, then the emissions from new development will be less than predicted. If the emissions do not occur, they would not have to be reduced through the ISR program. In this situation, ISR does not have to adjust the emission reduction 'burden', or assess additional emission reductions.

110. COMMENT: There seems to be confusion about the degree of compatibility of these rules with the CEQA process, adding additional burden for businesses in meeting timelines and development schedules.

RESPONSE: See Response to Comment #8 and the Staff Report, Section IV.C.

111. COMMENT: Those of us who are tasked with promoting and marketing the valley for business locations and as a quality place to live and work are very concerned about the air quality issues that we fact. Certainly the air quality is a factor in decisions made by individuals and businesses alike when determining the suitability of the valley for their purposes. The major challenge is to address

those issues in a fair and balanced way with techniques and plans that are based on sound logic and a strong scientific basis.

RESPONSE: The District concurs with the author's statement.

Business, Industry & Government Coalition of the South San Joaquin Valley
Date: August 30, 2005

112. COMMENT: Our organization and its members share a deep commitment to improving air quality in the South Valley and applaud all reasonable efforts to attain Federal and State mandates. Draft Rule 9510, as we are coming to understand it, is the program that will be employed by the San Joaquin Valley Unified Air Pollution Control District to involve indirect sources, those land uses that attract or generate motor vehicle trips, in the mitigation of air emissions. The required reviews of the draft rule are delineated, however, the fees associated with the draft rule are not easily understood.

The presentation on Draft Rule 9510 – DESIGN (Decreasing Emissions' Significant Impact from Growth and New Development) gave several members of our organization cause for alarm after the initial public meeting was held. While there were references to fee schedules and proposed costs for building permits, the method describing the establishment of fees was not clearly reviewed. The Building Industry members of our organization are well aware of Public Facility Fees, Govt. Code 66000. Using that base of reference, the description about fee collection and fee usage was not congruent with their experience with Public Facility Fees. Upon further review after the meeting, the fees established through the Health & Safety Codes of California are the references for the Air Board's proposed fees. These fees are "news" to our members and additional information would be very helpful.

RESPONSE: See Response to Comment #6 and the Staff Report Section I(B) for a discussion on District authority for the rule.

113. COMMENT: For the next public meeting, scheduled September 1, 2005, our request is to have staff provide information about the process establishing the fee each year and how the fees are used for programs and projects under the authority of the Air Board. We want to know about the programs and the proposed costs for programs that will be instituted pursuant to Health & Safety Code 42311 (g). Our read of the statute indicates these fees are set annually based on estimated costs of air pollution control programs that will be conducted in the following year. In the event all funds are not expended, the fee revenue will carry over to the next year and will, then, reduce the fees for the subsequent year. What is the reporting mechanism and public process for these fees? While there are specific requirements outlined in the statute, none of our membership

was aware of actual dates for the public hearings and none were aware of what projects are in process for this year or their related cost(s).

RESPONSE: The fee amount is based on the anticipated cost of reductions in each year. Staff performed an analysis of historical project funding costs from our existing grant programs that have successfully contracted over $100 million and examined the potential for projects in the future based on the emission inventory and population of project candidates, the technologies available to reduce emissions from the source, whether the reductions will be surplus in the future based on proposed and adopted regulations on the potential project candidates, and the feasibility the project. Based on these factors, the District made percentage funding estimates for each type of project for each year. This information allows the District to calculate a projected average cost-effectiveness for each year. To further verify these numbers, staff prepared project mix spreadsheets based on available projects and funding for each year to demonstrate that the cost-effectiveness averages are achievable. This information has been added to Appendix E of the staff report.

114. COMMENT: In concert with the fees proposed through H&S Code 42311(g) are the fees outlined in Draft Rule 3180. Those fees are cost recovery based – cost recovery for administering Rule 9510. We ask for clarification on how that rate is developed and how applicants will be billed for the actual hours of staff time to evaluate and review proposed projects. We also ask to be informed if the weighted average labor rate will be reviewed in a public meeting or public hearing prior to annual establishment. The Health and Safety Code reference for the cost recovery fees appears to be in section 40604. The draft report of Staff indicates that section 40604 was codified as a result of legislation SB709, Florez, from the past fiscal year. Section 40604 is devoid of explanation about the fee structure other than to indicate there will be a schedule of fees and the fee schedule "shall be designed to yield a sum not exceeding the estimated cost of the administration of this chapter and mitigation of emissions and the filing of applications". How will this fee be published and through what public process? The project fees allow for annual rollover; how will the administrative fees be managed? If estimated costs are higher than annual costs, how will notification occur and what mechanism will be used to refund overpayment? We are hoping that the public meeting on September 1st will provide answers to this fee.

RESPONSE: The District will use the same average weighted labor rate method that it has used for many years in processing stationary source permits. It is based on labor and overhead rates used to develop the District's budget that is adopted in a public hearing each June. The project review fees are based on the hours predicted for a relatively simple project. Projects proposing standard on-site measures and having air quality impact assessments that use standard factors and default changes that have been agreed to in advance are expected to be covered by the fee amount. Complex projects are expected to require

additional staff analysis and review time that would result in costs that exceed the application fee. The District will be using a project management and billing system to track hours for the project. An applicant can request the status of labor charges at any time. The amounts accumulated to date can be obtained from the database and provided to the applicant. When the District staff completes its review and determines the off-site fee amount, they will generate an invoice that itemizes charges for review and the proposed off-site fee amount.

115. COMMENT: We are concerned that implementation of additional fees (Rules 9510 and 3180) associated with new construction will adversely affect the addition of sorely needed housing stock to the South Valley. Our region of the state is expected to take the brunt of the projected population growth, and we are already woefully under stocked. Our coalition believes that inadequate attention has been placed on studying the socio-economic implications of implementing the proposed fees.

Reducing PM10 and NOX emissions from indirect sources is a commitment thrust upon everyone in the Central Valley. Adding additional reviews and controls during the planning phase of construction is workable as long as all steps in the review process are clearly communicated and upheld. Compounding the issue of added reviews are the added fees for air pollution control and emission reduction projects that are not well known to members of our organization. As requested, providing more information about the type of projects, costs for current year and the process for the annual review of these fees would be most beneficial. Added study and discussion about the factors that influence the socio-economic status of the Central Valley are desired before these draft rules are presented to the Board of Directors for their consideration and vote.

Thank you for your attention to our concerns and we ask that this letter be read into the public record during the meeting on September 1, 2005.

RESPONSE: The District recognizes that the rule may add a relatively small cost to development; however, the rule is structured to maximize benefits for designs and features incorporated into the project that will reduce the fees and add value to the development. It is possible to significantly reduce the fee with measures now commonly included in projects. The District is committed to streamlining the review process wherever possible and strives to minimize costs and delays. The analysis will be accomplished with URBEMIS for most projects. URBEMIS is very easy to use and can be operated using information typically required by local agencies during the CEQA review process.

INDUSTRY

The Construction Industry Air Quality Coalition (CIAQC)

Date: September 15, 2005

The Construction Industry Air Quality Coalition (CIAQC) is composed of the Southern California Contractors Association and the Southern California chapters of the Associated General Contractors Association, Building Industries Association, Engineering Contractors Association and Rock Products Association. Its membership includes 3,500 construction/development companies.

116. **COMMENT:** 2.0 Applicability: The potential emissions from constructing 2,000 square feet of commercial space, 9,000 square feet of educational space and 10,000 square feet of government space appear too small when compared to emissions from constructing 50 residential units, 39,000 square feet of general office space and 25,000 square feet of industrial space.

RESPONSE: The difference is due to different trip rates for different land uses. Commercial space generates many trips per 1000 square feet compared to other land uses.

117. **COMMENT:** While the rules do not have an effective date, the District should consider the economic impact on small contractors with a high percentage of Tier 0 engines of setting relatively small development project baselines in 2006. An annually decreasing baseline from, say, 200 residential units, 10,000 square feet of commercial space, etc., in 2006 would allow small contractors more time to upgrade their fleets and compete in the bidding process.

RESPONSE: The current approach in the rule using the baseline for each year construction occurs and emission based thresholds provides more incentive to purchase or rent the cleanest equipment at the earliest date. Once in use, the cleaner equipment is available for all future projects subject to the rule. Although small contractors may have an older fleet, those are the equipment and vehicles that are in need of upgrade.

118. **COMMENT:** 3.0 Definitions: The use of computer modeling to estimate construction emissions from potential land uses would eliminate many small contractors unless they can seek advice from the District on how to employ these models. Also, CARB should offer assistance in identifying a diesel emission control device that has been verified for typical diesel engines as well as instruction on the use of the construction emission calculator. Ideally, the contractor or developer could submit to the District the number and types of machines he proposes to use on a project and the number of hours he proposes to run them, and the District would estimate his emissions.

RESPONSE: The District will provide assistance on the use of models to calculate construction emissions and staff can run the models for the applicants on a time and materials basis.

119. COMMENT: 4.1.5 Housing projects directly assisted by government housing funds: Why is government assisted housing exempt from mitigation?

RESPONSE: Based on comments received, the District has removed this exemption so that sources are treated based solely on their emissions.

120. COMMENT: 5.0 The draft rule implies in 5.3 that the APCO is willing to produce an AIA from information supplied by the developer. Is that correct?

RESPONSE: The District will prepare air quality impact assessments if the applicant provides the information needed as inputs in the model.

121. COMMENT: 6.0 A developer should be given emission reduction credit for mitigating windblown dust (PM10) as a result of constructing buildings and landscaping an area.

RESPONSE: The developer is already required to mitigate windblown emissions to comply with District Regulation VIII – Fugitive Dust Rules, therefore, the reductions would not be considered surplus.

122. COMMENT: 7.0 Off-site Mitigation Calculations and Fee Schedules for Construction Activities: In order to be reasonably contemporaneous with emission increases, off-site mitigation should be designated and purchased by the District no later than six months after the payment of the funds by the developer.

RESPONSE: The District commits to spend any funds received as quickly as possible. The programs envisioned require an applicant to come to the District to request funds for qualifying projects, so there may be times when funds take longer than six months to expend.

California Building Industry Association (CBIA)
Date: September 15, 2005

California homebuilders, represented by the California Building Industry Association (CBIA) and its five affiliated Building Industry Associations (BIAs) located in the San Joaquin Valley, are respectfully submitting comments on the Draft Rules, 9510 and 3180 ("proposed rules") of the San Joaquin Valley Air Pollution Control District ("the District").

123. COMMENT: CBIA continues to be troubled by what it sees as several fundamental flaws in the District's plan to assess new "air quality mitigation" obligations on new development in the Central Valley:

1) The District has failed to show a nexus between the impacts of new development on air quality in the region and the massive amount of new fees it proposes charging for this purported impact;
2) The District is using flawed scientific modeling to justify charging massive new fees on housing and economic development;
3) The district singles out new development to bear the burden of its new mitigation scheme which contains highly questionable calculations and a woefully deficient cost-benefit analysis.
4) The District has failed to adequately explain what it intends to do with these new fees (taxes) – somewhere between $300 million and $450 million over the next five years – and how charging them will improve the region's air quality; and
5) The District has failed to acknowledge and account for the impacts of these new fees on the region's economy or on housing affordability.

RESPONSE: See Response to Comments #124 through #142 below.

124. COMMENT: For these and other reasons, CBIA remains strongly opposed to the adoption of the proposed rules and urges the District to withdraw them and, working with citizens and other stakeholders in the region, begin the work of developing a more responsible, equitable and scientifically grounded plan for improving air quality in the central valley.

In the pages that follow CBIA will enunciate in detail both its fundamental concerns as well as other defects in the proposed rules.

RESPONSE: Opposition noted. See Response to Comment #17 for additional information on the development of these rules.

125. COMMENT: The District has failed to demonstrate the required legal nexus for imposing its proposed fees. This has been an ongoing concern of CBIA's and thus far the responses to it given by the District have only caused to make that concern grow. Indeed, the sheer weight of the mitigation fees being proposed by the District for new housing, alone – somewhere between $300 million and $450 million over the next five years – demands a clear description as to what the impacts are that justify the District's fee plans and how the level of fees to be charged are supported by anticipated costs.

RESPONSE: Although the District is not subject to the Mitigation Fee Act (See Response to Comment #52), the District's legal counsel has prepared an analysis of nexus requirements. The analysis identifies if a nexus is required, and discusses the following:

The applicability of the 5th amendment of the US Constitution.

- The analysis finds that the fees resultant from the rule are subject to the "reasonable relationship" test established by *San Remo Hotel LP v. City and County of San Francisco*[2].
- Therefore, if the fee is collected from a development because of the expected air pollution from that development, and the fee is used to offset the type and amount of pollution caused by that development – the fee will likely pass under the reasonable relationship test.

California Mitigation Fee Act

- The analysis finds that the Mitigation Fee Act may not apply to the ISR rules, for the reasons cited from the District in the text of Comment # 126, and in the Response to Comment #52.

California Proposition 13

- The analysis finds that Proposition 13 does not apply to the ISR rules.

California Proposition 218

- The analysis finds that Proposition 218 does not apply to the ISR rules.

California Subdivision Map Act

- The analysis finds that the SMA does not preempt the District from assessing fees on a subdivision.

126. COMMENT: Remarkably, however, the District denies there is a problem. To summarize the District's position, the Mitigation Fee Act (AB 1600) does not apply to these types of fees because (1) the District has no approval authority over development projects, is not imposing the fee as a condition of approval of a development project, and the fee is purely regulatory in nature, (2) AB 1600 only applies to fees for "public facilities" and mitigation measures such as diesel retrofit programs are not "facilities," and (3) even if AB 1600 doesn't apply, the district has met the nexus standard under the Act as well as any other legal standard.

This analysis contains multiple flaws. Government Code Section 66000(b) defines a fee as a monetary exaction other than a tax or special assessment, whether established for a broad class of projects by legislation of general applicability or imposed on a specific project on an ad hoc basis, that is charged by a local agency to the applicant in connection with approval of a development project for the purpose of defraying all or a portion of the cost of public facilities related to the development project. The proposed rules are applicable to a broad range of projects. Likewise, the proposed project-level analysis of on-site

[2] *San Remo Hotel, L.P. v. City and County of San Francisco*, (2002) 27 Cal.4th 643, 669-670.

mitigation constitutes an ad hoc, project-specific review. Both types of analyses therefore apply to the proposed rules.

RESPONSE: See Response to Comment #52.

127. COMMENT: Indeed, the District is a local agency subject to the Mitigation Fee Act. Government Code Section 66000 (c) defines "Local agency" as “a county, city, whether general law or chartered, city and county, school district, special district, authority, agency, any other municipal public corporation or district, or other political subdivision of the state.” Certainly the District qualifies as a special district, agency, or other political subdivision of the state.

RESPONSE: The District is considered a local agency, but this distinction is not relevant. The Mitigation Fee Act does not apply to the ISR rules. See Response to Comment #52 for more information.

128. COMMENT: The attempt to limit the application of this statute to public facilities is also incorrect. Government Code Section 66000(d) includes within the definition of "Public Facilities" “public improvements, public services and community amenities.” Cleaning up the air is a service provided by government and, as such, provides a benefit to the community.

Comment 64 states that the District does not have the authority to impose conditions of approval and contemplates that any project review will occur after the local agency has completed its approval of the project. The developer will be “allowed” to either include on site mitigation measures or pay a fee. Regardless of the choice of words, it is impossible to characterize this requirement as anything other than a fee or exaction on new development. If this is not enforceable as an exaction, then it is voluntary and the District cannot take credit for it as a control measure for purposes of demonstrating compliance with the SIP goals and the Federal Clean Air Act requirement to demonstrate reasonable further progress.

RESPONSE: The District does agree that the ISR program may require a fee from new development. However, the District disagrees with this interpretation of air emission reductions as a public service under GC 66000(d). In addition, the Mitigation Fee Act does not apply to the ISR rules. See Response to Comment #52 for more information.

129. COMMENT: The District’s attempt to define itself out of the Constitutional requirement that nexus be demonstrated is highly questionable. As noted in Government Code Section 66005(c): “It is the intent of the Legislature in adding this section to codify existing constitutional and decisional law with respect to the imposition of development fees and monetary exactions on developments by local agencies. This section is declaratory of existing law and shall not be

construed or interpreted as creating new law or as modifying or changing existing law."

RESPONSE: See Response to Comment #125 for the findings of the District's analysis of nexus requirements. See also Response to Comment #52.

130. COMMENT: It is important to examine that larger body of existing law. The constitutional standards for legislatively enacted development fees of general applicability, such as the proposed indirect source fee on new development, are less stringent than are the standards for fees imposed on specific developments on an individual and discretionary basis (see *Ehrlich v. City of Culver City* 12 Cal. 4th 854, 50 Cal. Rptr. 2d 242; 1996). Where a development fee is imposed generally on a broad class of property owners, it need only bear a reasonable relationship to the impacts of the development project (Id. at 875-876, 50 Cal. Rptr. 2d at 256,257). In adopting the fee, the city must make the "nexus" findings set forth in Government Code section 66001.

RESPONSE: Although the Mitigation Fee Act does not apply to the ISR rules (see Response to Comment #52), the rule has been designed to meet this test. The District analysis contained in the staff report for the rule provides supporting information to draw this conclusion.

131. COMMENT: The District uses a flawed analysis to produce huge sums to be collected as fees on new housing and new businesses. According to an analysis conducted by Sierra Research (see attached letter) using the numeric emission reduction goals in the District's approved SIP Measures for NOx and PM-10, as well as the assumptions set forth in Section 7.2 of Draft Rule 9510, including the stated ton-per-year mitigations costs, the District will require a total of $38,844,869 to meet the SIP's emission reduction goals for calendar years 2006 through 2010. Assuming the District's "worst case" fee scenario of $856 per unit in 2006, rising to $2841 per unit in 2010, the District could collect as much as $292,719,600. The disparity between the cost of the service and the fee charged is 754%. Even at a lowered standard of review of "reasonableness," a disparity of that magnitude will not survive judicial scrutiny.

RESPONSE: The District has addressed the analysis that Sierra Research provided in Response to Comments #143 to #162. In these responses, the District details which parts of the analysis provided by Sierra Research are flawed and/or inaccurate.

132. COMMENT: Again, the proposed rules are in direct conflict with California law as they are proposing to collect fees well in excess of what might be justified under a nexus test. State law is clear about what burden is on local agencies which propose to impose new fees on development. Government Code Section 66005(a) says "When a local agency imposes any fee or exaction as a condition

of approval of a proposed development … or development project, those fees or exactions shall not exceed the estimated reasonable cost of providing the service or facility for which the fee or exaction is imposed."

RESPONSE: As stated in Response to Comment #52, the Mitigation Fee Act does not apply to the ISR rules. The author points out a significant reason why. Section 66005(a) clearly states "as a condition of approval". The District cannot place conditions of approval on development projects through the ISR program, as it is a ministerial action. In addition, the fees are designed to mitigate only a fraction of project emissions and there is nearly zero potential for over mitigating. The fees are tonnage based (what is required to buy one ton of reduction for a particular pollutant) and are charged on a tonnage base. For example, if a project is required to mitigate 2 tons of NOx, then the price per ton is multiplied by 2 to obtain the off-site emission reduction fee.

133. COMMENT: Discretionary, site specific fees, the kind that the District proposes to impose on individual development projects after a project-specific analysis of all on-site mitigation measures, are subject to the stricter "essential nexus" and "rough proportionality" requirements of *Nollan v. California Coastal Commission,* 483 U.S. 825, 107 S. Ct. 3141 (1987), and *Dolan v. City of Tigard*, 512 U.S. 374,114 S. Ct. (1994); see discussion in *Ehrlich* at 12 Cal. 4th 876, 50 Cal. Rptr. 2d at 256,257; *City of Monterey v. Del Monte Dunes at Monterey Ltd*., 526 U.S. 687, 119 S. Ct. 1624, 1635, 143 L. Ed. 2d 882 (1999).

RESPONSE: Although the District will not be making discretionary actions, the Rule has been designed to meet this test. The District has prepared an analysis of nexus requirements. See Response to Comment #125 for the findings of the analysis.

134. COMMENT: In spite of repeated requests from various local agencies and members of the public, the District has not made available any calculations of the amount of emissions credits that will be awarded for on-site mitigation measures. For reasons explored in greater detail in Sierra Research's comment letter, the URBEMIS model was not designed to, and is incapable of, accurately calculating the amount of emissions reductions from most of the design or location-based indirect source mitigation measures included in the District's proposed mitigation checklist. The unknown cost of the deferred mitigation (achieved after the fact through a grant program) makes an accurate analysis of proportionality even more difficult. For this reason, any project-specific fee calculation will be suspect, and subject to the higher standard of review.

RESPONSE: The onsite emission reduction measures are calculated using the URBEMIS v8.7 mitigation component. The model is available for free at urbemis.com. The author's statement that URBEMIS is, "was not designed to, and is incapable of, accurately calculating the amount of emissions reductions

from most of the design or location-based indirect source mitigation measures included in the District's proposed mitigation checklist," is inaccurate at best, and misleading at worst.

The URBEMIS model is maintained by a state-wide working group that includes representatives from air districts throughout California, state agency representatives (such as CalTrans). Proposed changes to the model are vetted through peer review. The last model update, sponsored by the District, was changes to the Area Source module, specifically overhauling and quantifying the mitigation section.

The model components and methodologies are available to the public in the URBEMIS User's Guide, available at South Coast Air Quality Management District's website http://www.aqmd.gov/ceqa/urbemis.html, and will be made available at the District's website. In addition, the details of the model and the recent update are available in the Staff Report and as Appendix D-Recommended Changes to URBEMIS.For more information on URBEMIS components, see Response to Comment #9.

The author's second main point is that, "the unknown cost of the deferred mitigation (achieved after the fact through a grant program) makes an accurate analysis of proportionality even more difficult." The cost of 'deferred mitigation' is exactly that of the off-site emission reduction fee. The applicant is assessed a fee based on the calculations provided in the rule. The per-ton fee is also provided in the rule. The applicant is assessed an administrative fee, stated in Rule 3180 as 4% of the off-site fee. The applicant is also assessed time and materials for the AIA review in excess of that covered by the application fee, detailed in Rule 3180. This is the full extent of fees. The 'deferred mitigation' fee is expressly stated in the rules.

135. COMMENT: The District has failed to explain its calculations in determining a massive revenue-raising plan or the cost-benefit of the plan. According to the proposed rules, the District plans to raise between $300 million and $450 million in fees between 2006 and 2010 from housing alone. Similar fees will be collected from new schools, hospitals, government facilities, transportation projects, retail, office, and industrial development. The use of these funds, presumably, is to cut NOx emissions by 4.1 tons per day and PM-10 emissions by 5.2 tons per day. Yet, the District's own estimates show that NOx will cost an estimated $4,650 per ton in 2006, rising to $13,250 per ton in 2010 and that PM-10 reductions will cost $2,907 per ton, climbing to $13,850 per ton in 2010. These totals are far less than the fee revenue the District intends to raise during the same period.

RESPONSE: The rule's emission calculations are designed to identify a level of reductions from new development that will meet the SIP targets at the cost per ton predicted each year for each pollutant. The $300-450 million for residential

development severely overstates the fee potential and is based on an erroneous analysis of the rule requirements and incorrect calculations. For a detailed analysis of the cost effectiveness calculations, please review Appendix E – Cost Effectiveness Analysis for Rule 9510 ISR. For a detailed analysis of the emission reductions, please review Appendix B – Emissions Reductions Analysis for Rule 9510 ISR.

136. COMMENT: The District has failed to lay out a coherent plan for using its mitigation plan to actually clean the air and to account for it. How the District intends to spend the massive amounts of money it is proposing to raise remains unclear. This in light of the recent concerns expressed by the District's Governing board that the District has not expended its existing motor-vehicle surcharge fees – representing over $50 million in taxpayer dollars – on mitigation measures in a timely and effective manner. In addition, in advancing these proposed rules – again, raising hundreds of millions of dollars over the next five years – the District has failed to present a clear and specific program to insure timely expenditures for measures that reduce emissions proportionately in the areas contributing fees.

RESPONSE: The District will provide additional information to clarify the proposed plan for expending any fees collected and has amended Appendix E – Cost Effectiveness Analysis for Rule 9510 ISR accordingly. The District has successfully contracted over $100 million in funds for air quality projects.

137. COMMENT: Finally, the District has failed to adequately recognize or account for the impact of the proposed rules on housing affordability and the region's economy. The Socioeconomic Analysis examines narrowly examines housing impacts in terms of homebuilder profits without any similar analysis of housing cost and affordability impacts. This overlooks some important facts. Fees have a direct impact on homebuyers. According to a national study, every $1,000 added to the price of a home, locks more than 23,000 California families out of the housing market. Further, $1,000 to $4,000 added to the purchase price of a home escalates dramatically when it is financed with a typical 30 year mortgage. What this does to housing affordability in the region is completely ignored. In addition, the Analysis overlooks the impact of higher housing costs on the regional economy. First, more money spent on housing means less money spent on other goods and services. Second, higher housing costs discourage new business development as housing costs are viewed by executives as having the biggest impact on labor costs. Finally, fewer buyers mean fewer homes to be built which means fewer construction jobs and the profound ripple effects on the regional economy. Right now, home construction represents more than $7 billion in annual economic output in the Central Valley and is responsible for creating nearly 70,000 new jobs every year.

RESPONSE: First, the August 24, 2005 Socioeconomic Analysis provided at the September 1st workshop contains an analysis of housing costs and affordability impacts in Section 6.3 – Impacts on Affected Industries. Section 6.3 ¶1 states, "In addition to impacts on homebuilders, the section analyzes how changes in price affect prospective homebuyers and renters," and contains *Affordable Housing for Low-and Moderate Income Households* as a subsection. The analysis found:

> *…that while the residential fee that the typical residential development would pay under Draft Rule 9510 and 3180 can increase the amount of household income required to finance the purchase of a new home, the estimated increase represents a small fraction of the original household income required to finance a new home the event no air quality fees were in place. The affect of the fees on rents is similarly small.* Page 1 Executive Summary

Second, 100 percent of all off-site funds collected will be spent on emission reduction projects in the San Joaquin Valley. This will create economic activity and jobs. Many of these projects involve the construction industry; for example, road paving to control PM10. The District recognizes that all off-site fees have an impact on the cost of development; however, the emission reductions obtained from the rule will benefit all residents of the San Joaquin Valley.

Finally, refer to Response to Comment #53 for additional information.

138. COMMENT: In addition to the impacts on housing, those on businesses and public service activities have not been fully analyzed. Half of the vehicle trips addressed by the proposed rules are assumed to come from non-residential uses, but it remains unclear how much non-residential uses are going to pay their mitigation obligations (fees). The Socioeconomic Analysis fails to mention fees for new schools, medical facilities or public facilities such as government offices, roads and libraries. The Socioeconomic Analysis concludes that the impact on commercial and industrial development will be significant, but fails to identify Valley-wide costs based on the full range of non-residential uses, or the ripple effect on public agencies, business start-ups and expansions, job generation and the cost of goods and services.

RESPONSE: The District is unsure where the author is referencing the assumptions on vehicle trips. The cost to any sector is proportional to the emissions caused by indirect, area, and construction emissions generated by the project. The potential cost to any development can be calculated using the URBEMIS model to calculate emissions and the cost of reductions for the year of development and fee formula from the rule. The fee formula and cost of reductions applies to all development subject to the rule equally.

Valley-wide impacts would be speculative. As stated in the Socioeconomic Analysis (p. 42), "It is not clear how the development will adjust to the additional costs." Although the analysis states that, "a typical commercial or industrial development could absorb air quality fees in 2006 or 2010," developers may choose to pass on the cost to the buyer or renter. This aspect is unknown, and any projected valley-wide impacts as a result would be speculative and non-quantifiable.

139. COMMENT: The proposed rules 9510 lack effectiveness estimates for on-site mitigation that lead to uncertainty and inaccurate fees. Appendix C contains a 12-page checklist of mitigation measures that developers must consider for their project. Project applicants are instructed to justify why they did not apply a particular mitigation measure if they decided not to use it. However, the checklist provides no control efficiencies for the measures, making it impossible for project developers to reach an informed decision about the most cost-effective methods. Of greatest concern, a large number of mitigation measures are not included in URBEMIS, and their effectiveness must be negotiated between the project applicant and the District. These off-model mitigation decisions inject great uncertainty and potential inaccuracy into determining the amount of mitigation provided and fees exacted.

RESPONSE: The effectiveness of on-site measures varies depending on the design of the project and the land uses and transportation systems supporting the project. A single percentage number for each on-site measure is not appropriate. Please see Response to Comments #7 and #9 on URBEMIS quantification of measures. It should be noted that URBEMIS is free, available to the public, and user-friendly.

140. COMMENT: The proposed rules will create an expansive new bureaucracy to perform duties that duplicate and conflict with existing local planning processes. Local jurisdictions already have the ability to address and mitigate construction and operational emissions of new development through environmental reviews – pursuant to the California Environmental Quality Act (CEQA). The most recent draft of the proposed rules actually appears to dismiss this likelihood for greater conflict and overlap with CEQA by eliminating previously published schedules for District staff's performance of project reviews, mitigation analyses and fee calculations. Indeed, at a recent District-sponsored workshop regarding the proposed rules, District staff essentially said that their measures were separate from those identical ones mandated by CEQA. Indeed, the failure of the District to clarify its role as a "responsible agency" within the meaning of CEQA will foster conflicts with local governments, result in conflicting mitigation standards and requirements and fuel legal challenges – with direct and negative implications for job-generating business projects, affordable housing, schools, roads, and medical and public facilities urgently needed in the area.

RESPONSE: The rule will be revised to make the District's timeline more closely match CEQA timelines. An applicant may come to the District prior to or concurrent with the local agency discretionary application. This is similar current District consultation in its role as a commenting agency. Once the applicant has settled on a project design and scope and on-site measures that will be used for reducing air impacts, the District or the applicant can prepare an air quality impact assessment to determine project baseline emissions, mitigated emissions, and a off-site fee, if any is required. There will be no conflict with local agency mitigation standards since all on-site measures will be sent to the agency for voluntary review and the District will not accept conflicting measures. In addition, it is the responsibility of the applicant to ensure that measures selected are approvable by the public agency. If a selected measure is not approvable, the District will remove the selection and re-assess the project's air impacts. Although more projects will be subject to analysis under this rule, air quality is a critical concern in the San Joaquin Valley and should be receiving this additional attention.

141. COMMENT: The proposed rules lack essential information on construction emission reduction requirements. The latest draft rule requires new development to reduce construction emissions, but does not provide any details on how emission reduction requirements will be calculated. At the September 1st rule workshop, District staff was unable to confirm that a construction emissions "calculator" would be available during the public comment period, or indeed prior to Board consideration of the rule. The homebuilding industry will be directly affected by this provision of the rule, but we cannot gauge the impact of the requirement without information on the assumptions and methods for calculating project emissions. It's requested that this information be provided with time for public review period or eliminate construction emission requirements from the proposed rules.

RESPONSE: URBEMIS V 8.7 is available to quantify construction emissions. The District is working on enhancements to the default values in the model and will be considering a spreadsheet based calculator if it is more appropriate. This will be completed at least 30 days prior to program implementation.

142. COMMENT: For these reasons, as well as reasons previously placed on the record, we request that the District withdraw these proposals as inequitable and unworkable and unenforceable. Continuing down this path is a waste of public resources, which could be better put to use in developing alternative control measures well-designed and well-calculated to achieve compliance with the emission reduction goals set forth in the SIP.

RESPONSE:

- The District considers the ISR Rules to be equitable
  Fees and assessment are emissions based and same for all land-uses.

- The District considers the ISR rules to be workable.
  The rules set a clear path of what is required and how to achieve that. The URBEMIS model is used statewide by air districts and public agencies for project-specific air impacts.
- The District considers the ISR rules to be enforceable.
  The District is granted the authority to promulgate and enforce the rules through the following:
  The Clean Air Act Sec. 110 (5)(C) and 110 (5)(D)

Sierra Research
Date: September 15, 2005

On behalf of the California Building Industry Association (CBIA), Sierra Research (Sierra) is pleased to submit the following comments on the revised draft Indirect Source Rules (ISR) 9510 and 3180 released by the San Joaquin Valley Unified Air Pollution Control District (the District) in late August.

Our comments in this letter expand upon those presented before the District at the September 1st workshop. As directed by CBIA, our comments focus on, but are not limited to, technical and modeling issues related to the use of the URBEMIS model under the proposed rules based on our independent review of the model and its underlying assumptions. In this review we were assisted by Dowling Associates, Inc. (Dowling), a transportation planning firm with extensive travel demand modeling experience supporting a number of the San Joaquin Valley Transportation Planning Agencies (TPAs).

Our comments are summarized briefly blow. Detailed explanations of each comment follow in attachment A.

143. COMMENT: Summary
Our overarching concerns with the draft ISR rules stem from their use of the URBEMIS model to calculate pollutant emission impacts from development projects and the fact that URBEMIS broadly overstates vehicular emission impacts from residential projects. Our analysis of typical single-family residential projects indicates that URBEMIS overstates vehicle emissions of both NOx and PM_{10} (the two pollutants targeted by these ISR rules) by over 70%. Since the mitigation fees that developers would pay under the proposed rules are directly related to the emission impacts calculated by URBEMIS, this model also substantially inflates the fees developers should be required to pay by roughly the same percentage. Our key concerns are summarized below.

RESPONSE: Sierra Research's conclusions are based on erroneous information. URBEMIS is designed to estimate all emissions related to a development project and counts all trips going to and coming from the development as is appropriate for a project level analysis. This accounts for the

higher emission numbers. By using trip counts using both ends of the trip, URBEMIS can credit developers who design their projects to generate less trips with reductions for both ends of the trips that were reduced. To avoid charging a fee on emissions that may be attributable to another new or existing indirect source, the fee formula is based on 50% of the baseline emissions after mitigation is applied onsite. The regional transportation model used as a comparison with URBEMIS is flawed when used for a project level analysis. The fees are not inflated compared to the impact. Sierra incorrectly calculated the potential fees.

144. COMMENT: URBEMIS Defaults Are Biased High – Most but not all of our concerns with the URBEMIS model result from its heavy reliance on detailed default assumptions that are not likely to be well understood by project applicants required to use the model under the proposed rules. As our analysis shows, a number of these default assumptions substantially overestimate residential project emissions in the following areas:

- by about 20% for NOx due to over-represented heavy-duty vehicles in the fleet mix;
- by over 20% for NOx, ROG and PM_{10} because of older age distribution assumptions; and
- by roughly 50% for PM_{10} due to incorrect silt loading factors; and
- by 20-30% for all pollutants from overstated average vehicle trip lengths in the San Joaquin Valley.

RESPONSE: The District will provide revised defaults accounting for land use specific fleet mix information, a Valley specific silt loading factor, and updated trip length data prior to rule implementation. The District will consider an age correction factor; however, more evidence of the validity of this approach is needed.

145. COMMENT: URBEMIS Is Inconsistent With SIP Methodology – Region-wide pollutant emissions calculated under State Implementation Plans (SIPs) use a more rigorous set of models to determine motor vehicle travel impacts and resulting emission impacts than represented in URBEMIS. During the ISR rule development, the District has provided no clear evidence that URBEMIS is capable of calculating emissions from development projects in a manner that is consistent with SIP-level emissions and has simply asserted its appropriateness for use under these rules.

To test the District's assertion, Sierra and Dowling performed an equivalent, side-by-side analysis of travel and emissions impacts of a typical hypothetical

"suburban fringe" residential project using both URBEMIS and the Fresno County regional travel demand model (one of several county-level travel demand models used to calculate vehicle travel under the SIP). (As in URBEMIS, emission impacts were calculated using the Air Resources Board's EMFAC2002 vehicle emission factor model.) Our analysis found that URBEMIS estimates over 60% higher vehicle miles traveled (VMT) and over 50% higher emissions for all pollutants than the travel model/SIP-based approach. Moreover, this discrepancy cannot apparently be corrected by using "better" URBEMIS inputs than the default assumptions built into the model. Thus, these findings cast doubt on the validity of broadly applying URBEMIS under the ISR rule as URBEMIS clearly does not produce SIP-consistent emission impacts.

RESPONSE: Prior to implementation, the District will provide updated default values to provide the most accurate emission estimates possible. Regional travel demand models are not practical for project level analysis. The rule requires 50 percent of baseline emissions to be mitigated. The 50 percent more than accounts for emissions due to counting both ends of the trips related to the project. URBEMIS counts two way trips to account for the total impact of the project. When used in analyze a single project, this is appropriate measure of impact. When looking at regional impacts, only half of the trips should be counted since if every project, new and existing were examined at once it would exactly double count the trips. Using URBEMIS will result in consistent analysis from project to project. Emission reductions achieved by the rule from offsite measures will be calculated using emission factors and methods consistent with the SIP. Onsite measures will be credited in accordance with EPA Voluntary and Emerging Emission Measures Policy.

146. COMMENT: Residential Fees Appear Understated in Socioeconomic Report – In addition to the comments summarized above on the URBEMIS model, we also have concerns with the fee estimates for typical residential developments contained in the District's socioeconomic analysis of the ISR rules. Table 16 of the socioeconomic report cites "worst-case" fee estimates ranging from $856 per unit in 2006 to $2,841 per unit in 2010. The supporting text offers no explanation of how these estimates were developed.

Its fundamental flaws notwithstanding, Sierra independently estimated residential fees using URBEMIS, and the fee formulas and cost reduction ratios contained in the August drafts of Rule 9510 and 3180. Our analysis found fees were twice as high ($1,607-$7,971 per unit) over the same period for a single-family residential development, assuming a default housing density of 3 units/acre. When the housing density was doubled (to 6 units/acre), per unit fees were still over 50% higher ($1,295-$5,556 per unit) than those cited (without explanation) In the socioeconomic report. . We also calculated fees assuming a 93% vs. 7% split between single and multi-family units, based on the average number of new single- and multi-family housing units permitted in the San Joaquin Valley in

2002 obtained from the California Department of Finance (http://countingcalifornia.cdlib.org/title/castat.html). Even under these mixed use assumptions, our fee estimates ranged from $1,550-$7,702 per unit, still nearly twice as high as those in the socioeconomic report.

Thus, we question how the estimates in that report were developed. Our analysis suggests that the worst case residential fees are substantially higher than those employed in the socioeconomic analysis. If this is correct, then the impacts quantified in the study are understated and would need to be revised.

RESPONSE: Sierra incorrectly calculated the construction emission reductions. This accounts for the differences between the District's numbers in the socio-economic impact report and Sierra's inflated numbers.

147. COMMENT: Revenue From Residential Fees Will Dramatically Exceed the Cost of Purchasing Mitigation Needed to Meet ISR SIP Commitments – Using information developed by the District for this rulemaking, Sierra prepared estimates of the funds that will be generated from residential fees and spent purchasing mitigation between 2006 and 2010. We found incoming fee revenue exceeded outgoing mitigation expenses by $146 to $728 million depending on the level of the fee assumed (the percent difference ranges from 377% to 1,873%). The magnitude of these differences indicates that the rule is seriously flawed. There are two primary reasons for the discrepancy between fee revenue and mitigation expenses. First, as noted above, URBEMIS default assumptions include biases that lead to significant overestimates of project emissions, which in turn lead to overpayment of mitigation fees. Second, there is a fundamental flaw in the fee formulas developed for the rule that overstates the cost of purchasing mitigation.

The fee formulas are designed to advance to the District a monetary sum necessary to mitigate excess emissions not mitigated onsite for a period of ten years. Assuming no onsite mitigation, the operational NOx formula requires payment for 2.5 times and the operational PM_{10} formula requires payment for 5 times the estimated base year emissions. The important point is that developers would be required to pay mitigation fees that offset several years of project emissions. Mitigation expenses, however, are not denominated in years. Instead they represent a single one-time purchase that continues to provide emission reductions for multiple years. According to the staff report the average project life for NOx mitigation is 7 years and for PM_{10} it is 12 years.

Thus, assuming no onsite mitigation, a project applicant can expect to pay for 17.5 years of mitigation for the base year NOx emissions of the project (i.e., 2.5 × 7) and 60 years of mitigation for the base year PM_{10} emissions of the project (i.e., 5 × 12). This bias is extreme and comes on top of the significant default biases incorporated into URBEMIS. Collectively, they explain the huge absolute

and percentage difference between incoming fees and outgoing mitigation expenses. Since the residential fees in this analysis are used to purchase all of the ISR SIP mitigation commitments, the inclusion of both residential and non-residential (e.g., industrial) development fees would only worsen the already enormous inconsistency between ISR revenue and expenses.

RESPONSE: The fee formula does not include a project life multiplier of 7 or 12 years. Any funds collected will be used on projects with average project lives of 7 for NOx or 12 years for PM10, so the mitigation is effective for that long on average. The fee formula calculates an amount of emissions in tons that must be mitigated at the cost of reductions for each year. For most projects funded, the reductions may be considered permanent since at the end of the project life new engines/devices will be purchased that achieve reductions that are equivalent or better.

148. COMMENT: Conclusions.
The draft ISR rules have serious and fundamental flaws related to their reliance on URBEMIS and its extreme overstatement of residential project emissions. Moreover, our analysis of incoming and outgoing revenue streams indicates that the ISR fee formulas dramatically overstate the amount of revenue needed to buy emission reduction offsets for NOx and PM_{10} at "market" prices estimated by the District.

RESPONSE: The District strongly disagrees with this conclusion. Sierra based its conclusions on erroneous calculations and comparisons.

SIERRA RESEARCH
ATTACHMENT A
DETAILED COMMENTS

Our detailed comments on the ISR rules are presented below. Some of these comments were provided by Sierra to the District in July in response to the preceding versions of the draft rules. For completeness and where relevant as related to the District's response to these earlier comments, they are repeated in this letter. At the end of each of these comments, we have listed the District's response as contained in Appendix A of the August version of the ISR rule packet and provided follow-up comments to these responses.

149. COMMENT: URBEMIS Fleet Mix Overstates Residential Project Emissions – One of the most striking instances of inappropriate default data in URBEMIS is the distribution of vehicle types (e.g., passenger cars, light trucks, heavy trucks, etc.) or "fleet mix" employed in the model. Fleet mix differences can significantly impact calculated vehicle emissions because of the relative stringency imposed on different vehicle types under emission certification standards adopted and implemented by the state Air Resources Board (ARB). Generally speaking,

passenger cars must meet more stringent (i.e., lower) emission standards than larger vehicle types such as heavy-duty trucks.

The default fleet mixes in URBEMIS (which vary slightly by calendar year) are based on statewide average distributions contained in ARB's EMFAC2002 model. Those default distributions assume that roughly 3% of the vehicles are heavy-duty vehicles (trucks and buses). This is reasonable for a statewide or air basin average of a large vehicle fleet, but clearly not representative of the mix of vehicles operating in a new residential project. New residential projects are not likely to contain any heavy-duty vehicles (in the "operating" phase following construction). Thus, the use of the URBEMIS default fleet mixes that contain heavy-duty vehicles is clearly inappropriate for these projects.

Table 1 compares the results of URBEMIS runs with default and "no heavy-duty" adjusted fleet mixes. These URBEMIS runs were performed for hypothetical 100-unit residential development with single family detached housing for calendar year 2005 using default assumptions for the remaining inputs and assume no mitigation.

The upper portion of Table 1 shows the existing default fleet mix and the corrected fleet mix which was adjusted by removing all heavy-duty vehicle categories and renormalizing the remaining percentages. The lower portion compares operating emissions calculated by URBEMIS using each fleet mix. Although the emission impacts for ROG and PM_{10} are minimal, NOx emissions are some 23% lower (2.13 vs. 2.76 tpy) when representative fleet mix is used to model residential project emissions.

Table 1
Emission Impacts of Corrected Vehicle Fleet Mix
(SJV Fleet, Calendar Year 2005)

Vehicle Class	Default Mix (%)	Adjusted Mix (%)
Light Auto	56.1	58.1
Light Truck 1	15.1	15.6
Light Truck 2	15.5	16.1
Med Truck	6.8	7.0
Light-Heavy Truck 1	1.0	-
Light-Heavy Truck 2	0.3	-
Med-Heavy Truck	1.0	-
Heavy-Heavy Truck	0.8	-
Line Haul	0.0	-
Urban Bus	0.1	-
Motorcycle	1.6	1.7
School Bus	0.3	-
Motor Home	1.4	1.5
FLEET TOTALS	100.0	100.0
Heavy-Duty Pct.	3.5	0.0
Operating Emissions (tpy) for 100-Unit Residential Project:		
ROG	2.18	2.16
NOx	**2.76**	**2.13**
PM_{10}	1.99	1.98

This is a clear instance where URBEMIS default inputs are not appropriate and significantly overstate NOx emissions and resulting mitigation fees that would be calculated under the District proposed ISR rules. This finding clearly points out the need for the District to thoroughly review the default assumptions in URBEMIS and carefully consider the technical capabilities of applicants as end users of the model under these rules.

RESPONSE: The District is working to ensure that the fleet mix assumptions in URBEMIS are appropriate for each land use type. The District will provide updated land use specific fleet mix information for residential development and possibly other land uses prior to rule implementation. URBEMIS data files containing the updated fleet mix data will be available for ease of use. We will accept changes to default information such as fleet mix when supported by adequate documentation. While the fleet average may somewhat overstate emissions [from] residential developments there are heavy-duty truck emissions associated with them. These include school buses, refuse collection, package delivery and other service vehicles.

150. COMMENT: Follow-Up – Refuse collection vehicles are contained in the heavy-heavy truck (HHT) category. In 2004, ARB adopted a statewide rule for controlling emissions from solid waste collection vehicles

(http://www.arb.ca.gov/regact/dieselswcv/dieselswcv.htm). Under that effort, a solid waste collection vehicle emissions inventory was prepared which identified the statewide population of both residential and commercial refuse collection vehicles as 11,778 in calendar year 2000. According to EMFAC2002, the statewide population of all HHTs in 2000 was 158,204. Thus, residential and commercial refuse collection vehicles represent only 7% (11,778 ÷ 158,204) of the total HHT population, with residential collection vehicles less than that.

Package delivery and other service vehicles generally span the light-heavy truck (LHT) and medium-heavy truck (MHT) categories, but the vehicle populations and vehicle miles traveled for those vehicles serving residential customers is likely much less than those serving commercial customers. Thus, the EMFAC2002 fleet percentages for the LHT and MHT categories still overstate the fractions of those vehicles serving residential areas.

To address these issues, the analysis presented earlier in Table 1 was revised to include school buses and all LHTs and MHTs at the same proportions of the original EMFAC2002 fleet mix. This addresses the District concern that school buses be included and conservatively overstates the representation of residential package delivery and other service vehicles. Since residential refuse collection vehicles represent a very small fraction of all HHTs (less than 7%), the HHT residential fleet fraction was set to zero. Using this revised residential fleet mix, NOx emissions were calculated to be 2.44 tpy, which are 12% lower (2.44 vs. 2.76 tpy) than those based on URBEMIS defaults.

Thus, we believe NOx emissions for a properly determined residential fleet mix are still 12-20% lower than if URBEMIS defaults are used, depending on what assumptions are made with respect to the package delivery and other service vehicle fractions of LHTs and MHTs.

RESPONSE: EMFAC emission projections are revised periodically to account for changes from adopted motor vehicle emission regulations. The next version of EMFAC is expected to be released in 2006. The District will help fund the next upgrade to URBEMIS to utilize the new EMFAC. The District's methodology for estimating land use specific fleet mixes will be available prior to rule implementation

151. COMMENT: URBEMIS Age Distribution Overstates Residential Project Emissions – Another area where URBEMIS does not accurately reflect particular project conditions relates to the distribution of vehicle ages internally built in to the model. The vehicle age distributions contained in URBEMIS are based on statewide average vehicle registrations for the entire on-road fleet contained in the EMFAC2002 model. These distributions likely reflect a generally older vehicle fleet than exists in a new residential project. Vehicle emissions strongly depend on vehicle age due to ARB's implementation of dramatically tighter

emission standards over the last 30 years. New vehicles today are approximately 10-20 times cleaner than those introduced in the early 1970s. And this trend will continue into the future. Thus, it is necessary to accurately represent the age distribution of a fleet of vehicles when calculating their emissions.

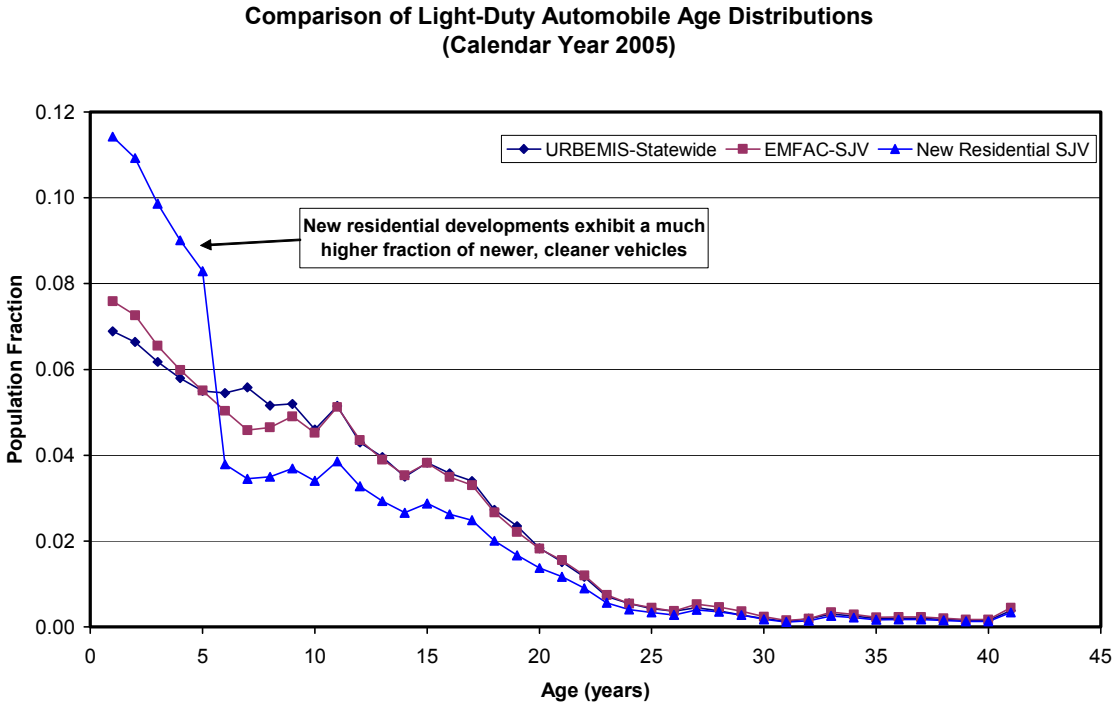
Our subcontractor Dowling has compiled statistics on housing age and vehicle fleet age from two readily available data sources: 1) the 2000 U.S. Census; and 2) the 2001 Caltrans Statewide Household Travel Survey. They compared vehicle age from households in the San Joaquin Valley in two groups:

1. "new" households defined as those that were ≤ 10 years old; and
2. "old" households defined as those older than 10 years.

Dowling found that the "new" housing areas had a 49.5% to 50.5% mix between vehicles ≤ 5 years old and vehicles > 5 years old. In the "old" household areas, the split between ≤ 5 year old vehicles and vehicles > 5 years old was 35.7% to 64.3%, indicating that new households in the San Joaquin Valley reflect a newer vehicle fleet than represented by the URBEMIS model defaults for the entire area.

Figure 1 illustrates the differences in vehicle age distributions between those in the EMFAC2002 model (upon which URBEMIS is based) and those developed for a typical new residential development based on Dowling's findings. As highlighted in Figure 1, new residential developments exhibit a much larger fraction of newer and therefore generally cleaner vehicles.

Figure 1



The emissions impact of using a younger age distribution typically found in new residential developments was determined from a series of spreadsheet calculations by individual model year using age-specific emissions factors extracted from the EMFAC2002 model.

Table 2 presents and compares resulting light-duty automobile exhaust emission factors (in grams per mile) during summer in calendar year 2005. Table 2 also shows the percentage difference in emission factors (and thus calculated project exhaust emissions) using the URBEMIS and New Residential age distributions.

Table 2
Exhaust Emission Impacts of Corrected Vehicle Age Distribution
(SJV Light-Duty Auto Fleet, Calendar Year 2005, Summer)

Quantity/Age Distribution	ROG	NOx	PM_{10}
Emission Factor (grams/mile) - URBEMIS Default	0.177	0.290	0.0082
Emission Factor (grams/mile) - New Residential	0.132	0.222	0.0065
% Difference (New Residential vs. URBEMIS)	**-25.6%**	**-23.3%**	**-20.5%**

As highlighted in Table 2, exhaust emissions of light-duty automobiles were found to be over 20% lower for ROG, NOx and PM_{10} when an age distribution representative of a typical new residential neighborhood is used compared to the

existing fleet-average age distribution contained in URBEMIS. These emission impacts calculated for automobiles are likely to be similar for light-duty trucks as well, which together with automobiles account for about 90% of the vehicles in a residential project fleet.

RESPONSE: The District will consider adding an age correction factor in the fee calculation formula for residential development. The emissions for PM10 in the table appear to be from exhaust and are small compared to the entrained road dust that is not affected by the age of the vehicle.

152. COMMENT: Unlike the previous fleet mix problem which can be addressed by issuing guidance to supply a different fleet mix in one of the URBEMIS input screens, the model cannot be easily revised to properly account for a representative residential vehicle fleet age distribution. The way URBEMIS is currently designed, it internally uses a series of calendar year and season specific emission factor files developed from "upstream" runs of the EMFAC2002 model for a statewide average vehicle fleet. Although it is possible to generate air basin-specific EMFAC2002 files, URBEMIS would need to be re-programmed to utilize these air basin-specific emission factors. More importantly, fleet age distributions for an air basin as a whole are still not likely to reflect those of a typical new residential project. This can clearly be seen from the "EMFAC-SJV" and "New Residential SJV" distribution plotted earlier in Figure 1.

The EMFAC2002 model maintained by ARB is designed to produce several types of outputs under the following three modes: 1) "Burden"; 2) "Emfac"; and 3) "Calimfac". URBEMIS is currently designed to work with "Emfac" mode outputs from EMFAC2002. Although EMFAC2002 can be run with different age distributions, this feature is only available under the "Burden" output mode, not the "Emfac" mode.

Thus, we believe the District will need to completely overhaul the design of URBEMIS and its interaction with ARB's "official" EMFAC2002 emission factor model or consider another analysis method/tool to adequately address this age distribution issue for residential project analyses under the ISR rules.

RESPONSE: The District continues to believe that URBEMIS is the appropriate tool for the job. The District will consider an off model vehicle age correction if well documented. However, the District believes that the fleet average is a reasonable assumption for new development projects. There are a number of factors that impact emissions including age, vehicle class, and fleet turnover. If more specific information is available, the District would consider utilizing project specific numbers.

153. COMMENT: Follow-Up – When asked to clarify this response at the September 1 workshop, District staff indicated that their primary concern with simply using the revised age distributions presented earlier by Sierra/Dowling was that light-duty vehicle class mixes may also be different in new residential areas than represented by URBEMIS defaults. Specifically, the concern was that residential vehicle fleets contain a much higher fraction of sport utility vehicles (SUVs) and pickups than represented in a region-wide fleet.

Our original analysis of the emission impacts of corrected vehicle age distribution was conservatively applied only to passenger cars (which make up less than 60% of the residential fleet), instead of all light-duty vehicles (which comprise roughly 90% of the fleet). We revised our original analysis to include all light-duty vehicles (which include both passenger cars and the light-duty truck categories) because the household survey data upon which the revised age distributions were based included both cars and light-trucks. And to conservatively address the District's concern that a residential fleet would contain a higher fraction of SUVs and pickups than in a region-wide fleet, we doubled the existing fraction of the Light-Duty Truck 2 (LDT2) category (which contains most of the SUVs and large pickups) from roughly 16% to 32%.

Table 3 compares the results of this revised analysis, which applies the newer age distribution to all light-duty vehicles and doubles the LDT2 fleet fraction, to those based on the original URBEMIS defaults. The percentage differences shown in Table 3 are very similar to those presented earlier in Table 2. The reason for this is that although light-duty trucks (specifically LDT2s) have been historically required to meet less stringent in-use emission standards than passenger cars, this gap in stringency has narrowed in recent years and more importantly, their standards have been tightened over time much like passenger car standards. Thus, dramatically increasing the assumed light-duty truck fraction in the residential fleet has much less effect on the relative emission impact compared to URBEMIS defaults and accounting for the younger age distributions of all light-duty vehicles found in newer residential vehicle fleets.

Table 3
Exhaust Emission Impacts of Corrected Vehicle Age Distribution and Doubled LDT2 Fleet Fraction
(SJV Light-Duty Vehicle Fleet, Calendar Year 2005, Summer)

Quantity/Age Distribution	ROG	NOx	PM_{10}
Emission Factor (grams/mile) - URBEMIS Default	0.180	0.345	0.0103
Emission Factor (grams/mile) - New Residential	0.133	0.267	0.0084
% Difference (New Residential vs. URBEMIS)	**-26.1%**	**-22.5%**	**-17.9%**

Therefore, even when accounting for a higher fraction of SUVs and pickups in new residential fleets, we maintain that URBEMIS still overstates NOx and PM_{10} exhaust emissions by approximately 20% due to unrepresentative age distribution assumptions. We believe we have provided the District with ample and readily-available evidence regarding residential fleet age distributions, whose impacts overwhelm those due to what may be higher SUV and pickup fractions in new residential developments. Furthermore, even if fleet data were collected through a survey of new residential developments, the District has not answered the question of how to apply these data since they cannot be accommodated within URBEMIS.

RESPONSE: The District still believes that URBEMIS is the best model for the job and has consistently stated that it would use better data when available. The District will consider applying an age correction factor to the output to address this concern.

154. COMMENT: URBEMIS Silt Loading Factors Inconsistent with ARB Inventory, Overstates Residential Project Emissions – This is another striking example where URBEMIS default assumptions dramatically overstate actual residential project emissions; in this case, by nearly 50% of total operating PM_{10} emissions.

The default silt loading factor supplied to the user by URBEMIS for calculation of entrained (i.e., fugitive dust) PM_{10} emissions is inconsistent with those used by ARB on its emissions inventory and the District's PM_{10} SIP.

In URBEMIS and in ARB's emissions inventory, fugitive dust PM_{10} emissions are calculated for vehicle travel on paved roads using the following equation:

$$EFpaved = k \times (sL/2)^{0.65} \times (W/3)^{1.5}$$

Where:

EFpaved is the emission factor (lb per vehicle mile traveled);
k is the particle size multiplier (0.016 for PM_{10});
sL is the road surface silt loading factor (in grams per square meter);
W is the average weight of vehicle traveling on the road (4,850 lbs is default).

The default road surface silt loading factor in URBEMIS is 0.1 grams per square meter. This value is higher and does not comport with San Joaquin Valley values used by ARB in its statewide inventory for entrained road dust on paved roads, which are different for each roadway type as follows:

- 0.020 g/m^2 for freeways
- 0.035 g/m^2 for major arterials

- 0.035 g/m^2 for collectors
- 0.320 g/m^2 for urban locals
- 1.6 g/m^2 for rural locals.

Using data compiled by the Federal Highway Administration (FHWA) under the Highway Performance Monitoring System (HPMS), the San Joaquin Valley exhibits the following travel percentages by the road types listed above:

- Freeways – 33.25%
- Major Arterials – 38.97%
- Collectors - 27.59%
- Urban Locals – 0.19%
- Rural Locals – 0.01%

The weighted average silt loading factor using these travel fractions and ARB's silt factors by roadway type was calculated to be 0.031 grams per square meter, which is well below the 0.1 default values contained in URBEMIS. Using this ARB and HPMS-based weighted average silt factor for the San Joaquin Valley in the above equation results in a paved road dust emission factor that is 53.6% below that based upon the URBEMIS default silt factor. Use of the ARB-consistent silt factor will also result in a 53.6% reduction in paved road dust PM_{10} emissions computed using URBEMIS defaults.

According to emissions inventory summary data available from ARB on-line at http://www.arb.ca.gov/ei/emsmain/reportform.htm paved road dust PM_{10} emissions make up about 90% of total on-road vehicle PM_{10} emissions in the San Joaquin Valley, excluding unpaved road travel. (We exclude unpaved road dust under the assumption that operating emissions of vehicles in a new residential project exhibit little travel on unpaved roads.) Thus, use of a paved road silt loading factor consistent with ARB's inventory would translate to a 48.2% reduction on total operation PM_{10} emissions of a residential project as described below:

$$\%Reduction = PavedFrac \times (1 - \%SiltReduction) + RemainingFrac$$
$$= 90\% \times (1-53.6\%) + 10\%$$
$$= 48.2\%$$

Where *PavedFrac* is the fraction of project emissions from paved road dust, *%SiltReduction* is the relative reduction in paved road emissions using the ARB-consistent silt factor compared to URBEMIS and *RemainingFrac* is the remaining project emissions of PM_{10} (from exhaust, brake wear and tire wear).

Again, this issue and the alarmingly high overstatement of PM_{10} emissions based on model defaults points out the need to further review and provide detailed guidance for use of URBEMIS in calculating project-specific emissions under the proposed ISR rules.

RESPONSE: The District concurs with Sierra's methodology and will ensure that the correct silt loading factors are utilized in URBEMIS defaults.

155. COMMENT: Follow-Up – We appreciate the District's response to correct the existing silt load factors in URBEMIS. However, when questioned during the September 1 workshop about how and when these silt loading corrections (as well as corrections related to the earlier fleet mix and vehicle age issues) would be addressed, staff indicated that these corrections to URBEMIS defaults would not be completed and released for review prior to the District Board hearing in mid-November for adoption of the ISR rules. Moreover, staff was unclear whether these corrections would be handled by revising the URBEMIS model, or by developing written guidance for users of the model under the ISR rules instructing them how to correct the overstated model defaults when applied to residential development projects.

Given the significance of the impacts of the flawed model defaults on the costs to comply with these proposed rules, we believe these model revisions or guidance documents should be developed and publicly reviewed before ISR rules are adopted if the District intends to pursue the rules despite URBEMIS' deficiencies.

RESPONSE: The District is developing guidance for preparing the air quality impact assessment required by the rule. The guidance will include the default silt-loading factor provided by Sierra Research. The District will provide URBEMIS data files updated with changes that can be used without having to enter the new data. The next upgrade to URBEMIS will contain much of the updated information. The staff report has been updated to describe the impact of these changes on the emissions estimates and economic impacts.

156. COMMENT: URBEMIS Is Inconsistent With SIP Methodology – When a typical residential project was modeled using both URBEMIS and a SIP-based modeling URBEMIS estimates over 60% higher vehicle miles traveled (VMT) and over 50% higher emissions for all pollutants than SIP-based approach.

This is not surprising. The URBEMIS model was originally written as a "sketch-planning" tool, designed to produce intentionally conservative analyses of localized emission impacts from different land uses. For over ten years, the URBEMIS model has been used to assess development project emissions under the California Environmental Quality Act (CEQA) review process. Under CEQA, use of URBEMIS as a conservative (i.e., over-predictive) screening tool is entirely appropriate for comparing project emissions to "significance thresholds"

established under air district guidelines since CEQA requires disclosure of project impacts and significance, but not compliance with regional or state air quality plans or standards. Under this process, URBEMIS-based emission impacts can acceptably err on the side of caution or over-prediction.

RESPONSE: URBEMIS has been continuously updated to provide increased accuracy with each new version. Many of the default values that are based on statewide averages can be changed to use local information when available. The District appreciates the review conducted by Sierra Research to identify additional areas of improvement. The next version of URBEMIS will contain many of these improvements. In the interim, applicants will be instructed to enter local information that is currently available. This information will be provided in a District guidance document. Analyses prepared by the District will also use the local information. URBEMIS remains the best tool for performing project level analyses and provides reasonable estimates of project impacts.

157. COMMENT: Conversely, these ISR rules are being implemented to address specific emission reduction commitments made by the District in Ozone and PM_{10} SIPs for the San Joaquin Valley. Region-wide pollutant emissions calculated under these SIPs use a more rigorous set of models that have been validated with direct measurements to determine motor vehicle travel impacts and resulting emission impacts than represented in URBEMIS. During the ISR rule development, the District has provided no clear evidence that URBEMIS is capable of calculating emissions from development projects in a manner that is consistent with SIP-level emissions. The District has simply asserted the appropriateness of URBEMIS under these proposed ISR rules despite the fact that CEQA guidelines published by other air districts such as the Bay Area and Sacramento clearly characterize URBEMIS as a conservative sketch-planning tool.

RESPONSE: The District believes that URBEMIS has been improved beyond its characterization as a sketch planning tool. Very few of the modules of the program are overly conservative. Most modules rely on statewide averages extracted from the emission inventory which should not be considered conservative estimates. The most important module is the mobile source module that includes the same emission factors used to build the emission inventory. It does a good job of arriving at a composite emission rate needed for a project level analysis. Models can always be made more accurate by individualizing more and more input factors. The District believes that URBEMIS balances data requirements with reasonable output accuracy and ease of use. The travel demand models described by Sierra Research are extremely data intense and would be very costly to run for the approximately 1,000 projects that will be submitted to the District each year. It is uncertain whether the demand models are more accurate for project level analyses than URBEMIS with local information.

158. COMMENT: To test the District's assertion, Sierra and Dowling performed an equivalent, side-by-side analysis of travel and emissions impacts of a typical hypothetical "suburban fringe" residential project using both URBEMIS and the Fresno County regional travel demand model3 (one of several county-level travel demand models used to calculate vehicle travel under the SIP. (As in URBEMIS, emission impacts were calculated using the Air Resources Board's EMFAC2002 vehicle emission factor model.)

For our investigation, we considered a 500-unit single family residential project located within a 160-acre parcel in an undeveloped/lightly-developed area in Clovis northeast of downtown Fresno near the intersection of Minnewawa and Shepherd at the edge of the urban area. This was intended to represent a typical suburban project at the fringe of an urbanized area and roughly matches the default single family residential project density assumed in URBEMIS of three units per acre. We looked at travel activity and emissions during Summer 2010.

Dowling ran the Fresno COG travel demand model in 2010 for a baseline (no project) case and a "with project" case under which the 500-unit project was simulated within the affected traffic analysis zone. The detailed travel model outputs were then fed into ARB's current EMFAC2002/BURDEN model to calculate associated emission impacts with the added project. These results were then compared to an URBEMIS simulation of a 500-unit single-family residential project in the San Joaquin Valley. The URBEMIS run assumed pass-by trips were accounted for and assumed an urban land use type. Since we simulated a single land use (single family residential) in both the travel model and URBEMIS runs, there was no need to apply the "double-counting" correction within URBEMIS.

Our analysis found that URBEMIS estimated daily VMT from this project at 35,817, compared to 21,886 using the SIP-based travel model, an increase of nearly 64%. Emission impacts using URBEMIS were also higher for all pollutants and ranged above 50% compared to the SIP-based approach.

3 Regional travel models such as the Fresno County model mathematically simulate vehicle trip movements over a regional roadway network by dividing the region into demographically similar "traffic analysis zones" (TAZs) similar to census tracts. Demographic and socioeconomic data for each TAZ are used to estimate the number and types of person trips taken between each TAZ. These person trips are then translated into vehicle trips (or non-vehicle trips such as walking or bicycle trips) and loaded onto a series of roadway links that spatially approximate the actual regional roadway network.

From our analysis of the underlying elements of the two approaches, we have preliminarily concluded that the discrepancy in VMT is caused by two related factors:

1. overstated defaults trip lengths for typical suburban residential projects in the San Joaquin Valley; and

2. the inherent underreporting of short trips in household survey data upon which average trip length estimates are based.

The trip generation rates in both models were identically-matched because they both rely on the same source, trip generation rates by land use from the Institute of Transportation Engineers (ITE). The ITE Trip Generation rates are a more accurate representation of vehicle traffic at a particular land use than rates based on household travel surveys. The ITE rates are based on actual driveway traffic counts at many land uses across the United States, and do not rely on self-reporting of trips. Therefore, the use of ITE trip generation rates in URBEMIS would accurately represent total trip-making, if the characteristics of the higher numbers of trips were identical to the characteristics survey-based trips used to determine average trip lengths. However, there is evidence that this is not the case, particularly for trip lengths.

RESPONSE: The District will contact the 8 Valley transportation planning agencies to obtain new recommended trip lengths for each county. This information will be included in the guidance provided by the District for use in URBEMIS. The District is not convinced that using the Transportation Demand Model will provide more accurate results.

159. COMMENT: The 2000-2001 Caltrans travel survey included a parallel study of actual vehicle movements using GPS units. The vehicle movements from the GPS surveys were compared with the self-reported trips from the same households. Overall, the GPS surveys resulted in 29 percent more trips than the self-reported travel survey results.

A related study4 identified the characteristics of underreported trips.5 In particular, the study found that short trips were much more likely to be underreported in travel surveys. Although trips of 10 minutes or less made up 48 percent of the total sample, the short trips accounted for 71 percent of the trips that were missing in self-reported results but identified by the GPS survey. Therefore, the short trips were about 50 percent more likely to be missing from the travel survey results.

4 Joanna Zmud and Jean Wolf, "Identifying the Correlates of Trip Misreporting – Results from the California Statewide Household Travel Survey GPS Study," 10th International Conference on Travel Behaviour Research, August, 2003.

5 Joanna Zmud and Jean Wolf, "Identifying the Correlates of Trip Misreporting – Results from the California Statewide Household Travel Survey GPS Study," 10th International Conference on Travel Behaviour Research, August, 2003.

The URBEMIS model therefore overestimates vehicle-miles of travel by basing the total trip generation on the higher ITE Trip Generation rates, but basing the average trip length characteristics on a smaller survey-based subset of trips that excludes many of the shorter trips. Moreover, it may not be easy or simple to correct this discrepancy because unbiased GPS or instrumented vehicle data may not be available for the San Joaquin Valley.

RESPONSE: It seems that Sierra is attempting to discredit URBEMIS by over complicating the emission calculation process. The differences between the project modeling done by URBEMIS and the regional modeling done by transportation demand models are not a valid comparison. With minor corrections URBEMIS will produce results very close to the SIP inventory model and URBEMIS will continue to be improved with each new version.

160. COMMENT: Although our side-by-side analysis of URBEMIS against a SIP-based approach was limited to a single hypothetical case study of a suburban "fringe" residential development, this case was intentionally selected because in addition to being a common example, it also represented conditions (i.e., urban edge) where it was believed that travel impacts from both approaches would be in closest agreement. Thus, the fact that this case study showed URBEMIS overstated SIP-based travel and emissions impacts by over 60% and 50%, respectively, casts doubt on the validity of broadly applying URBEMIS under the ISR rule as URBEMIS clearly does not produce SIP-consistent emission impacts.

Under both public and private sector work performed throughout California for over twenty years, Sierra has found no precedent at any air pollution control district that employs a fundamentally inconsistent methodology in implementing, monitoring and tracking emission reductions of a district rule from that used to calculate its SIP-based commitments. Given the above findings, we believe District bears the "burden-of-proof" that URBEMIS is consistent with SIP-based methods.

RESPONSE: The District disagrees with the assertion that URBEMIS is fundamentally inconsistent with SIP commitment methodologies. Since the emission inventory is built on a regional basis, the differences in individual projects are not addressed. Benefits of on-site measures and surrounding land uses are not credited in the inventory. URBEMIS is the only tool that can quantify emissions and on-site measures at the project level using readily available emission factors and activity data consistent with other inventory models.

The SIP credit expected from the rule comes from two sources – off-site reductions purchased by the District through its grant programs, and onsite

reductions achieved through project design and infrastructure built into the project. The off-site reductions from projects such as diesel engine replacements and retrofits are quantified using engine specific emission factors and use data and enforced by legally binding contracts. These meet the most stringent SIP monitoring and tracking requirements. The onsite measures are voluntary measures selected by the project developer that are more difficult to quantify and monitor. The District will claim reductions from onsite measures in accordance with EPA's Voluntary and Emerging Measures Program. In this program, EPA recognized that many nonattainment areas will need to implement innovative measures that may not be as quantifiable as traditional SIP measures. Sierra has found no precedent for this at other Districts because the San Joaquin Valley is the first to pursue an indirect source program that will be claimed for SIP credit.

161. COMMENT: Residential Fees Appear Understated in the Socioeconomic Report – In addition to the comments summarized above on the URBEMIS model, we also have concerns with the fee estimates for typical residential developments contained in the District's socioeconomic analysis of the ISR rules. Table 16 of the socioeconomic report cites "worst-case" fee estimates ranging from $856 per unit in 2006 to $2,841 per unit in 2010. The supporting text offers no explanation of how these estimates were developed.

Its fundamental flaws notwithstanding, Sierra independently estimated residential fees using URBEMIS, and the fee formulas and cost reduction ratios contained in the August drafts of Rule 9510 and 3180. For construction emissions, project construction equipment emission factors were assumed to equal those of the statewide inventory. URBEMIS runs were generated for a 100-unit residential project in the urban San Joaquin Valley for calendar years 2006 through 2010 using model defaults except where noted below. A 4% administration fee was assumed and included in our comparisons. Attachment B provides the details of our analysis.

Our analysis found fees were twice as high ($1,607-$7,971 per unit) over the same period for a single-family residential development, assuming a default housing density of 3 units/acre. When the housing density was doubled (to 6 units/acre), per unit fees were still over 50% higher ($1,295-$5,556 per unit) than those cited (without explanation) in the socioeconomic report. We also calculated fees assuming a 93% vs. 7% split between single and multi-family units, based on the average number of new single- and multi-family housing units permitted in the San Joaquin Valley in 2002 obtained from the California Department of Finance (http://countingcalifornia.cdlib.org/title/castat.html). Even under these mixed use assumptions, our fee estimates ranged from $1,550-$7,702 per unit, still nearly twice as high as those in the socioeconomic report.

Thus, we question how the estimates in that report were developed. Our analysis suggests that the worst case residential fees are substantially higher than those employed in the socioeconomic analysis. If this is correct, then the impacts quantified in the study are understated and would need to be revised.

RESPONSE: Sierra calculated the construction emission fee incorrectly. The District-estimated costs will be lower for residential development after the analysis is revised to account for the change to the fleet mix and silt loading factor. If the trip length and vehicle age changes can be verified, they too would lower the impact of the fee.

162. COMMENT: Revenue From Residential Fees Will Dramatically Exceed the Cost of Purchasing Mitigation Needed to Meet ISR SIP Commitments – A spreadsheet was created to prepare an estimate of the revenue that would be generated from residential fees for the 2006-2010 period and the cost of purchasing the mitigation needed to supply the ISR SIP emission reduction commitments during the same time period. Key assumptions used to support the development of these estimates include:

Number of Residential Units Subject to the Rule – According to the Construction Industry Research Board, construction permits were issued for 34,000 residential units in the San Joaquin Valley in 2004. This value represents a mixture of single and multi-family homes and was held constant for the years 2006 – 2010. Since the ISR rule provides an exemption for residential projects that have less than 50 units, this value was discounted by 10% to determine the number of units that would be subject to the rule. Using this approach it was determined that a total of 153,000 units would be subject to ISR fees between 2006 and 2010.

Residential ISR Fees – As noted earlier there is considerable difference between the worst case fees employed in the District's socioeconomic analysis and those that result from the use of default assumptions employed in URBEMIS. Given the discrepancy (i.e., the fees based on default URBEMIS values exceed the District's worse case values), four scenarios were used to cover the potential range in fees:

1. One half district worst-case estimate employed in the socioeconomic analysis was used to represent the low end of potential fees;
2. District worse case fees from the socioeconomic analysis represent the only per unit fee estimate available from the District;
3. URBEMIS default values, which are based on a density of 3 homes per acre represent a true worst case fee; and
4. URBEMIS default values adjusted to represent a higher density of 6 homes per acre represents a lower cost fee.

A summary of the fees that would be required to comply with these scenarios is presented in Table 4. It shows that there are considerable differences between the worst-case District values and those produced using default assumptions from URBEMIS. The URBEMIS based values assume that developers do not supply any on-site mitigation and are required to pay the fee-based expense of mitigation. We do not know what level of on-site mitigation was included in the District's estimate.

Table 4
Per Unit Mitigation Fees ($) For Each of the Scenarios Considered

Calendar Year	One Half District Worst Case	District Worst Case	URBEMIS Default 3du/acre	URBEMIS 6du/acre
2006	468	856	1,545	1,245
2007	705	1,409	3,088	2,385
2008	1,001	2,001	4,847	3,584
2009	1,230	2,459	6,637	4,804
2010	1,421	2,841	7,665	5,343

RESPONSE: The District used 3 units per acre for single family dwelling units in the socioeconomic impact analysis and continues to arrive at the same numbers. Sierra uses a figure of 34,000 units per year for its estimates of overall potential fees. The District used 20,000 units per year based on historical data that included years when construction occurred at a much slower rate and population projections used for the District's attainment plans. We believe that it is inappropriate to base future projections on record years that many expect may be a bubble. If the growth rates do continue, that means that the impact of growth will be much greater than projected and the increased revenue from greater participation in the rule by more units would be needed to offset the additional emissions.

Residential Revenue – This value was computed by multiplying the number of units subject to the Rule times the annual fee (i.e., # of units × $/unit = $).

SIP Emission Reduction Targets – The ton/day pollutant specific reduction targets established in the SIP for NOx and PM_{10}. The same values were employed in the rule making and were documented in Appendix B of the ISR rules packet.

District-Estimated Cost of Reductions – The annual pollutant specific $/ton cost of reductions specified in the residential fee schedule for Rule 9510.

Revenue Demanded – This value was computed by multiplying the pollutant specific incremental ton per day reduction commitment established in the SIP by

the District estimated cost pollutant specific reductions by 365.25 (average days per year) by 1.05 (to account for a combination of the administrative fee of Rule 3180 and an assumed 1% application fee). A key assumption in this calculation is that developers did not provide any onsite mitigation, so the District purchased all of the reductions needed to satisfy the SIP commitment.

Attachment C presents a listing of the spreadsheet values developed for each of the above parameters for each the four mitigation fee scenarios listed above. A summary of the cumulative revenue and mitigation values computed for each scenario for the period from 2006 to 2010 is listed in Table 5. It shows that the revenue varies depending on the ISR fees established by the scenario and that the cost of mitigation is constant. Regardless of the scenario considered, incoming revenue exceeds the mitigation expense by a huge margin. As noted in the summary, we believe that this is a result of biases built into URBEMIS default assumptions and the mitigation fees established for operational emissions from residential units.

Table 5
Analysis of Residential Revenue and Mitigation Expense ($ in millions)

Fee Scenario	Revenue	Mitigation Expense	Unexpended Revenue	Relative Difference (%)
One Half District Worst Case	146.3	38.8	107.5	377%
District Worst Case	292.7	38.8	253.9	754%
URBEMIS Defaults	727.7	38.8	688.9	1,873%
URBEMIS High Density	531.2	38.8	492.4	1,368%

SIERRA RESEARCH
ATTACHMENT B
PER UNIT RESIDENTIAL FEE CALCULATIONS

URBEMIS 8.7 ANNUAL AVERAGE EMISSIONS FOR
100-UNIT SF RESIDENTIAL DEVELOPMENT PROJECT (unmitigated)
USING ALL MODEL DEFAULT VALUES

	Construction		Area Source		Operational (Vehicle)		Area+Operational		Total (C+A+O)	
Calendar	Emissions (tpy)		Emissions (tpy)		Emissions (tpy)		Emissions (tpy)		Emissions (tpy)	
Year	NOx	PM10	NOx	PM10	NOx	PM10	NOx	PM10	NOx	PM10
2006	30.75	2.59	0.30	0.61	2.58	1.99	2.88	2.60	33.63	5.19
2007	29.38	2.48	0.30	0.61	2.42	1.99	2.72	2.60	32.10	5.08
2008	28.01	2.35	0.30	0.61	2.24	1.99	2.54	2.60	30.55	4.95
2009	26.66	2.28	0.30	0.61	2.05	1.98	2.35	2.59	29.01	4.87
2010	25.36	2.18	0.30	0.61	1.87	1.98	2.17	2.59	27.53	4.77

URBEMIS 8.7 ANNUAL AVERAGE EMISSIONS FOR
100-UNIT SF HIGH-DENSITY (6 units/ac) RESIDENTIAL DEVELOPMENT PROJECT (unmitigated)
USING ALL MODEL DEFAULT VALUES (except single family residential density)

	Construction		Area Source		Operational (Vehicle)		Area+Operational		Total (C+A+O)	
Calendar	Emissions (tpy)		Emissions (tpy)		Emissions (tpy)		Emissions (tpy)		Emissions (tpy)	
Year	NOx	PM10	NOx	PM10	NOx	PM10	NOx	PM10	NOx	PM10
2006	26.30	1.79	0.30	0.61	2.29	1.76	2.59	2.37	28.89	4.16
2007	25.14	1.70	0.30	0.61	2.14	1.76	2.44	2.37	27.58	4.07
2008	23.98	1.59	0.30	0.61	1.98	1.76	2.28	2.37	26.26	3.96
2009	22.85	1.53	0.30	0.61	1.82	1.76	2.12	2.37	24.97	3.90
2010	21.75	1.45	0.30	0.61	1.66	1.76	1.96	2.37	23.71	3.82

URBEMIS 8.7 ANNUAL AVERAGE EMISSIONS FOR
100-UNIT SF RESIDENTIAL DEVELOPMENT PROJECT (unmitigated)
USING ALL MODEL DEFAULT VALUES

	Construction		Area Source		Operational (Vehicle)		Area+Operational		Total (C+A+O)	
Calendar	Emissions (tpy)		Emissions (tpy)		Emissions (tpy)		Emissions (tpy)		Emissions (tpy)	
Year	NOx	PM10	NOx	PM10	NOx	PM10	NOx	PM10	NOx	PM10
2006	12.62	0.81	0.21	0.61	1.86	1.43	2.07	2.04	14.69	2.85
2007	*12.07*	*0.77*	*0.21*	*0.61*	*1.73*	*1.43*	1.94	2.04	14.02	2.81
2008	*11.53*	*0.72*	*0.21*	*0.61*	*1.61*	*1.43*	1.82	2.04	13.34	2.76
2009	*10.98*	*0.68*	*0.21*	*0.61*	*1.48*	*1.43*	1.69	2.04	12.67	2.72
2010	10.43	0.63	0.21	0.61	1.35	1.43	1.56	2.04	11.99	2.67

SIERRA RESEARCH
ATTACHMENT B
PER UNIT RESIDENTIAL FEE CALCULATIONS

SJV DRAFT RULE 9510 ISR NOx IMPACT FEE CALCULATIONS

Formula:

$$AIMF_{NOx} = \sum_{i=1}^{n} [(EBE_i \times 7.5/3) - (EBE_i \times 7.5 \times APM_i)] \times CNR_i$$

Calendar Year	Cost of NOx Red ($/ton)
2006	$4,650
2007	$7,100
2008	$9,350
2009	$11,600
2010	$13,250
2011	$13,250
2012	$13,250
2013	$13,250
2014	$13,250
2015	$13,250

where
- AIMF = Air Impact Mitigation Fee (in dollars)
- i = each phase
- n = last phase
- EBE = Estimated Baseline Emissions of NOx as documented in the District approved air impact assessment application (in tons/year)
- APM = Actual Percent Mitigation, as documented in the District approved air impact assessment application (as a fraction of one)
- CNR = Cost of NOx Reductions (in dollars per ton)

$$CN\ AIMF_{NOx} = \sum_{i=1}^{n} [AEE_i - (0.8 \times SEE_i)] \times CNR_i$$

where
- CN AIMF = Construction NOx Air Impact Mitigation Fee (in dollars)
- i = each phase
- n = last phase
- AEE = Actual Estimated Equipment NOx Emissions as documented in District approved air impact assessment application (in total tons)
- SEE = Statewide Average Equipment NOx Emissions as calculated by the District (in total tons)
- CNR = Cost of NOx Reductions (in dollars per ton)

Calculations:

					Area + Operational Sources						Construction Sources			
	Calendar Years			Units per	Estimated Baseline Emissions	Actual Percent Mitigation	Air Impact Mitigation Fee	Area+Ops Fee/Unit	Actual Equipmt Emis AEE	Assumed % AEE	State Avg Equipmt Emis SEE	Constr Air Impact Fee	Constr Fee/Unit	Total Fee/Unit
Scenario	Start	End	Phases	Phase	EBE (tpy)	APM (%)	AIMF ($)	($)	(total tons)	Over SEE	(total tons)	CN AIMF ($)	($)	($)
SF Resid	2006	2006	1	100	2.88	0%	$33,480	$335	102.95	0%	102.95	$95,744	$957	$1,292
SF Resid	2007	2007	1	100	2.72	0%	$48,280	$483	141.85	0%	141.85	$201,422	$2,014	$2,497
SF Resid	2008	2008	1	100	2.54	0%	$59,373	$594	166.30	0%	166.30	$310,985	$3,110	$3,704
SF Resid	2009	2009	1	100	2.35	0%	$69,325	$693	184.82	0%	184.82	$436,176	$4,362	$5,055
SF Resid	2010	2010	1	100	2.17	0%	$71,681	$716	182.29	0%	182.29	$483,071	$4,831	$5,550
HD Resid	2006	2006	1	100	2.59	0%	$38,109	$381	79.19	0%	79.19	$73,643	$736	$1,118
HD Resid	2007	2007	1	100	2.44	0%	$43,310	$433	108.88	0%	108.88	$154,612	$1,546	$1,979
HD Resid	2008	2008	1	100	2.28	0%	$53,295	$533	127.80	0%	127.80	$238,989	$2,390	$2,923
HD Resid	2009	2009	1	100	2.12	0%	$62,540	$625	142.90	0%	142.90	$337,253	$3,373	$3,998
HD Resid	2010	2010	1	100	1.96	0%	$64,925	$649	141.21	0%	141.21	$374,211	$3,742	$4,391
MF Resid	2006	2006	1	100	2.07	0%	$24,064	$241	30.37	0%	30.37	$28,243	$282	$523
MF Resid	2007	2007	1	100	1.94	0%	$34,479	$345	41.63	0%	41.63	$59,168	$591	$936
MF Resid	2008	2008	1	100	1.82	0%	$42,426	$424	48.90	0%	48.90	$91,435	$914	$1,339
MF Resid	2009	2009	1	100	1.69	0%	$49,781	$498	54.65	0%	54.65	$128,968	$1,290	$1,787
MF Resid	2010	2010	1	100	1.56	0%	$51,675	$517	53.90	0%	53.90	$142,827	$1,428	$1,945

SIERRA RESEARCH
ATTACHMENT B
PER UNIT RESIDENTIAL FEE CALCULATIONS

SJV DRAFT RULE 9510 ISR PM10 IMPACT FEE CALCULATIONS

Formula:

$$AIMF_{pm10} = \sum_{i=1}^{n} [(MBE - 0.5\,EBE)_i \times 10\,MCE)_i] / \text{CR}$$

Calendar Year	Cost of PM10 Red ($/ton)
2006	$2,907
2007	$5,594
2008	$9,011
2009	$11,308
2010	$13,850
2011	$13,850
2012	$13,850
2013	$13,850
2014	$13,850
2015	$13,850

where

AIMF = Air Impact Mitigation Fee (in dollars)
i = each phase
n = last phase
EBE = Estimated Baseline Emissions of PM10 as documented in the District approved air impact assessment application (in tons/year)
MBE = Mitigated Baseline Emissions, as documented in the District approved air impact assessment application (in tons/year)
MCE = Mitigated Construction Emissions, as documented in the District approved air impact assessment application (as total tons)
CR = Cost of Reductions (in dollars per ton)

$$AIMF_{pm10} = \sum_{i=1}^{n} [(MBE - 0.5\,EBE)_i \times 10\,MCE)_i] / \text{CR}$$

$$CN\,AIMF_{pm10} = \sum_{i=1}^{n} [(AEE - (0.8 \times SEE)_i] \times CPR$$

where

CN AIMF = Construction PM10 Air Impact Mitigation Fee (in dollars)
i = each phase
n = last phase
AEE = Actual Estimated Equipment PM10 Emissions as documented in District approved air impact assessment application (in total tons)
SEE = Statewide Average Equipment PM10 Emissions as calculated by the District (in total tons)
CBR = Cost of PM10 Reductions (in dollars per ton)

Calculations:

				Area + Operational Sources				Construction Sources				
Scenario	Calendar Years Start	End	Phases	Units per Phase	Estimated Baseline Emissions EBE (tpy)	Actual Percent Mitigation APM (%)	Air Impact Fee AIMF ($)	Area+Op Fee/Unit ($)	Actual Equipmt Emis AEE (total tons)	Assumed % AEE Over SEE	State Avg Equipmt Emis SEE (total tons)	Constr Air Impact Fee CN AIMF ($)	Constr Fee/Unit ($)	Total Fee/Unit ($)
SF Resid	2006	2006	1	100	2.60	0%	$18,896	$189	4.89	0%	4.89	$6,402	$64	$253
SF Resid	2007	2006	1	100	2.60	0%	$36,361	$364	9.02	0%	9.02	$22,700	$227	$591
SF Resid	2008	2006	1	100	2.60	0%	$58,572	$586	13.76	0%	13.76	$55,814	$558	$1,144
SF Resid	2009	2006	1	100	2.59	0%	$73,219	$732	16.69	0%	16.69	$84,949	$849	$1,582
SF Resid	2010	2006	1	100	2.59	0%	$89,679	$897	19.55	0%	19.55	$121,845	$1,218	$2,115
HD Resid	2006	2006	1	100	2.59	0%	$18,823	$188	3.37	0%	3.37	$1,939	$20	$208
HD Resid	2007	2007	1	100	2.44	0%	$34,123	$341	5.80	0%	5.80	$6,499	$65	$406
HD Resid	2008	2008	1	100	2.28	0%	$51,363	$514	8.17	0%	8.17	$14,710	$147	$661
HD Resid	2009	2009	1	100	2.12	0%	$59,932	$599	9.17	0%	9.17	$20,738	$207	$807
HD Resid	2010	2010	1	100	1.96	0%	$67,965	$679	9.84	0%	9.84	$27,258	$273	$951
MF Resid	2006	2006	1	100	2.04	0%	$14,826	$148	1.20	0%	1.20	$1,571	$16	$164
MF Resid	2007	2006	1	100	2.04	0%	$28,529	$285	2.18	0%	2.18	$5,294	$53	$339
MF Resid	2008	2006	1	100	2.04	0%	$45,956	$460	3.31	0%	3.31	$13,417	$134	$594
MF Resid	2009	2006	1	100	2.04	0%	$57,671	$577	3.89	0%	3.89	$19,809	$198	$775
MF Resid	2010	2006	1	100	2.04	0%	$70,635	$706	4.45	0%	4.45	$27,735	$277	$984

SIERRA RESEARCH
ATTACHMENT B
PER UNIT RESIDENTIAL FEE CALCULATIONS

SJV DRAFT ISR RULE FEE CALCULATIONS FOR TYPICAL RESIDENTIAL PROJECTS

Scenario	Calendar Year	Construction Emis %AEE Over SEE NOx	Construction Emis %AEE Over SEE PM10	Rule 3180 Admin Fee (%)	Per Unit NOx Fees Area+Op	Per Unit NOx Fees Constr.	Per Unit PM10 Fees Area+Op	Per Unit PM10 Fees Constr.	Total Fees Per Unit Area+Op	Total Fees Per Unit Constr.	Total Fees Per Unit Admin	Total	Total Less Admin
100-Unit SF Res	2006	0%	0%	4%	$335	$957	$189	$64	$524	$1,021	$62	$1,607	$1,545
100-Unit SF Res	2007	0%	0%	4%	$483	$2,014	$364	$227	$846	$2,241	$124	$3,211	$3,088
100-Unit SF Res	2008	0%	0%	4%	$594	$3,110	$586	$558	$1,179	$3,668	$194	$5,041	$4,847
100-Unit SF Res	2009	0%	0%	4%	$693	$4,362	$732	$849	$1,425	$5,211	$265	$6,902	$6,637
100-Unit SF Res	2010	0%	0%	4%	$719	$4,831	$897	$1,218	$1,616	$6,049	$307	$7,971	$7,665
100-Unit HD SF Res	2006	0%	0%	4%	$301	$736	$188	$20	$489	$756	$50	$1,295	$1,245
100-Unit HD SF Res	2007	0%	0%	4%	$433	$1,546	$341	$65	$774	$1,611	$105	$2,491	$2,395
100-Unit HD SF Res	2008	0%	0%	4%	$533	$2,390	$514	$167	$1,047	$2,557	$143	$3,727	$3,584
100-Unit HD SF Res	2009	0%	0%	4%	$625	$3,373	$599	$207	$1,225	$3,580	$192	$4,997	$4,805
100-Unit HD SF Res	2010	0%	0%	4%	$649	$3,742	$679	$273	$1,328	$4,015	$214	$5,556	$5,343
100-Unit MF Res	2006	0%	0%	4%	$241	$282	$148	$64	$389	$346	$29	$765	$735
100-Unit MF Res	2007	0%	0%	4%	$345	$591	$285	$227	$630	$818	$58	$1,506	$1,448
100-Unit MF Res	2008	0%	0%	4%	$424	$914	$468	$558	$892	$1,472	$94	$2,457	$2,364
100-Unit MF Res	2009	0%	0%	4%	$498	$1,290	$577	$849	$1,075	$2,139	$129	$3,342	$3,214
100-Unit MF Res	2010	0%	0%	4%	$517	$1,429	$706	$1,218	$1,223	$2,647	$155	$4,025	$3,870
Resid Mix - 93% SF, 7% MF	2006	0%	0%	4%	$328	$911	$186	$64	$515	$975	$60	$1,550	$1,490
Resid Mix - 93% SF, 7% MF	2007	0%	0%	4%	$473	$1,917	$358	$227	$832	$2,144	$119	$3,095	$2,976
Resid Mix - 93% SF, 7% MF	2008	0%	0%	4%	$582	$2,960	$577	$558	$1,159	$3,518	$182	$4,864	$4,677
Resid Mix - 93% SF, 7% MF	2009	0%	0%	4%	$680	$4,152	$722	$849	$1,401	$5,001	$256	$6,659	$6,403
Resid Mix - 93% SF, 7% MF	2010	0%	0%	4%	$705	$4,598	$884	$1,218	$1,589	$5,817	$296	$7,702	$7,406

Calendar Year	Worst-Case Socio Report Resid Fees Res Fees ($/Unit)	One-Half Worst-Case Resid Fees Res Fees ($/Unit)
2006	$856	$428
2007	$1,409	$705
2008	$2,001	$1,001
2009	$2,459	$1,230
2010	$2,841	$1,421

SIERRA RESEARCH
ATTACHMENT B
PER UNIT RESIDENTIAL FEE CALCULATIONS

ANALYSIS OF ISR REVENUE SUPPLIED VS. DEMANDED FROM SIP

Assumptions:
34,000 residential units per year in SJV (Source: Construction Industry Research Board, CY2004 Permits)
10% of residential units exempted from ISR rules under the 50-unit project threshold
SocioHalf source of estimated residential fees (SocioWC = SE report/worst-case; SocioHalf = SE report/one half worst-case; URBDft = URBEMIS Defaults; URBHD = URBEMIS High Density)

	SJV ISR Residential Revenue				**SJV ISR Revenue Needed to Achieve SIP Targets**				
Calendar Year	Est. New Residential Units*	Residential ISR Fee ($/Unit)	**Residential Revenue ($/year)**	Calendar Year	SIP Emission Reduction Targets (tons/day) NOx	PM10	District-Estimated Cost of Reductions ($/ton) NOx	PM10	**Revenue** Demanded ($/year)**
2006	30,600	$428	$13,096,800	2006	0.0	1.2	$4,650	$2,907	$1,337,845
2007	30,600	$705	$21,557,700	2007	2.8	2.4	$7,100	$5,594	$10,198,671
2008	30,600	$1,001	$30,615,300	2008	4.0	3.5	$9,350	$9,011	$8,104,425
2009	30,600	$1,230	$37,622,700	2009	5.0	4.6	$11,900	$11,309	$9,295,883
2010	30,600	$1,421	$43,467,300	2010	5.8	5.7	$13,250	$13,950	$9,908,045
Cumulative Totals 2006 to 2010:			**$146,359,800**						$38,844,869
Relative Difference in Revenue: (Supplied vs. Demanded)						377%			

* Discounted to reflect 10% of residential project units exempted under the 50-unit threshold
** Includes 5% "overhead" fee; 4% admin fee per Rule 3180, plus assumed 1% application fee

RESPONSE: The table provided above fails to include the average project life of the emission reduction projects that will be funded by the revenue collected. This results in severely understating the revenue required to purchase emission reductions. NOx projects have an average life of 7 years. PM10 projects have an average life of 12 years. The $/ton number in the fee formula is based on annualized cost divided by annual reductions. This allows for comparison of projects with different project lives. To arrive at the funding needed to achieve the SIP emission reduction commitment, multiply the annual reductions required times the cost per ton of each pollutant.

The District considers it inappropriate to base housing projections on 34,000 units per year. The SIP growth projections are derived from population projections provided by the Valley transportation planning agencies. If these record growth rates continue until 2010, the SIP emission budgets will need to be increased and additional reductions would be needed to achieve attainment on schedule. Rule 9510 would provide some of these additional reductions if growth exceeds predictions.

SIERRA RESEARCH
ATTACHMENT B
PER UNIT RESIDENTIAL FEE CALCULATIONS

ANALYSIS OF ISR REVENUE SUPPLIED VS. DEMANDED FROM SIP

Assumptions:

34,000 residential units per year in SJV (Source: Construction Industry Research Board, CY2004 Permits)
10% of residential units exempted from ISR rules under the 50-unit project threshold
SocioWC source of estimated residential fees (SocioWC = SE report/worst-case, SocioHalf = SE report/one half worst-case, URECdt = URBEMIS Defaults, UREHD = URBEMIS High Density)

	SJV ISR Residential Revenue				**SJV ISR Revenue Needed to Achieve SIP Targets**				
Calendar Year	Est. New Residential Units*	Residential ISR Fee ($/Unit)	**Residential Revenue ($/year)**	Calendar Year	SIP Emission Reduction Targets (tons/day) NOx	PM10	District-Estimated Cost of Reductions ($/ton) NOx	PM10	**Revenue** Demanded ($/year)**
2006	30,600	$856	**$26,193,600**	2005	0.0	1.2	$4,650	$2,907	**$1,317,813**
2007	30,600	$1,409	**$43,115,400**	2007	2.9	2.4	$7,100	$5,594	**$10,198,671**
2008	30,600	$2,001	**$61,230,600**	2008	4.0	3.5	$9,350	$9,011	**$8,104,425**
2009	30,600	$2,459	**$75,245,400**	2009	5.0	4.6	$11,800	$11,308	**$9,295,883**
2010	30,600	$2,841	**$86,934,600**	2010	5.8	5.7	$13,250	$13,850	**$9,908,945**
Cumulative Totals 2006 to 2010:			**$292,719,600**						**$38,844,869**
Relative Difference in Revenue: (Supplied vs. Demanded)						**754%**			

* Discounted to reflect 10% of residential project units exempted under the 50-unit threshold
** Includes 5% "overhead" fee: 4% admin fee per Rule 3190, plus assumed 1% application fee

SIERRA RESEARCH
ATTACHMENT B
PER UNIT RESIDENTIAL FEE CALCULATIONS

ANALYSIS OF ISR REVENUE SUPPLIED VS. DEMANDED FROM SIP

Assumptions:

34,000 residential units per year in SJV (Source: Construction Industry Research Board, CY2004 Permits)

10% of residential units exempted from ISR rules under the 50-unit project threshold

URBDlt source of estimated residential fees (SocioWC = SE report/worst-case, SocioHalf = SE report/one half worst-case, URBDlt = URBEMIS Defaults, URBHD = URBEMIS High Density)

SJV ISR Residential Revenue				SJV ISR Revenue Needed to Achieve SIP Targets					
Calendar Year	Est. New Residential Units*	Residential ISR Fee ($/Unit)	**Residential Revenue ($/year)**	Calendar Year	SIP Emission Reduction Targets (tons/day) NOx	PM10	District-Estimated Cost of Reductions ($/ton) NOx	PM10	**Revenue** Demanded ($/year)**
2006	30,600	$1,545	**$47,283,711**	2006	0.0	1.2	$4,650	$2,907	**$1,337,845**
2007	30,600	$3,088	**$94,481,494**	2007	2.8	2.4	$7,100	$5,594	**$10,198,671**
2008	30,600	$4,847	**$148,331,356**	2008	4.0	3.5	$9,350	$9,011	**$8,104,425**
2009	30,600	$6,637	**$203,082,914**	2009	5.0	4.6	$11,600	$11,309	**$9,295,883**
2010	30,600	$7,665	**$234,541,633**	2010	5.8	5.7	$13,250	$13,850	**$9,908,045**
Cumulative Totals 2006 to 2010:			**$727,721,108**						**$38,844,869**
Relative Difference in Revenue: (Supplied vs. Demanded)						**1873%**			

* Discounted to reflect 10% of residential project units exempted under the 50-unit threshold

** Includes 5% "overhead" fee: 4% admin fee per Rule 3180, plus assumed 1% application fee

SIERRA RESEARCH
ATTACHMENT B
PER UNIT RESIDENTIAL FEE CALCULATIONS

ANALYSIS OF ISR REVENUE SUPPLIED VS. DEMANDED FROM SIP

Assumptions:

34,000 residential units per year in SJV (Source: Construction Industry Research Board, CY2004 Permits)
10% of residential units exempted from ISR rules under the 50-unit project threshold
URBHD source of estimated residential fees (SocioWC = SE report/worst-case, SocioHalf = SE report/one half worst-case, UREDit = URBEMIS Defaults, URBHD = URBEMIS High Density)

	SJV ISR Residential Revenue				**SJV ISR Revenue Needed to Achieve SIP Targets**				
Calendar Year	Est. New Residential Units*	Residential ISR Fee ($/Unit)	**Residential Revenue ($/year)**	Calendar Year	SIP Emission Reduction Targets (tons/day) NOx	PM10	District-Estimated Cost of Reductions ($/ton) NOx	PM10	**Revenue** Demanded ($/year)**
2006	30,600	$1,245	**$38,107,242**	2005	0.0	1.2	$4,650	$2,907	**$1,317,813**
2007	30,600	$2,385	**$72,991,721**	2007	2.9	2.4	$7,100	$5,594	**$10,198,671**
2008	30,600	$3,584	**$109,659,478**	2008	4.0	3.5	$9,350	$9,011	**$8,104,425**
2009	30,600	$4,805	**$147,021,892**	2009	5.0	4.6	$11,800	$11,308	**$9,295,883**
2010	30,600	$5,343	**$163,483,390**	2010	5.8	5.7	$13,250	$13,850	**$9,908,945**
Cumulative Totals 2006 to 2010:			**$531,263,724**						**$38,844,869**
Relative Difference in Revenue: (Supplied vs. Demanded)						**1368%**			

* Discounted to reflect 10% of residential project units exempted under the 50-unit threshold
** Includes 5% "overhead" fee: 4% admin fee per Rule 3180, plus assumed 1% application fee

RESPONSE: The tables provided above are based on erroneous information and so should be disregarded.

PETROtech Environmental Solutions
Date: September 19, 2005

Good morning. It was good to see you at the Chamber of Commerce Meeting on Friday.

163. **COMMENT:** My comment regarding SJVUAPCD Rule 9510 is as follows: I would like to see Exemption Section 4.1.4 changed to read as follows:

"Oil EXPLORATION, Production and Processing"

The way the exemption reads now, only Production and Processing would be covered.

RESPONSE: The Rule will be amended to read "Oil Exploration, Production and Processing.**"**

164. **COMMENT:** I also have a comment regarding Air Quality Guidelines for General Plans. Seyed, until about 5-7 years ago, residential development was ongoing, but it was a fraction of what it is today. I will bet that very few folds from Bakersfield paid attention to them when they were drafted. If PETROtech hadn't started doing Air Quality Impact Assessments, I would have never thought about Rule 9510. But the concern that folds have is based on their fears that sometimes Guidelines, or suggested control measures become part of the requirements.

RESPONSE: Comment Noted.

The California League of Food Processors (CLFP)

Date: September 15, 2005

165. COMMENT: CLFP's primary concern is that it is not entirely clear how some of the provisions of Rule 9510 will apply to a range of manufacturing applications, and the potential compliance costs. Based on a review of the draft CLFP suggests that the District amend the proposed rule as follows:

1. Expand the list of exemptions to include food processing facilities. These facilities should be exempted for the following reasons:
    - A large portion of NOx emissions at most food processing plants can be attributed to stationary sources such as boilers or dryers, and most of this equipment is, or soon will be, subject to new emissions reduction regulations.
    - Forklifts, one of the most common vehicles used at processing facilities, will soon be subject to new emissions control regulations.
    - Unlike many manufacturing and commercial operations, most food processors operate on a seasonal basis, and some only operate for a few months per year. This significantly limits the total amount of employee and product delivery vehicle traffic on the site.
    - A number of the emissions mitigation options suggested by the District are not viable for many food processing facilities. Most processing plants are located in rural areas near where the crops are grown. Charging workers for parking or providing free bus passes to encourage the use of mass transit won't be effective if there is no mass transit available. Cannery workers cannot telecommute or teleconference to conduct their duties, and few may want to ride a bicycle home after working a shift in a factory. Options for creating mixed use facilities may be quite limited. In the case of food processors and many other manufacturers, locating new facilities based on reducing worker travel will imply hauling the raw product further, generating longer trips and additional diesel emissions. The economic viability of investing in some energy savings devices may be limited by the seasonal nature of the business. So, there may be a narrow range of cost effective mitigation measures available to food processors.

RESPONSE: The District will expand the definition to include food manufacturing.

166. COMMENT: 2. The District should clarify how baseline emissions will be calculated for manufacturing and industrial facilities.

RESPONSE: Manufacturing and industrial facilities whose primary function is regulated by the District will be exempt. For those industries subject to the rule such as warehouse distribution centers, only indirect and area source emissions

are used for the baseline calculation. A proposed new facility going through the CEQA process would prepare an air quality impact assessment. The assessment would include an URBEMIS run to quantify area source and mobile source emissions. The facility would concurrently apply to the District for an Authority to Construct for any stationary source equipment/devices subject to permitting. District staff would then estimate stationary emissions.

167. COMMENT: 3. The District should consider the impact of cumulative regulatory costs on industry. Many firms located in the San Joaquin Valley are currently expending substantial funds to comply with an array of new air and water quality environmental regulations. Rule 9510 will place an additional cost burden on industry which will have a direct effect on competitiveness in the global marketplace.

RESPONSE: The District recognizes the cumulative impact of air regulations on industry and the major investments made in stationary source emission controls in compliance with District rules and regulations and has provided exemptions for sources whose primary function is permitted by the District.

Manufacturers Council of the Central Valley
Date: September 15, 2005

On behalf of the Manufacturers Council of the Central Valley, I want to thank you for the opportunity to provide comments on the draft rule 9510 (Decreasing Emissions' Significant Impact from Growth and New Development – DESIGN) and Draft Rule 3180 of the San Joaquin Valley Unified Air Pollution Control District's Rule 4309. The Council represents a number of food processing and related companies in the San Joaquin Valley including several who will be impacted by this rule – some quite significantly and others, quite unexpectedly, unless there are major modifications prior to its adoption by the Governing Board later this year.

These comments are intended to augment those submitted earlier by Rob Neenan of the California League of Food Processors and which we fully support, but will not, in the interest of time, duplicate.

168. COMMENT: As I have communicated to you in a telephone conversation and at the public workshop, the MCCV is particularly concerned with the lack of clarity provided in section 4.1.4 concerning development projects whose primary source of emissions are from stationary sources which are subject to rule 2201 or Rule 2010. At the minimum we would like to see the list of industries expanded to include food processing related companies (including snack foods, candy, milk and cheese), corrugated box manufacturers, can manufacturers, and wineries.

However, even this is insufficient to adequately address the concerns unless a categorical exemption is provided for these industries because the first question

that will be asked is what is the definition of primary? And the subsequent question is how will this be determined? For new developments, this will be somewhat straightforward:

A) If stationary source emissions are projected to be greater than 50 percent of the construction emissions (as calculated by the yet undeveloped emissions calculator) plus the indirect emissions (as calculated by URBEMIS) then project is EXEMPT
B) If less than 50 percent then project is NOT EXEMPT

However, if the development project is an expansion of an existing facility in a jurisdiction which requires discretionary approval, due to its particular ordinance, how will the district review the project and calculate the emissions? What will be the baseline? Will only that portion of the project that is being expanded be subject to the rule? Or will that revert to the policy of the jurisdiction? There are a number of questions that arise and this just touches the surface.

RESPONSE: The rule has been revised to clarify the sources that will be exempt from the rule.

Western States Petroleum Association (WSPA)
Date: September 16, 2005

The Western States Petroleum Association (WSPA[1]) would like to take advantage of the brief opportunity made available by District staff for industry to provide comment on the June 30, 2005 draft of the proposed Rule 9510 (Decreasing Emissions' Significant Impact from Growth and New Development – DESIGN). Our comments on critical development issues related to the rule are attached. We look forward to discussing these issues with the District during future workshop sessions and if necessary providing additional comments should it prove necessary. Preparation of such comments is a crucial aspect of the Rule development process and as such, should be afforded sufficient time for a thorough review of the draft District document and preparation of meaningful comments.

169. COMMENT: I. Indirect Source Review and the SIP
In our July 22, 2005 comments, the Western States Petroleum Association (WSPA) requested that the District designate requirements derived from the proposed regulation as "not federally enforceable". WSPA cited the Federal Clean Air Act at Section 110(a)(5)(A)(i) and the California Health and Safety Code at Section 39602, which we believe support our request.

The Clean Air Act (CAA) at section 110(a)(5)(A)(i) states the following:

1 WSPA is a non-profit trade association representing a full spectrum of companies which explore for, produce, refine, transport, and market petroleum and petroleum products in the Western United States.

"Any state may include in a state implementation plan, but the administrator may not require as a condition of approval of such a plan under this section, any indirect source review program. The administrator may review and enforce as part of an applicable implementation plan an indirect source review program which a state chooses to adopt and submit as part of its plan."

The California Health and Safety Code at Section 39602 states the following:

"…the state implementation plan shall only include those provisions necessary to meet the requirements of the Clean Air Act."

We believe that these sections of the Federal Clean Air Act (CAA) and the California Health and Safety Code when considered together clearly preempt inclusion of indirect source review programs in the California state implementation plan.

The District's response to our comment is contained in Appendix-A of September 1, 2005 draft of the proposed regulation. The District contends that indirect source review programs are required by the CAA, since emission reductions are required to attain ambient air quality standards.

WSPA disagrees. The indirect source review program proposed by the District would be enforceable as a "state only" requirement. Emission reductions from the program would still occur and would reduce ambient concentrations to the same extent. The designation of indirect source review requirements as "federally enforceable" or "non-federally enforceable" has no effect on the attainment of air quality standards.

In California, inclusion of indirect source review programs in state implementation plan is prohibited by H&SC Section 39602 and the CAA section 110(a)(5)(A)(i). Consequently, WSPA requests the proposed regulation include a statement that Rule 9510 is a "state only" regulation.

We believe this to be a critical issue since federal requirements contained in applicable implementation plans must be included in Title V operating permits for major sources. Therefore, under the proposed regulation, mitigation contracts entered into by major stationary sources would require approval (or veto) by the U.S. EPA.

RESPONSE: The District disagrees with the interpretation of CAA sections cited in the comment. The intent of the section was to prohibit EPA from requiring indirect source programs as a Federal Implementation Plan (FIP) measure. Since the District requires the reductions for Rule 9510 to meet commitments in the PM10 Plan, the rule must be enforceable. The enforcement approach we

are proposing is not traditional since this program breaks new ground. The emission reduction projects are enforceable by the District through contract legal actions, but not EPA. If the reductions from the rule and its measures are not achieved, EPA enforcement should require the District to take corrective action to make up for the reductions in accordance with CAA milestone requirements. Since EPA is precluded from requiring the program, they would need to use alternative strategies in the event that a FIP were promulgated.

170. COMMENT: II Rule Applicability

A. Applicability Trigger Date.

In our July 22, 2005 comments WSPA proposed that applications for development projects filed prior to the rule adoption date be reviewed under existing regulations. We continue to believe these development projects should be reviewed under existing regulations. Under existing regulations, projects with significant environmental effects must include all feasible mitigation. The District is provided with notice and an opportunity for commenting on all such projects that are conducted within the San Joaquin Valley. Consequently, the District either has had or will have an opportunity to comment on these projects and to propose mitigation for indirect source and area source emissions. WSPA sees no reason why these projects should have to undergo a second round of regulatory review.

B. Indirect Source Review

As pointed out in our prior comments, Health and Safety Code Section 40717.5 sets forth guidelines and procedures that must be followed by any air district that proposes to adopt or amend a rule or regulation pursuant to Section 40716 or Section 40717.

The requirements contained in Section 40717.5(a) through 40717.5(c) are designed to ensure that emissions from indirect sources are properly allocated to projects that cause an increase in vehicular activity and to ensure that indirect source review requirements are not duplicative of other requirements imposed by the District or other agencies.

The draft version of District Rule does not comply with H&SC Section 40717.5(a)(1) which limits the applicability of indirect source review to those activities that contribute to, "…air pollution by generating vehicle trips that would otherwise not occur".

The District response to WSPA comments (Appendix-A, comment #24, #29) and to similar comments submitted by other was that:

"by their nature new development projects ultimately result in new trips which would not otherwise occur".

The District does not provide any information in support of this generalization and has not made any attempt to determine which types of activities result in an increase in indirect source emissions. In response to other comments the District acknowledges that the proposed rule is intended to control growth induced emissions from indirect sources and new construction (Appendix-A, comment #2, #8, #16). Not all development projects result in growth.

In our July 22, 2005 comments WSPA requested that Rule 9510 be revised to limit rule applicability to indirect source and area source emissions increases. We continue to believe that indirect source review programs established under authority at H&SC Section 40717 and Section 40715.5 are limited to regulation of growth induced indirect source and area source emissions.

WSPA believes that indirect source emissions and area source emissions that are already occurring, or area included in an application for a development project filed before the rule adoption date, should be considered existing emissions and only emissions increase above existing emissions should be subject to Rule 9510 applicability.

RESPONSE: The rule does not target *all* new development, but that development that results in the generation of at least 2 tons per year of NOx or PM10. Certain development, such as an expansion of a manufacturing facility, would be exempt if it does not result in and *increase* of at least 2 tons per year of NOx or PM10 through area and mobile emissions. Therefore, the rule accounts for the *increase* in pollution generation from development projects, and does not place requirements on those developments that do not result in the increase stated above. It is the District's position that projects that result in an increase in pollution emissions are a part of growth. It would be impractical to determine on a case-by-case basis if a project subject to the rule that emits emissions above the applicability threshold is or is not a project resulting from growth in the region.

In regards to projects that have filed for City/County permits *prior* to implementation of the rule, the rule language will be revised to limit the applicability to projects that have applied for a discretionary permit prior to implementation date but have not yet received approval.

171. COMMENT: C Proposed Revision to Applicability
In light of the guidelines specified in the California H&SC at Section 40717.5, and District response to comments, WSPA requests that the following subsection of the Rule Applicability Section 2.0, be revised as follows:

Subsection 2.1

2.1 This rule shall only apply to those elements of a project that require discretionary approval and only if those elements are determined to be part of a development project that meets the following conditions

a. The application for the development project is filed on or after the effective date of this rule.
b. The development project results in an increase in emissions of a pollutant for which the area is designated as nonattainment for either the California, primary ambient air quality standards (CAAQS) or the national, primary ambient air quality standards (NAAQS), for ozone or PM10.
c. The development project results in an increase in indirect source or area source emissions above previously approved existing emissions.

RESPONSE: Comment noted.

172. COMMENT: Subsection 2.1.3

Section 2.1.3 specifies an applicability threshold level of 25,000 square feet for the industrial space category. In our prior comments WSPA requested that the industrial space category be separated into "light Industrial" space and "heavy industrial" space since the vehicle trip ends (VTE) generated by these land use categories differ significantly. For example, according to the institute of Transportation Engineers, "Trip Generation Manual (7th Edition)" the light industrial land use category generates 6.97 VTE per 1,000 square feet. The "heavy industrial" land use category generates 1.5 VTE per 1,000 square feet. The District response to our prior comment was that:

"Most heavy industrial projects would be exempt from this rule, so distinguishing between the different types of industrial would not be productive." (sic)

The District fails to explain why heavy industrial sources would be exempt from the rule's requirements. Furthermore, the District is now proposing to apply the rule to uncategorized discretionary projects involving more than 9,000 square feet. WSPA is again requesting that the "industrial use" category be separated into "light industrial" and "heavy industrial" categories and that the applicability thresholds for these land use categories be established at 25,000ft^2 and 100,000ft^2 respectively.

RESPONSE: Comment noted. The applicability section of the draft rule will be revised to include 25,000 square feet of light industrial, and 100,000 square feet of heavy industrial.

173. COMMENT: Subsection 2.1.9

Delete subsection 2.1.9. The District has not documented why any discretionary project, not otherwise included in a section 2.1 land use category and that is

greater than 9,000 square feet (~1.4 acre) is automatically presumed to have significant indirect source or area source emissions.

RESPONSE: The District prepared emission estimates for all projects listed in the section to determine if they would exceed 2 tons per year of either PM10 or NOx. These projects would be required to prepare an air quality assessment based on their actual design, on-site measures, and characteristics, so in some cases the assessment would determine that no off-site fee is required.

174. COMMENT: Subsection 2.3.2

Delete Subsection 2.3.2. With the exception of the applicability threshold established for "50 residential units", Subsection 2.3.2 supersedes and essentially eliminates the other land use category size thresholds. It can be easily argued that any land use involving nonresidential development, (e.g. commercial, industrial, medial, etc) could accommodate development projects that emit more than 2.0 tons per year of NOx or PM10 (~11ld/day or 0.5 lb/hr).

The District is also proposing that the amount of required mitigation be based on the ability of the property to accommodate future development, whether or not such future development is planned or included as part of the development project responsible for triggering review under this rule.

WSPA believes that developers should not have to provide mitigation for unplanned projects solely because the property has the potential for future development. Future discretionary projects might or might not result in an increase in emissions of air contaminants. Consequently, we request that Subsection 2.3.2 be deleted.

RESPONSE: The rule requires the applicant to come to the District at the last discretionary approval for the project. For industrial and commercial projects this may be a conditional use permit or site plan review. If the use is not known, the general trip rate for the expected use is used to calculate the proposed fee amount. Then, the applicant can use a fee deferral schedule to allow time to identify the actual use. If there were no increase in actual emissions based on the use, the applicant could revise the air assessment and the off-site fee would be not need to be paid.

175. COMMENT: III Definitions

WSPA requests that the following revisions be made to the definitions. We believe the proposed changes will ensure that the definitions are consistent with the stated purpose and applicability of the proposed rule, and will help clarify rule requirements.

Subsection 3.7

In our July 22, 2005 comments WSPA requested that the definition of a development project be revised to exclude projects that require discretionary approval but are required solely to comply with a rule regulation or order of a public agency.

For example, District prohibitory rules frequently require that source operators install control equipment on emission units such as tanks, steam generators, turbines, etc. Installation of the control equipment requires the issuance of an Authority to Construct (ATC) permit which typically involves discretionary approval of an "emission control plan" and control equipment. Depending on the control measure, a source operator could be required to retrofit literally hundreds of individual emission units. The District response to our concerns is summarized below:

> *"The current definition of a development project adequately addresses projects that have ancillary discretionary approvals relating to the project. The applicability of the rule includes not only discretionary approvals but, minimum sizes of projects that must comply with the rule."*

WSPA is confused by the meaning of the first sentence. WSPA requests that the District provide additional explanation of how the current definition of a development project addresses "ancillary discretionary approvals relating to the project".

WSPA assumes that the language contained in the second sentence of the District response means that the District believes that equipment retrofit projects (e.g. steam generators, vapor control systems, etc) are too small to trigger rule applicability. In some cases this may be true. In other cases the size of the control system or facility equipment could easily exceed size threshold specified for industrial sources.

The existing New Source Review Rule (Rule 2201) and many of the prohibitory rules adopted by the District recognize the difference between projects initiated for development and projects undertaken to comply with regulatory requirements. Consequently, WSPA is again requesting that the definition of a development project be revised as follows;

3.7 Development Project: any project, or portion thereof , that is subject to a discretionary approval by a public agency, and will ultimately result in the construction or reconstruction of a building, facility or structure. The Discretionary approval of a project undertaken solely to comply with a rule regulation or order of a public agency shall not be considered a development project.

WSPA also requests that the District staff report clarify the meaning of the word "facility". The use of the word units current context is consistent with the logical meaning of the word and implies that the word "facility" means *"something that is installed or erected to serve a particular purpose".*

RESPONSE: The definition of a development project, in combination with the baseline definition ("area source and operational emissions") effectively eliminates the type of projects the author is commenting about. Permitted equipment emissions are *not* included in the calculations. It is the District's position that all applicable projects that have a baseline above two tons per year of NOx or PM10 from the combination of area and mobile sources should be subject to the emission reduction requirements of the rule, excepting for stated exemptions, regardless of the reason for the project.

176. COMMENT: IV Exemptions

WSPA requests that the exemption section of the rule be revised to include the following changes:

Section 4.1.4

The District has proposed an exemption for a, "development project, whose primary source of emissions are from stationary sources subject to Rule 2201 (New and Modified Stationary Source Review Rule) or Rule 2010 (permits required…". WSPA supports the proposed exemption. However, WSPA requests that the District clarify several items related to the exemption.

First, in response to questions raised by stakeholders during the September 1, 2005 workshop, District staff stated that they though the phrase "primary source of emissions: meant 51% or more of the emissions. Second, in our reading of the proposed exemption we interpret the phrase "stationary sources" to mean air pollutant emitting activities, other than indirect sources and area sources; and not "stationary source" as defined by District Rule 2201.

Assuming our interpretation is correct, then the proposed exemption would be available to development projects where operational emissions from activities other than indirect sources or area sources, comprise 51% or more of the total operating emissions from the development project.

WSPA requests that the District address these issues in their staff report and either confirm our understanding of how the exemption will be applied or provide additional guidance on how subsection 4.1.1 is to be interpreted.

RESPONSE: The District has clarified the exemption section to provide more specifics on the applicable sources that qualify.

177. COMMENT: V Application Requirements

WSPA continues to believe that applications for development projects be submitted to public agencies prior to the effective date of the proposed rule should continue to be processed under the regulations in effect at the time of application submittal. Consequently, we have requested revisions to the applicability section of the rule to be revised accordingly.

Subsection 5.5.5

Delete Subsection 5.5.5. This subsection requires that mitigation, monitoring and reporting programs (MMRP) include provisions for failure to comply, such as stop work authority, permit revocation, civil enforcement, and or administrative appeal. WSPA believes that this subsection should be deleted. The District already has authority to enforce compliance with rules and regulations adopted by the District.

RESPONSE: The District will revise the section to refer to Response to Comment 180, which states the District's authority to enforce provisions of the rule.

178. COMMENT: VI Mitigation

WSPA continues to believe that H&SC Section 477.16 and 47717.5 limit indirect source review programs to control growth induced emissions from indirect sources and area sources. Mitigation should only be required to the extent that a development project causes an increase in indirect emissions or an increase in area source emissions that would not otherwise occur. As we discussed in our prior (July 22, 2005) comments on Rule 9510, WSPA supports the District proposal to allow developers to use a combination of onsite mitigations and offsite mitigation. Developers should also be able to use offsite mitigation resulting from voluntary control of operational emissions from existing development projects upon showing that the emission reductions are surplus and enforceable.

In our July 22, 2005 comments WSPA requested that the District provide a mechanism to enable developers to receive credit for surplus mitigation. We also requested that developers be allowed to provide offsite mitigation by controlling emissions from existing sources through enforceable offsite mitigation programs. Our prior comments are summarized below.

1. For construction emissions, if a developer employs an offsite mitigation strategy, the emission reductions continue to exist after construction is completed. These reductions should be credited to the developer and the developer should be allowed to use the reductions for mitigating construction emissions from future development projects.
2. For operational emissions, developers should receive credit for offsite emission reductions created through voluntary mitigation activities applied ot

previously approved projects. For example, a developer could revegetate or reclaim disturbed surfaces in order to reduce fugitive dust. The developer could then commit these reductions to construction or operational emissions from proposed development projects.

The District response to our comments was:

"The District will consider offsite mitigation proposed by a developer on a case by case basis.".

Based on the District's response, WSPA requests that he District revise Subsection 6.3 as follows:

Subsection 6.3

The requirements listed in Section 6.1 and Section 6.2 above can be met through any combination of onsite or offsite mitigation. Developers may also satisfy the requirements of Section 6.1 and 6.2 by providing mitigation made available by reducing emissions from offsite activities. "the District will consider offsite mitigation proposed by a developer on a case by case basis."

RESPONSE: The District has partially addressed the authors concerns in the September 1, 2005 draft Rule 9510 version in section 7.4.

7.4 The developer shall receive credit for any off-site mitigation measures that have been completed and/or paid for, prior to the adoption of this rule, if the following conditions have been met:

7.4.1 The prior off-site mitigation measures were part of an air quality mitigation agreement with the APCO; or

7.4.2 The developer demonstrates to the satisfaction of the APCO that the off-site emission reduction measures result in real and surplus reduction in emissions**.**

The District will be implementing an off-site emission reduction program that uses fees from the rule to achieve the tonnage reduction required. The District believes that this is the most efficient and effective way to acquire, achieve and track off-site emission reductions. Off-site emission reduction projects that have been coordinated and approved through the District by means of an Air Quality Mitigation Agreement have been thoroughly analyzed and will be administered by the District. Therefore, emission reductions from Air Quality Mitigation Agreements are appropriate to use in the ISR program. However, although a project applicant may be able to find and fund off-site emission reduction projects, it is undesirable to have an applicant administer off-site emission reduction projects to be reviewed by the District on a case-by-case basis. For the purposes of consistency, efficiency, and enforceability, it is most appropriate for off-site emission reduction projects to be administered under the same program.

Applicants and the general public may propose projects for funding through the District's off-site emission reduction program, and the program will have annual review and reporting available to the public.

PUBLIC:

Ann M. Gallon
Date: September 6, 2005

I attended the Sept. 1 Workshop in Bakersfield. This was my first involvement with the Air Pollution Control District. I planned to address you as a private citizen, but all the developers with lengthy statements were a bit intimidating – especially their off screen head nodding and grimacing. They obviously were distressed to have any "controls" of their development projects come under discussion and regulation.

179. COMMENT: What I would have said is that I applaud your plans to contain pollution in our Valley, and I would urge you to stick to your guns – or even tighten up on some rules. As an aside, my stepson once sued the EPA on behalf of the Canadian people for not enforcing their own regulations and causing acid rain which drifted over Canada. The Canadian government prevailed in calling the EPA into action.

RESPONSE: Comment Noted.

180. COMMENT: Applicability to developers of 50-plus residential homes gives them wiggle room to design multiple projects so they could fall under that 50-unit threshold. Another concern of mine is that developers of fewer than 50 units may be less sophisticated in the industry and may create more pollution than you will prevent in the larger developments. I urge you to consider dropping the applicability to 25 units.

RESPONSE: The 50-unit applicability for residential units was specifically chosen for the following reasons:

1. Based on the District's data on the number and units of development occurring in the valley, a threshold of 50 units would capture the majority of the pollution generation from new developments while keeping the number of projects for District assessment at a practical level.
2. Modeling shows with no on-site measures, 50 units may generate approximately 2 tons per year of NOx in 2006
3. This threshold, with the associated 'penetration' of the rule, achieves the emission reductions committed to in the PM10 and ozone plans.

The District will be vigilant to prevent 'piecemealing' of projects to evade compliance with the rule. Rule 9510 §2.3.1 and §2.3.2 specifically address the issue of contiguous or adjacent properties. In addition, District Rule 1110 (Circumvention) states:

A person shall not build, erect, install, or use any source operation, the use of which, without resulting in a reduction in the total release of air

contaminants to the atmosphere, reduces, dilutes or **conceals an emission which would otherwise constitute a violation** of Division 26 of the Health and Safety Code of the State of California or **of these Rules and Regulations**. This rule shall not apply to cases in which the only violation involved is of Section 41700 of the Health and Safety Code of the State of California or of Rule 4102 (Nuisance of these Rules and Regulations. **Violation of this rule is a misdemeanor pursuant to the provisions of Section 42400 of the Health and Safety Code of the State of California**.
(Sections are bolded for emphasis)

181. COMMENT: To give you an example of development traffic, in July we endured seven days of 8am-4pm diesel truck traffic past our home. Trucks were hauling fill dirt to one large residential lot around the corner from us. The whole week we had to remember to close our front windows against the diesel fumes, noise, and dust clouds rising from dirt shoulders.

Mind you, this was a HOT July and we were trying to use just our evaporative cooler (needs open windows to vent) to save money. When the truck traffic continued into the next week I finally called our Supervisor's office to complain and ask if the trucks could travel on the arterial roads instead of on our residential street. I wrote down the following IN and OUT times one morning for 30 minutes:

IN	OUT
	9:35
9:39	9:41
9:44	9:48
9:51	10:01
9:58	10:09
10:05	

By Wednesday, when Supervisor Watson's field rep, Trice Harvey, arrived at our house to look into our complaint, wouldn't you know it – the truck traffic was over. And he said he couldn't tell trucks which roads to take to a construction site. We were going to be pretty much stuck with traffic when there is building going on in our area.

RESPONSE: The author's comments on truck traffic is noted. In addition, the District's Regulation VIII (Fugitive PM10 Prohibitions) contain prohibitions concerning the emissions of dust from construction sites, bulk materials hauling and carryout/trackout. Although these are requirements, certain developments on occasion do not comply with the rule. The District is responsible for enforcing compliance with the rules and employs field inspectors for these issues; however, it is not always possible to catch violations as they occur at the widely disbursed construction sites within the Valley. The District maintains a complaint

hotline for the public to call when they see a violation of the District's rules, including violations of Regulation VIII and Rule 4102 (Nuisance).

County of Residence	**Toll Free Number**
San Joaquin, Stanislaus, Merced	**(800) 281-7003**
Madera, Fresno, Kings	**(800) 870-1037**
Tulare, Valley portion of Kern	**(800) 926-5550**

182. **COMMENT:** So… please stand firm with the building industry – and with Cal Trans who seemed to think they were exempt from air pollution regs – and let's ask everyone to take their share of the responsibility for cleaning up OUR AIR.

RESPONSE: Comment Noted.

183. **COMMENT:** PS That argument of one man about mitigation fees of $2000 pricing thousands of people out of homes in California was statistical but not logical. If they can *only* qualify for a $300,000 home and the $2,000 fee is going to put them "out of the market," then they can just drop their expectations and builder options and by a home for $295,000. Also, it is bad financial planning to try to buy the most expensive house you can qualify for.

RESPONSE: Comment Noted.

ENVIRONMENTAL

Clean Water & Air Matter (CWAM)
Date: September 15, 2005

Thank you for the opportunity to comment on the above mentioned draft rules as proposed for the District. In addition to my verbal comments made during the September 1, 2005 workshop, I wanted to touch on the following topics.

184. COMMENT: No net gain does not equal a loss. When we begin to mitigate more pollution than we create while adding new pollutants, we will finally begin to achieve reductions in total pollutant levels. Until this happens, we are still adding to the pollutant total without ever actually subtracting anything.

RESPONSE: The author's comment does not hold when applied to mobile emissions. Emissions from mobile sources are reducing over time due to regulations on new vehicles. For example, no net increase in the number of vehicles would result in lower future emissions from vehicle turnover to cleaner fleets. The District takes this and other factors into account in the PM10 and Ozone attainment plans. The plans identify growth and reductions in source categories. The plans quantify the reduction from current District rules and proposed rules as well as state and federal regulations, and then model future emissions to determine if the District may reach attainment for applicable pollutants. For development projects, the 'subtracting' occurs through on-site and off-site emission reductions *and* mobile emission reductions over time. The PM10 and Ozone plans have determined that the ISR rule, in addition to existing and future rules and conditions, will help the Valley clean the air and reach attainment.

185. COMMENT: The Californian Environmental Quality Act (CEQA) is very clear when it comes to mitigation measures and how they must be available for public review before the decision makers (who also must have them for review) vote on the project. In reference to Section 5.0 Application Requirements it is imperative that the mitigation measures not be deferred until after project approval.

In Sundstrom v. County of Mendocino (1st Dist. 1988) 202 Cal. App. 3d 296 [248 Cal Rptr. 352] the court ruled that the deferral of an environmental assessment (in this case a hydrological study) until after the project approval violated CEQA's policy that impacts must be identified before project momentum reduces or eliminates the agency's flexibility to subsequently change it course of action. In addition, because the permit authorized the applicant himself, subject to planning staff approval, to conduct the required analysis, the county had violated CEQA's requirement that an agency's decisionmaking body must ultimately review and vouch for all environmental analysis mandated by CEQA. (202 Cal.App.3d at 306-308]

RESPONSE: Rule 9510 §5.0 has been revised to make application and review of ISR projects concurrent with or prior to the CEQA process a project would undertake with the local land use agency. It should be noted that the ISR program does not involve discretionary approval and therefore not itself a CEQA process. Additionally, compliance with District Rules is a *requirement,* not mitigation.

186. COMMENT: Furthermore, local agencies are instructed to integrate the CEQA review process into the other planning and environmental review procedures they are legally or otherwise obligated to conduct. To the maximum extent feasible, CEQA procedures and other procedures should run concurrently, rather than consecutively. (Pubic Resources Code Section 21003 subd. (a).) Regarding Comment #50- CEQA is a state law and does not vary by jurisdiction. This comment should be changed.

RESPONSE: Concerning timing of application to the ISR program, see the response to comment above. Although CEQA itself does not vary by jurisdiction, the implementation of the time requirements does. CEQA provides the master timeline in the framework of minimum and maximum times for various activities. Each jurisdiction has the authority to implement CEQA with procedures that reduce a particular activity's time to far below the maximum time allowed under CEQA. Therefore, each jurisdiction may have a different timeline for project review and approval based on individual procedures that comply with CEQA. The District will not change response to comment #49 from the June 30, 2005 workshop.

187. COMMENT: While there are exceptions, contextually, the agency is creating a broad, sweeping plan to cover many projects, including but not limited to, commercial, industrial and residential. Consideration of public involvement in the process would facilitate information regarding mitigation at the beginning of the process, rather than after the project has been approved.

This issue, when addressed early in the application process can carry over to all levels of approval, rather than have the public or decision makers continually have to request effective, enforceable mitigation as part of the project not only with the lead agency, but the responsible agency as well.

RESPONSE: While the District concurs that public involvement is important, and will amend the rule and staff report to include mechanisms for public involvement, the ISR program is *not* a CEQA process. ISR is a ministerial action not subject to CEQA, per PRC §21080 *Division Application to Discretionary*

Projects; Nonapplication; Negative Declarations; Environmental Impact Report Preparation (b)(1):

(b) This division does not apply to any of the following activities:
(1) Ministerial projects proposed to be carried out or approved by public agencies.

188. COMMENT: There should be some method for the dispersal of funds to account for project area pollutants and either the on-site or near-by mitigation funded by said project. Money going into the big pot in Fresno and ending up who knows where, by some group that has asked, will not address source point pollution.

RESPONSE: The District will track the location, by City and County, of the projects funded through the off-site emission reduction fund. The District will also complete annual reporting of how much, where and what tons of reductions occurred, which will be made available to the public. The District is unsure of the author's intent with the comment on point source pollution. This rule does not attempt to address emissions from source points. However, if an off-site emission reduction project is a point source, that information will be available in the District's annual reporting, and upon request.

189. COMMENT: Regarding the pollution prevention proposals, it would a be beneficial to have some long-term pollution reduction by means of phyto-remediation. Trees are known, quantifiable and effective pollution reduction technique. The use of trees should be encouraged to help cleanse the valley air. This mitigation could be achieved with tree farms using mitigation banking credits for a controlled system of distribution.

RESPONSE: The District is aware of the air quality benefits of trees. Specifically, trees reduce ambient temperature (reducing formation of ozone), cool housing and AC units (reduce energy consumption), cool cars and paving in parking lots (reduced evaporation of volatiles[6]). It is also known that some of these benefits are quantifiable. The District would entertain a tree program as an off-site project if it meets the requirements set forth in the rule, including cost effectiveness.

190. COMMENT: Enforcement of air quality mitigation measures is the responsibility of the District. I mention again in these comments a critical issue: Currently the district is notified of a project's start when there is a complaint filed by a member of the public. While this is not always the case, this type of complaint based enforcement system is inefficient as best and at worst, a heavy burden on the public to be responsible to see that the approved mitigation measures are actually followed or the best possible attempt to prevent more air pollution

6 McPherson, E. Gregory. Sacramento's parking lot shading ordinance: environmental and economic costs of compliance. Landscape and Urban Planning 57 (2001) 105-123

RESPONSE: The District is notified of the start of a project through several means. The CEQA process allows an opportunity for the District to review and comment on development projects within the Valley. The District also receives Dust Control Plans (DCP) and Notifications from project developers as a *requirement* of Regulation VIII (Fugitive PM10 Prohibitions). It should be noted that District rules are *requirements* and not mitigation, and the District has the authority to take enforcement action for non-compliant projects. The District is notified of Regulation VIII non-compliance through mandatory self-reporting (DCPs, etc.)

191. COMMENT: Additionally, it would be beneficial to both the public and all decision makers reviewing environmental air quality assessment to have the inputs for the baseline for the modeling runs at the beginning of the reports and if the report is quoted in the document, in the text of the document as well.

RESPONSE: The preparation of environmental CEQA documents is the responsibility of the lead agency. The District will make project specific information available to the lead agency and the public (See Response to Comments #8 and #59), but the District cannot prescribe a format that lead agencies must follow.

Kern-Kaweah Chapter of the Sierra Club
Date: September 15, 2005

Here are the comments of the Kern-Kaweah Chapter of the Sierra Club. Our chapter has 1,600 members and there are a few thousand other Sierra Club members in the San Joaquin Valley.

My copy of the September 1 draft is post marked August 26. Does the Air District Staff believe in summer vacation and Labor Day Weekend?

Instead of including our July 15, 2005 letter by reference, we put chunks of it in this letter and put the rest at the end of this letter.

GENERAL REMARKS ON THE RULE

192. **COMMENT:** At the September 1 workshop I learned that air quality regulations forbid the development industry from sheltering those of us with low or even moderate incomes. At previous workshops I learned that air quality regulations prevent farmers from feeding us and prevent various industries from affording to employ us. Perhaps the best plan is for residents to continue to suffer asthma and for those who die prematurely of heart or lung disease to be eulogized as "heroes of the economy".

RESPONSE: Comment Noted.

193. **COMMENT:** Our previous comments applauded 6.1 "The developer shall mitigate 100% of the construction emissions associated with its development project." Construction emissions do not last as long as operational emissions, but exposure to pollution is the same whether the pollution is from construction or from operation; thus, mitigation for construction emissions should be briefer and equally vigorous as construction from operation.

RESPONSE: The draft rule does not require 100% mitigation from construction. Rule 9510 Section 6.1.1 states that exhaust emissions must be reduced from the statewide average by 20% for NOx and by 45% for PM10.

194. **COMMENT:** We object to having developers choose consultants to prepare an Air Impact Assessment; we think consultants will not be chosen by developers unless they make findings as favorable to the developer as possible. The air impact assessment must be produced by the District or by a consultant of the District's choosing. Developers shall pay for the air impact assessment.

RESPONSE: The District will require all inputs and assumptions for the Air Impact Assessment, per the requirements of the rule. This information is contained in the application. The District will review the inputs, assumptions and modeling for accuracy, and will require additional information and/or revision for items that are inaccurate, inconsistent or unjustified. The modeling must be replicable and reasonable, and the emission reduction measures selected must be incorporated into the project and enforced through either other public agency requirements or by a District Monitoring and Reporting Schedule.

195. **COMMENT:** I did not find anything about mitigation by replacing inefficient equipment. Our July 18, 2005 letter said: "If existing equipment is replaced because it is worn out, no mitigation credits must be given unless the new equipment is better than other equipment that could be used. The mitigation credit must be limited to the difference in cost between the cheapest equipment that could have been obtained and the lower emitting equipment that was obtained."

RESPONSE: It is unclear if this comment pertains to on-site emission reduction or off-site emission reductions. For on-site emission reductions from construction, no justification is necessary to achieve credit for cleaner engines. For off-site emission reductions, the reductions will be achieved through the ISR off-site funding program, which will follow criteria and established emission reduction calculations. For programs that replace existing engines with new engines, the old engine must be operational and have a remaining useful life that is the basis of the emission reductions. How those emission reductions are calculated depends on the type of project and the specific components of the project. See the Staff Report and Appendix E – Cost Effectiveness Analysis for additional information on off-site emission reduction projects.

GENERAL REMARKS ON THE NOx REDUCTION OF THE RULE

196. COMMENT: Rule 9510 sets the goal of reducing emissions from projects that produce more than two tons per year of NOx by half. There is no justification for mitigating only 50% of emissions. Reducing NOx by half, rather than complete reduction, would be acceptable if all trips to or from the regulated development projects were to other projects that also reduced their NOx emissions by half. For the most part, rule 9510 regulates new development projects on the edge of town; most of the trips associated with those projects will be to or from long established business, recreational or work sites that have never paid any air quality mitigation fee and have no on site mitigation. If the trip to those sites had been made from an older development nearer the established sites, air emissions would be less. That is why the goal should be complete mitigation for all polluting emissions from all sources including Area Sources.

RESPONSE: The goal of the rule is to achieve an emission reduction from growth that was identified in the PM10 and ozone plans. The District calculated the level of reduction needed on a per-project basis that would achieve the emission reduction committed to in the PM10 and ozone attainment plans. The rule sets levels that are in compliance with state law regarding indirect source regulations and are feasible to achieve. Charging a fee for trips that are the responsibility of another new source or an existing indirect source would not equitably distribute responsibility for existing and new vehicle trips as required by H&S 40717.5. The 33% accounts for declining mobile emissions over a ten year period – see the fee formula.

197. COMMENT: How much NOx will future vehicles make? When will increased gasoline prices cause us to use fewer light trucks and more efficient sedans? The staff report, bottom of page 3, says cars are predicted to decrease pollution between 1994 and 2003. Has this occurred?

RESPONSE: NOx emissions were reduced substantially between 1994 and 2003; however, certain heavy-duty diesel vehicles showed an increase during that period due to use of computer controls that enabled the vehicles to meet emission tests but emit at higher levels during actual operation. This problem has now been corrected. The amount of future NOx is identified in Attachment 2 of Appendix B – Emissions Reduction Analysis for Rule 9510 (ISR). Studies of the effects of gasoline prices indicate that very large price increases would be needed to significantly change travel behavior.

198. **COMMENT:** Here are examples where rule 9510 may cause someone to pay more than their share to mitigate air quality. Someone might move to a newly built home in order to take a job near that home; they would create emissions only when they drove to established business, recreational sites not I their new neighborhood or visited persons living a distance from their new home. A retired person who moved to a newly built home in order to be near the people they most often visit would generate fewer emissions than most of those who move to a newly built home. These exceptional cases do not seem to justify making this rule weaker or more complex.

RESPONSE: The District recognizes that there are a variety of factors that affect emissions from new projects. It is infeasible to model or account for all this variation at the development stage. In addition, there is no guarantee that those cases of less-emissions, same-house would occur over the ten years assessed by the rule, let alone the life of the project. The District considers the URBEMIS model to be the most accurate model available that meets the needs of the ISR rules. More information on URBEMIS may be found in the Staff Report and in Appendix D – Recommended Changes to URBEMIS.

APPENDIX A: RESPONSE TO COMMENTS

Industry and Public:

199. **COMMENT:** Comment 1 Each individual development must be held responsible for all the travel it generates. When persons move to the edge of town from a site closer to the center of town, their old home is occupied; the emissions of their old home do not change. The emissions of their new home must all be mitigated. Consider a mitigation fee for those who move into an existing home that is further from the center of the City than their previous home.

RESPONSE: The District agrees that each individual development should be responsible for the trips it generates, but also must consider that the reductions required must be fair and feasible. The District may consider a future rule revision or other program to address existing indirect sources.

200. **COMMENT:** Comment 7 If the emissions of a structure continue beyond ten years, so should the mitigations. Can the air district prove that cleaner cars will allow us to attain PM 10 and ozone standards in ten years and prevent increased emissions thereafter? What if attainment in does not permanently occur?

RESPONSE: The mobile source regulations currently in place and scheduled to go into effect in the next few years provide for a cleaner car and truck fleet well into the future even when accounting for projected growth in trips and vehicle miles traveled. Continued diligence will be required to ensure maintenance of the standards. This is accomplished through a maintenance plan that will provide the reductions needed to keep emissions from increasing due to growth.

201. **COMMENT:** Comments 11 and 18 Response 11 correctly anticipates new standards. Response 18 implies that PM 2.5 is not likely to be one of those new standards because attaining PM 10 standards will control PM 2.5. So far it looks like a lot of PM 10 is geologic particulates that are not as harmful as the smaller particles included in PM 10. The smaller particles, PM 2.5, are products of combustion or are a combination of ammonia and NOx. If so, decreasing PM 10 will not decrease PM 2.5.

RESPONSE: The rule is designed to reduce both fugitive dust PM10 and combustion PM10. Most engine replacement and retrofit projects provide NOx and PM10 benefits. Most of the combustion PM10 is comprised of the fine fraction less than 2.5 micrometers in diameter. The PM10 standard cannot be achieved without fugitive PM10 reductions and so must be part of this rule.

202. **COMMENT:** Comment 25 Some recreational space reduces motor vehicle use, such as a park that many persons can easily access on foot or by bicycle. Some recreational space increases motor vehicle use, such as a motocross facility or any facility that attracts visitors from a distance.

RESPONSE: Recreational uses that attract vehicle trips and exceed the operational threshold of 2 tons/year of NOx or PM10 will be subject to the rule. Uses that attract pedestrians or bicyclists would not trigger the rule.

203. **COMMENT:** Comments 67 and 70 The Socioeconomic impact of these rules must include the decrease in the cost of illness and death that this rule will cause. The cost of illness includes pain, suffering, premature loss of income, absence from school, absence from work and loss of companionship. To estimate the incidence of these events, please consult physicians who have reported such figures to CARB; for example, there are 106,695 workdays lost in Kern County due to PM10.

RESPONSE: See Response to Comment #98.

204. **COMMENT:** Comment 87 I do not bicycle on very hot days and most folks stay indoors those days. When I do bicycle on days of elevated ozone levels, I expose myself to ozone rather than use my car to raise ozone levels for everyone else. There are, or would be if bike paths are constructed, many persons as virtuous as I.

RESPONSE: Comment Noted.

205. **COMMENT:** Comment 96 Mitigating air pollution as close as reasonably possible to the source of the pollution may be more acceptable to the public than distant mitigation; however, insistence on mitigating in the immediate area can be used as a way to make mitigation more difficult.

RESPONSE: See Response to Comment #188.

206. **COMMENT:** Comment 98 Limiting mitigations to those that match the source of the mitigations can be used as a way to make mitigation more difficult. A ton of NOx generated by Valley traffic is the same as a ton of NOx mitigated by reducing Valley generation of electricity from fossil fuel.

RESPONSE: See Response to Comments #188.

207. **COMMENT:** Comment 102 As inflation and the completion of the most cost effective measures occur, how will mitigation fees be increased?

RESPONSE: Off-site fees are dictated by the amount it would take to offset a ton of the applicable pollutant. The District has included the fee schedules for 2006 through 2008. If an adjustment is required, for example, if during implementation the District finds that there aren't enough off-site projects achieve the set cost-effectiveness, the District can amend the cost-effectiveness schedule in the rule through a rule amendment. Rule amendment procedures are standard, and must be adopted by the Board.

EPA

208. **COMMENT:** Comment 7 p. A 25 Is EPA completely satisfied with this response to their thoughtful comment?

RESPONSE: See Response to Comment #5 for additional comments to the issue of surplus mitigation.

209. **COMMENT:** Comment 18 p. A 28 A high density residential project far from jobs, shopping, schools and other services does not decrease emissions except for trips between residents. A high density project that enables residents to

access jobs, shopping, schools and other services on foot, bus or bicycle decreases emissions and should get credit for on site mitigation.

RESPONSE: See Response to Comments #7 and #9 for discussion on URBEMIS on-site measure quantifications.

210. COMMENT: Comment 36 p. A 30 We are pleased that low-income housing is not exempt from the rule. Low-income housing often has elderly residents whose diseased lungs and hearts are especially susceptible to air pollution. Government can help pay the small cost of clean air for poor people if the voters wish.

RESPONSE: Comment noted.

Remarks On The Wording Of The Rule

211. COMMENT: 1.1
Does the reference to "particulate matter" include PM 2.5 and the smaller particles such as PM 0.1 that can be inhaled from ambient air into the blood stream? Comments 11 and 18 apply: Response 11 correctly anticipates new standards. Response 18 implies that PM 2.5 is not likely to be one of those new standards because attaining PM 10 standards will control PM 2.5. So far it looks like a lot of PM 10 is geologic particulates that are not as harmful as the smaller particles included in PM 10. The smaller particles, PM 2.5, are products of combustion or are a combination of ammonia and NOx. If so, decreasing PM 10 will not decrease PM 2.5.

RESPONSE: See Response to Comments #57 and #65 for the Districts response to which pollutants, and how much reduction was chosen.

212. COMMENT:2.1.8
Comment 25 applies: Some recreational space reduces motor vehicle use, such as a park that many persons can easily access on foot or by bicycle. Some recreational space increases motor vehicle use, such as a motocross facility or any facility that attracts visitors from a distance.

RESPONSE: The Air Quality Impact Assessment uses URBEMIS to calculate mobile source emissions from each project. URBEMIS uses trip generation rates for each type of use and allows for different trip rates to be used for different types of recreational facilities. This will allow for an accurate differentiation between the uses mentioned in the comment.

213. COMMENT: 2.3.1 & 2.3.2
We wish to thank whoever brought to your attention that the draft of 9510 dated June 30, 2005 did not address cumulative impact of adjacent development.

These paragraphs at least call our attention to this failing. As I understand 2.3.1 & 2.3.2, if I had one piece of land big enough to build 147 units, I could build 49 residential units that rule 9510 would not apply to. Then, in lieu of inheritance I could give each of my two children land so that they each build 49 residential units. We would thus build 147 residential units without having to comply with rule 9510. No one would ever know if I benefited financially from my children's property.

RESPONSE: See Response to Comment #214.

214. COMMENT: The only way I can write rule 9510 to avoid this problem and avoid high administrative cost is to say that even one house will be subject to this rule but that small tracts can pay a mitigation fee, rather than have their emissions determined and mitigated.

Our comments of July 18, 2005 on 2.2 and 4.2 of rule 9510 are included here:

The rule should apply to even the smallest projects so that developers do not piece meal. Building many little developments can have a major cumulative effect; CEQA has cumulative impact concerns. Among the 6 30 05 comments that supported not omitting projects that make only two tons of NOx and only two tons of PM 10 per year was one by a City of Clovis employee who forecast developments of 49 houses. Dr. Nipp has commented on over a dozen housing developments that somehow had just under ten tons per year of NOx and just under ten tons per year of ROG. Several years ago several natural gas 48 or 49 MW cogeneration power plants were built in Kern County; 50 MW plants had to be reviewed by the California Energy Commission.

These exemptions could also increase administrative costs and give some developers an advantage over others. What happens if soon after a new 20,000 square feet store is occupied, it fails or for some other reason becomes general office space? The store has paid a fee that it would not have paid if it had been built as general office space.

Please disregard our next paragraph of July 18, 2005; it is in error. It read: The rule could say that if a project is small, and no developer has enough land at the site to develop any other source of emissions small projects could be exempted.

RESPONSE: The District added rule language that prohibits piecemealing of projects to evade the applicability threshold. In addition, the District will implement procedures for identifying non-compliant projects and will have staff assigned to ensure compliance with the rule.

215. COMMENT: 3.22 & 3.23
In view of the decrease in emissions that will result from replacing some of our private auto travel with public transit, we might need to mitigate emissions form public transit construction less stringently than emissions from other construction. Since building new roads leads to more car and truck use, and therefore more pollution, road building emissions must be strictly mitigated.

RESPONSE: The District has determined that transit projects involving construction in excess of 2 tons total of NOx and PM10 combined should remain subject to the rule.

216. COMMENT: 4.1.4
Agriculture should be among these exemptions provided it is regulated under other rules as provided in the SB 700 series of bills.

RESPONSE: See Response to Comment #45.

217. COMMENT: 4.3
Transportation Projects should not be exempt from the requirements of the rule. If more roads, as opposed to mass transit, are made available, more people will use the roads rather than mass transit. This is called induced traffic. If bicycle paths and mass transit become available, some of us will choose to use them.

RESPONSE: The District specifically exempted transportation projects from the 'operational emission reduction requirements of the rule. Transportation projects are subject to the construction emission reduction requirements of the rule. Although not part of this rule, the District may consider including operational and area requirements in a future rule or rule amendment.

218. COMMENT: 5.0
CEQA provides that information such as provided by an AIA be available to the public and to decision makers before any discretionary action is approved. Please change the first sentence of 5.0 so that if complies with the CEQA.

RESPONSE: The District intends to submit air quality impact assessments to local agencies so that they may use them in their CEQA documents prepared for the land use approval. Although the rule provides analysis and emission reductions that will be useful in the CEQA process, the main focus of the rule is attainment of PM10 and ozone standards. (See Response to Comments #8 and #59). Also keep in mind, the ISR program is not discretionary approval and therefore *not* a CEQA process (See Response to Comment #187).

219. COMMENT: 5.1
Any consultant involved by any developer must be identified.

RESPONSE: The District will amend the rule language to include the above.

220. COMMENT: 5.4.1.1
Does this say that any mitigation required by laws existing before a development occurs can not be counted as an indirect source mitigation under rule 9510? We hope the answer to this question is "yes". The Air District intends to obtain agreed upon mitigations, as 5.5.6 shows.

RESPONSE: Any on-site measure that is quantifiable through the APCO approved model shall be counted towards on-site emission reduction. Only measures that do not have an enforcement mechanism through city/county or other requirements will be required to complete a monitoring and reporting schedule with the District.

221. COMMENT: 6.1.1
Are a 20% reduction in NOx emissions and a 45% reduction in PM10 emissions all developers are reasonably capable of, or is it just enough to attain a CAA standard deadline? Why does the Federal Clean Air Act allow areas like Bakersfield, that fail to attain daily 8 hour ozone standards on more days than any other place in the USA, to employ RACM, not BACM?

Does the Air District intend to wait for 2007 to complete a plan to attain federal 8-hour ozone standards? If so, how do you justify this to children who can not play outdoors when there is too much ozone in the air?

RESPONSE: The emission reduction requirements were based on the availability of new technology that can achieve the results allowing for a reasonable period of time for equipment owners to phase in the cleaner equipment considering the high cost of large construction equipment and its long useful life.

The District is working as rapidly as it can on 8-hour ozone planning. We are currently working with a Northern California 8-hour State Implementation Plan Working Group to coordinate the modeling and other efforts to get the plans out on time. The atmospheric modeling now beginning is needed to identify the reductions required. The District continually works to identify control measures that can be adopted to achieve reductions as early as possible. The District's goal is to complete the 8-hr plan in the spring of 2007.

Appendix C: On-Site Mitigation Checklist

222. **COMMENT:** Except for push mowers, this is identical to our July 18, 2005 letter. Local office holders must be tested on various parts of appendix C and recalled if they fail.

RESPONSE: Comment Noted.

223. **COMMENT:** 1 Bicycle Infrastructure:
Class II bike lanes on arterial/collector streets are more dangerous than class I.

RESPONSE: Comment noted. The corresponding URBEMIS mitigation component states "Percent of Arterials/Collectors with Bike Lanes: Or Where Suitable, Direct Parallel Routes Exist." 'Bike Lane' is the Class II category. 'Bike Path' is the more desirable Class I category. In addition, the District believes appropriate "complete street" planning adequately addresses the issue of safety.

224. **COMMENT:** 7 Pedestrian Oriented Infrastructure:
Place store entrances just off the sidewalk. Folks dislike walking across busy, un-shaded parking lots.

RESPONSE: The District will add the above to the items listed under "Pedestrian Oriented Infrastructure"

225. **COMMENT:** 16 Parking
Some employers offer employees about $40/month in lieu of free parking; employees who accept are left to choose among transit, bicycle, car pool, walking etc.

RESPONSE: This type of measure is appropriate for projects where the building tenant is known at the time the project review is accomplished. It could be included as an employer Transportation Demand Management Program. The emission reductions will depend on individual measures that the employer will implement and the pedestrian, bicycle, and transit service at the project site.

226. **COMMENT:** 25 Energy Efficiency
Provide space for outdoor passive solar clothes dryers, once known as wash lines and space for portable indoor drying racks.
Shaded, reflective or white roofs are not as good as the items you mention, but they are better than dark, unshaded roofs. Roof overhangs that shade windows in summer decrease heating costs.
Water heater should be located in most sinks so that a central hot water heater does not need to be turned on just to get hot water in one sink.
Provide fluorescent lighting, including compact bulbs.

If air conditioners, rather than swamp coolers, are insisted upon, they should be placed on the ground, north of the building, in the shade.

RESPONSE: The items listed above relate to the individual components that may increase energy efficiency. The On-Site Emission Reduction List contains the following measure:

> *Increase the building energy efficiency rating above what is required by Title 24 requirements. This can be accomplished by any combination of the following (this list should not be considered comprehensive):*

The list mentioned is an 'idea list' to inform the applicant of the variety of components that are available. The District will amend the list as additional energy-saving components are identified.

227. COMMENT: 47 Landscaping
At least let folks know push mowers are available at stores and they lower body weight.

RESPONSE: The District has a Public Information Department that has an excellent track record in getting the word out on the many options available for individuals to reduce their air impacts.

Appendix F: Socioeconomic Analysis

228. COMMENT: We agree that the affect of rule 9510 on home prices and rents will be small if the assumptions of the study by "Applied Development Economics" are made. We think that in general and in the Valley's housing market, supply and demand have a much greater effect on price than costs do; therefore we think the rule will have negligible effect on prices.

Our remarks on comments 67 and 70 above apply.

RESPONSE: Comment Noted.

229. COMMENT: If rule 9510 results in increased use of public transit, it will decreases the amount of money spent on gasoline. Sixty per cent of America's crude oil is imported. If residents divert money from partly imported gasoline to local products and to paying the wages of those employed by public transit, it will increase the gross domestic product of the Valley except for a decrease in money going to local oil drilling and refining. Would the net of this have a significant effect on Valley incomes? What if we decrease crude imports without decreasing local crude oil production?

RESPONSE: The District believes that although the implementation of Rule 9510 will have some economic impacts, it also will have a potentially significant beneficial economic effect on the San Joaquin Valley's economy through funding

off-site emission reduction projects. For example, a PM10 project may be paving unpaved roadways. This could result in an increase in jobs. However, the District does not speculate on the rule's potential secondary impact on the petroleum industry due to increase or decrease in fuel use.

230. COMMENT: If society desires a certain rate of home ownership among those with lower income, or otherwise wishes to increase the standard of living for those with lower income society can subsidize their mortgage payments, pay more for their work or tax them less and tax others more.

RESPONSE: Comment Noted.

Environmental Defense
Association of Irritated Residents
Steven and Michele Kirsch Foundation
Union of Concerned Scientists
Latino Issues Forum
Relational Culture Institute
Center for Energy Efficiency and Renewable Technologies
Fresno Metro Ministry
Natural Resources Defense Council
Merced/Mariposa County Asthma Coalition
Earthjustice
Date: September 14, 2005

We represent national, regional and local environmental, public health, and community organizations that are actively engaged in finding solutions to the San Joaquin Valley's air pollution. We have been closely following the district's development of DESIGN (Rule 9510) and the accompanying air impact assessment application fee (Rule 3180). We believe that together these rules have great potential for reducing and mitigating air pollution that accompanies growth in the Valley.

As noted in the comment letter many of us signed regarding the June 30 version of the draft rules, we believe the two rules have great potential for improving the quality of life for everyone in the Valley, and not just through the direct benefit of cleaner air. The two rules can increase opportunities and incentives for affordable housing located near jobs; reduce the climb in daily vehicle miles traveled; reduce traffic congestion and encourage viable transportation choices; protect agricultural lands from encroachment; and be the first words in a regional conversation about how to best accommodate growth without increasing pollution.

We believe that the September 1 version of the draft rule is an improvement over the June 30 draft. We are pleased that the latest draft has more detail. We also appreciate the district's effort to prevent gaming of the rule by ensuring that projects on contiguous

or adjacent property under common ownership of a single entity will be treated as one project. However, we believe that overall, the current version still falls short of ensuring that the DESIGN program meets its full potential to reduce air pollution.

We urge the district to consider the following comments and make appropriate changes to the September 1 draft rule before submitting it to the board for approval.

231. COMMENT: Section 2.0 Applicability. The thresholds for the size of developments covered by the rule are too high. The thresholds appear to be set to cover developments that would be expected to produce two or more tons per year of pollution. Neither the staff report nor the draft rule provides any strong logic for ignoring developments that produce less than 2 tons but at least 1 ton per year. Leaving tons on the table unnecessarily reduces the rule's effectiveness and eliminates cost-effective opportunities to protect public health. The thresholds should be set to cover developments that produce 1 ton or more per year.

RESPONSE: See Response to Comments #57 and #180 for the District's determination of the applicability level.

232. COMMENT: Section 3.5 Definition of Baseline Emissions. The wording for this definition needs to be clearer. The current wording leaves it unclear whether the first year of the project or any phase of the project is included in the baseline emissions. Additionally, as we discuss below, the emissions covered should include reactive organic gases.

RESPONSE: See Response to Comment #91.

233. COMMENT: Section 3.14.7 Definition of Recreational. The definition is too inclusive. It should be refined to ensure that facilities within this category generate similar levels of pollution. A community park, for instance, does not generate the same amount of pollution as a movie theater. Movie theaters and fitness clubs are probably more appropriately included in commercial categories.

RESPONSE: See Response to Comment #88.

234. COMMENT: Section 4.1.5 Housing Projects Exemption. This definition needs to be clearer. It appears that the district is interested in exempting housing that would qualify as affordable housing and that is receiving public funding to ensure its status as affordable housing. However, the definition as it now stands could be interpreted as offering a much broader exemption, and including any housing that receives federal- or state-backed loans. The definition should be more clearly and narrowly stated to reflect the district's intent.

RESPONSE: The District has eliminated this exemption in the proposed rule.

235. COMMENT: Section 5.3 Air Impact Assessment (AIA), Section 5.4 On-site Mitigation Checklist, Section 5.5 Mitigation Monitoring and Reporting Program (MMRP), and Section 5.6 Air Impact Mitigation Fee Deferral Schedule (FDS). The rule should overtly guarantee public access to documents and information required by these sections. While state law would allow public access, to ensure that access is available in a timely fashion, and not subject to delays resulting from the need to file public records act requests, the rule should specifically note that the district will make available to the public the application and information described in sections 5.3, 5.4, 5.5 and 5.6 within two weeks of the district's receipt and review of these documents.

RESPONSE: The ISR program will not be a discretionary program, and thus is not subject to the public review requirements of CEQA (See Response to Comment #187). The District will be including mechanisms for public agency and public review of certain ISR documents. See Response to Comment #8 for Public Agency access. See Response to Comment #59 for public access. See Response to Comments #178 and #188 for public access to the Off-Site Program.

236. COMMENT: Section 6.1 Construction Equipment Emissions. Construction equipment emissions reduction goals should be set as a minimum standard for individual vehicles, not as a fleet average. We applaud the district's inclusion in this draft of a section specifically requiring reductions in construction vehicle tailpipe pollution. Uncontrolled construction equipment represents some of the dirtiest and most health-threatening mobile emissions. However, the fleet average approach suggested in the draft rule fails to protect those working and living closest to, and therefore at most risk from, the emissions from individual pieces of the dirtiest uncontrolled equipment. We recommend requiring a minimum level of control for all construction equipment that limits emissions to those achieved by Tier 1 controlled construction equipment, in combination with a fleet average as described in the rule.

RESPONSE: The District does not have the authority to set emission standards for mobile sources. Please see Response to Comment # 6 for additional information.

237. COMMENT: Section 6.2 Operational and Area Source Emissions. The rule should fully mitigate the most health-threatening indirect source pollutants. We are pleased that the district has clarified that PM 2.5 will be included in the emissions controlled. However, we continue to believe that, like the June 30th version, the September 1 draft rule does not provide the level of health protection warranted. The rule addresses only oxides of nitrogen (NOx) and coarse and fine particulate matter (PM 10 and PM 2.5). It should also require mitigation of reactive organic gases (ROG), a precursor that leads to the

formation of ground-level ozone. Mobile sources account for almost 40% of ROG emissions in the San Joaquin Valley.

Additionally, the draft rule continues to call for reducing just a third of the NOx emissions and half of the operational PM 10 emissions over a ten-year period. This approach leaves the majority of pollutants produced by a new development unmitigated. The district staff has arrived at these discounts short of 100 percent mitigation to avoid double counting. It has thus assumed that every vehicle traveling to or from a new development is starting or ending the trip at another new development also covered by the rule. This is an unreasonable expectation.

At the very least, if the district believes it must discount mitigation levels to avoid double counting, it should arrive at the proposed discount in a logical, defensible fashion. The district should engage the URBEMIS update advisory group, composed of professional air regulators familiar with the model and the literature on land use and transportation, to define a reasonable and defensible default number for discounting trips to avoid double counting.

RESPONSE: See Response to Comments #57 and #65 for the District's response on the amount, pollutant type, and calculations for emission reductions. By ensuring that the program does not mitigate more than half the trips generated by the project, the District is ensuring compliance with the H&S Code that requires indirect source programs to differentiate between new and existing trips. URBEMIS accounts for all trips related to a development but does not differentiate between new and existing trips. When analyzing a project in an area that is planned but not built out, some of the trips will be going to new development that will also be subject to the rule in the future and other trips will be going to existing development not subject to the rule. Both types of trips should not be charged to the project being analyzed so that impacts are fairly allocated among all uses

238. COMMENT: Additionally, the mitigation requirement should extend beyond ten years. One need not look very far in California to see that most buildings continue to attract pollution-emitting traffic for much longer than ten years. The DESIGN rule should more faithfully reflect the real life of—and real life of emissions from—the development project. We suggest a minimum of 30 years, which assumes a development will last at least as long as a standard mortgage.

The rule should also recognize that developments have variations in emissions over their lives. This change reflects the changing demographics in housing developments over time, and the changing uses of buildings, including commercial and industrial buildings. The rule should include that variation in emissions modeling and the district should require a review of actual emissions from projects at least once every five years to ensure that the match between emissions and required mitigation is strong.

RESPONSE: See Response to Comment #198 for the District's response on variations.

239. COMMENT: Section 10.2 Administration of Mitigation Funds. Mitigation measures should be permanent. The district, in Section 10.2, the draft rule indicates that it will use mitigation fees to fund quantifiable, enforceable and surplus NOx and PM10 emissions from off-site mitigation projects. All mitigation, whether on-site or off-site, should be permanent as well.

Some mitigation measures, such as the incremental improvement from retrofitting a diesel truck engine, are not permanent. The incremental improvements last only as long as that retrofitted or replaced engine is in operation and go away once a newer, cleaner engine replaces that older engine. Yet the pollution those measures intend to mitigate do not change. Therefore, short-term mitigation measures should be sequenced with other mitigation measures, to ensure that mitigation lasts as long as the mitigated pollution does.

RESPONSE: The District disagrees with this commenter's characterization of permanent reductions. The key is that all equipment and vehicles wear out and must be replaced over time. If the old equipment is replaced at the end of its useful life with new equipment that is as clean or cleaner than the old equipment then the emissions continue at the same or lower rate and the reductions should be considered permanent. If the equipment were replaced with dirtier equipment at the end of its useful life, the reduction would not be permanent. The District uses project life estimates from the Carl Moyer program that are very conservative. For example, ag IC engines are allowed a project life of 7 years, but our experience in the grant program has shown that many engines are operated for 20 to 30 years.

240. COMMENT: The District Should Develop Long-Term Measures with Mitigation Funds, and Invite the Public to Participate.

The September 1 draft, like the earlier drafts, is vague and uncertain about how monies will be spent and leaves critical decision-making about spending the funds up to the air district. The district should use the Carl Moyer program as a model. Broad areas for expenditure are outlined in the statute establishing the Moyer program, and then the lead regulatory agency, after public workshops and hearings, adopts guidelines about the specifics of how the Moyer funds will be spent.

Mitigation funds collected from developers for off-site mitigation should help create and fund long-term air pollution mitigation measures. Improving transportation choices by investing in vanpool systems and providing incentives for affordable housing located near existing job sites are examples of just two

long-term measures. The district needs to engage the public, local government and other agencies to identify the best uses of mitigation funds to get these long-term emissions reductions. The rule should establish development of a public process and guidelines for determining the best uses of the mitigation funds.

RESPONSE: Long-term measures as described in the comment may be funded if they can meet the reductions are quantifiable and enforceable. There will be opportunities to add programs once the rule is adopted.

241. COMMENT: Include Discussion of Health Costs of Air Pollution**.**
In the staff draft report, in the draft rules, and in the socioeconomic analysis, there is no indication that air pollution costs money. There is no indication that the main purpose for this and every other rule adopted by the air district is to make the air healthier to breath. The air district staff, and by extension the air district board, does itself and the cause of clean air a disservice by continually ignoring this critical issue. Dirty air is costly. It impairs health and costs residents in time lost at work, in lost productivity, in lost days at school, in direct health care costs. It also costs crop damage and materials damage. More than a decade ago, researchers established that not meeting federal ambient air quality standards in the Los Angeles air basin costs that region at least $9 billion a year.

We continue to be disappointed by the district staff's refusal to note in its rule reports and socioeconomic analyses that air pollution has costs, especially health costs. We urge the district to use this rulemaking opportunity to bring to the public's attention the very real health costs associated with air pollution. Ample information is available from the California Air Resources Board and other state and national environmental agencies to help district staff provide sound information about the costs of air pollution.

RESPONSE: See Response to Comment #98.

242. COMMENT: Finally, we applaud the district for its decision to develop rules 9510 and 3180, and we appreciate the district staff's hard work on this rule. We hope to see another draft that incorporates the changes we have recommended. We also look forward to further discussions with the district about the rule as it moves forward.

RESPONSE: Comment Noted.

Yokuts Group, Sierra Club
Date: September 1, 2005

243. COMMENT: While I think several of the commentators today made the point, I, as a long-time low-income person, would like to tell your socioeconomic that, yes, a $100 increase in rent or mortgage, DOES make a difference. Obviously

he has never been in the position of not having enough money to pay all of his bills.

I'm not qualified to comment on the rest of the presentation, but that I do know about.

RESPONSE: The author's comment on the impacts of pricing on low income persons is well taken. It is important to point out that the rule exempts housing of less than 50 units; and it applies to only *new* housing developments. In addition, the impacts discussed in the Socioeconomic Analysis are the unlikely 'worst-case' scenario where all developments contain no sidewalks, all residential is built at 3-units per acre, there are no transit services, bike racks or any other measure that reduces emissions. The District believes that the exemptions and applicability stated above as well as the more likely, less-fee scenario reduce the impacts on housing affordability beyond that stated in the Socioeconomic Analysis.

244. COMMENT: And I would agree with Kathryn that the cost of *not* doing anything about pollution has to be spelled out. All too often only the costs of rectifying our past neglect are all we look at. That, actually is only relevant when comparing the benefits of several alternatives for cleaning our air.

RESPONSE: The District believes that rule by rule analysis of the health benefits of individual rules is not appropriate; however, the cumulative benefit of the District's attainment strategy on health is extremely important. The District will be revising the Staff Report to include discussion on health impacts as addressed in the PM10 and Ozone plans.

Late Comments

City of Manteca
October 7, 2005

245. COMMENT: The Manteca City Council recently adopted the attached Resolution opposing the adoption of Draft Rules 9510 and 3180. We are aware that we live in a non-attainment area. We are also in favor of lowering the amount of PM-10 and NOx emissions. However, before the assessment of additional fees occurs, a program needs to be presented that will show how the funds collected will be used to lower the emissions.

We will be happy to reconsider our actions when a positive plan has been presented.

RESPONSE: The District has provided a clear and positive plan for use of fees in Appendix E – Cost Effectiveness Analysis for Rule 9510. Detailed program guidance for new programs will be developed once the rule is adopted.

Resolution No R2005-446
A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF MANTECA OPPOSITION THE SAN JOAQUIN AIR POLLUTION CONTROL DISTRICT DRAFT RULES 9510 AND 3180

246. COMMENT: WHEREAS, the San Joaquin Valley Air Pollution Control District has proposed two potentially costly draft rules (9510 and 3180) that will impose new taxes and fees on every new office building, home, retail store, restaurant and other private development in the counties of Fresno, Madera, Merced, Kern, Kings, San Joaquin, Stanislaus and Tulare; and

RESPONSE: The Draft Rules 9510 and 3180 do not apply to all new development, nor does it place fees on all development. Please refer to Response to Comment #170. See also Response to Comments #46, #51, and #78, and #175.

247. COMMENT: WHEREAS, every Central Valley Resident will pay for these new air district taxes and fees, as business pass along their new costs through increased prices on goods and services; and

RESPONSE: Please refer to Response to Comments #89, #138, and #180.

248. COMMENT: WHEREAS, adding tens of millions in new taxes and fees every year will hamper the Valley's economic development and job-growth in a region that has among the highest unemployment rates in California; and

RESPONSE: Please refer to Response to Comment #137. See also Response to Comment #55 and #102.

249. COMMENT: WHEREAS, the air district taxes and fees will exacerbate the housing affordability problem in the Central Valley by adding more than $50 million in new costs each year to the construction of homes and apartments, driving up the cost of mortgages and rents and pricing thousands of families out of homes they can no longer afford; and

RESPONSE: Please refer to Response to Comment #137.

250. COMMENT: WHEREAS, the air district taxes and fees would fund the expansion of a bureaucracy that lacks accountability or any specific plan to improve air quality. The air district has failed to present a plan of what improvements to the region's air quality it will make with its new taxes and fees; and

RESPONSE: Please refer to Response to Comments #101, #104, #108, #113, #114, #115 and #137, and #188. Also refer to Rule 9510 Section 10.

251. COMMENT: WHEREAS, the air district has failed to provide scientific evidence to support the new taxes and fees it is proposing; and

RESPONSE: Please refer to Response to Comments #135. In addition, considerable study and analysis went into the District's PM10 and ozone attainment plans, which identified reductions from Indirect Sources as a requirement for attainment of the PM10 and ozone standards.

252. COMMENT: WHEREAS, the air district taxes and fees will interfere and conflict with local government land use authority by creating a new and competing review process, that will erode local control over land-use decision making; and

RESPONSE: Please refer to Response to Comments #8, #81, #133, and #140. . In addition, please refer to the Staff Report Section (B) *District Authority and Limitations*, and Section (D) *State Environmental Review – CEQA*

253. COMMENT: WHEREAS, the air district land-use power is redundant and conflicts with existing environmental rules and safeguards, such as the California Environmental Quality Act and existing air quality and environmental reviews.

RESPONSE: The District does not have land-use power, nor does it desire to usurp the local land-use authorities discretion on land use power. Please refer to Response to Comments #8, #81, #133 and #140. In addition, please refer to the Staff Report Section (B) *District Authority and Limitations*, and Section (D) *State Environmental Review – CEQA*

254. COMMENT: ***NOW, THEREFORE, BE IT RESOLVED*** that the City Council of the City of Manteca opposes the San Joaquin Valley Air Pollution Control District Draft Rules 9510 and 3180

RESPONSE: Opposition noted. The District notes that the substance of the letter is unsupported - see Response to Comments #245 to #253.

STOP the AIR BOARD TAX – We'll All Pay! (Coalition)

A.L. Gilbert Company.
African American Chamber of Commerce of San Joaquin County
Building Industry Association of Central California
Building Industry Association of the Delta
Building Industry Association of Kern County
Building Industry Association of San Joaquin Valley
Building Industry Association of Tulare and Kings Counties
Business, Industry & Government (BIG) Coalition of the South San Joaquin Valley
Cal Bennett's
California Black Chamber of Commerce
California Building Industry Association
California Business Properties Association
California Manufacturers & Technology Association
California Mexican American Chamber of Commerce
California Restaurant Association
California Retailers Association
California Senior Advocates League
California Taxpayers' Association
Central California Hispanic Chamber of Commerce
Constructing Industry Air Quality Coalition
Consulting Engineers and Land Surveyors of California
Consumers First, Inc
City of Avenal
City of Clovis
City of Escalon
City of Lodi
Coalinga Area Chamber of Commerce
Greater Bakersfield Chamber of Commerce

Greater Merced Chamber of Commerce
Howard Jarvis Taxpayers Association
J.F. Shea Co., Inc
KRC Safety
Kern County Farm Bureau
Kern County Hispanic Chamber of Commerce
Kern County Taxpayers Association
International Council of Shopping Centers
Lemke Construction
Lodi Association of REALTORS, Inc
Lodi Chamber of Commerce
Madera Hispanic Chamber of Commerce
Matthews Homes
National Association of Industrial and Office Properties – California Chapters
National Coalition of Hispanic Organizations
National Tax Limitation Committee
Orange Belt Board Realtors
Raymus Homes
Rainscape
Reason Foundation
San Joaquin Valley Black Chamber of Commerce
San Joaquin Chamber of Commerce
Scolari Tile & Co., Inc
Self-Help Enterprises
Sharp Insurance & Bonding
Small business Action Committee
The Hispanic Chamber of Commerce of Stanislaus County
Tulare and Kings Counties Builders Exchange
The Tulare/Kings Hispanic Chamber of Commerce
Tulare Chamber of Commerce
Tulare County Association of REALTORS
Tulare County Farm Bureau
Valley Taxpayer's Coalition
Valley Outdoor Advertising
Visalia Chamber of Commerce

255. **COMMENT:** On behalf of small business, labor, taxpayer, local government, community and other diverse organizations, we strongly oppose draft Rules 9510 and 3180. These measures will impose new taxes and fees on Central Valley residents, hurting our economic development and job-growth but offering no accountability and no guarantees of cleaner air.

RESPONSE: New Taxes: The Draft Rules 9510 and 3180 do not apply to all new development, nor does it place fees on all development. Please refer to

Response to Comment #170. See also Response to Comments #46, #51, and #78, and #175.

Hurt Economy: Thee is no factual evidence that implementation of the rules will hurt the economy. Please See the Staff Report and Appendix F – Socio Economic Impact Analysis for more information. Please refer to Response to Comment #137. See also Response to Comment #55 and #102.

Accountability: The authors' statement is untrue. Accountability is built into the rule. Refer to Rule 9510 Section 10. See also Response to Comments #101, #104, #108, #113, #114, #115 and #137, and #188.

256. COMMENT: The proposed rules will impose a slew of new taxes and fees that will apply to every newly constructed property – offices, homes, retail stores, restaurants and small or large businesses. Combined, these taxes and fees are expected to cost hundreds of millions of dollars over the next five years. This fee will price tens of thousands of families out of housing they can afford and worsen the housing crisis in the Central Valley.

RESPONSE: New Taxes: The Draft Rules 9510 and 3180 do not apply to all new development, nor does it place fees on all development. Please refer to Response to Comment #170. See also Response to Comments #46, #51, and #78, and #175.

Costs of Rule: The District analyzed the calculations that the BIA provided via Sierra Research, and concluded that the analysis was flawed and inaccurate. Please see Response to Comments #161 and #162.

Housing Impact: The Socioeconomic Impact Analysis did not find a significant impact to housing builders or housing buyers/renters. See the Staff Report and Appendix F for more information. In addition, please see Response to Comments #137, #41, and #53.

257. COMMENT: By imposing similar costs on new businesses, these measures will hamper the Valley's economic development and job-growth which will be particularly disastrous in a region that has among the highest unemployment rates in California.

Ultimately, these additional costs will be passed along to consumers, meaning we all pay.

RESPONSE: The District disagrees that the rule will hamper economic development in the Valley. Please see Response to Comment #55.

258. COMMENT: Most troubling is the fact that there are no accountability mechanisms built into the draft Rules and no guarantees that the funds will actually improve the air quality. The Air Board has failed to present a detailed list of the specific air-quality-improvement activities it intends to pursue and has failed to provide credible scientific support for the proposed rules.

RESPONSE: Accountability: The authors' statement is incorrect. Accountability is built into the rule. Refer to Rule 9510 Section 10. See also Response to Comments #101, #104, #108, #113, #114, #115 and #137, and #188.

Credible Scientific Support: Again, the authors' statement is not valid. The District has been developing the rule over several years, involving extensive research and documentation. Please refer to Response to Comments #135, the Staff Report, and associated Appendixes. In addition, considerable study and analysis went into the District's PM10 and ozone attainment plans, which identified reductions from Indirect Sources as a requirement for attainment of the PM10 and ozone standards.

259. COMMENT: Lastly, the new bureaucracy will interfere with local government land use decision-making by creating a new and unworkable process that erodes local control over land-use planning. This will stall much-needed new housing, businesses and other economic growth in our communities. For example, the draft Rules are redundant and even conflict with existing environmental rules and safeguards, such as the California Environmental quality Act and Existing air quality and environmental reviews

RESPONSE: First, 100% of off-site fees will be used for off-site emission reduction programs only. None of the off-site fees will be used for District administration or other uses. Second, the rules are not redundant, conflicting, unworkable, or otherwise interfere with the environmental review process, existing laws, or the land-use agencies' discretionary land use authority.

The District does not have land-use power, nor does it desire to usurp the local land-use authorities discretion on land use power. Please refer to Response to Comments #8, #81, #133 and #140. In addition, please refer to the Staff Report Section (B) *District Authority and Limitations*, and Section (D) *State Environmental Review – CEQA*

260. COMMENT: Draft Rules 9510 and 3180 are misguided solutions that will hurt every Central Valley Resident, potential new homeowners and renters and the

economic climate in the Central Valley. For these reasons we the undersigned oppose draft Rules 9510 and 3180 and urge your opposition as well.

RESPONSE: Opposition Noted. The District notes that the substance of the letter is unsupported – See Response to Comments #255 to #259 above.

Merced County Economic Development Corporation (MCEDCO)
Dated September 13, 2005
Received September 19, 2005

261. COMMENT: On behalf of the Merced County Economic Development Corporation (MCEDCO) we urge members of the San Joaquin Valley Air Pollution Control District (Air Board) to oppose draft Rules 9510 and 3180. The draft Rules will impose hundreds of millions in new fees on residential, commercial and business developments, discourage investments and job growth throughout the Central Valley and hinder affordable housing without any guarantee that they will directly improve the situation

RESPONSE: The factual evidence supports the District's position that the Draft Rules will have a less-than-significant effect on the housing market in the Valley, and a minimal effect on other land use projects. In addition, there is no supporting evidence that the rules would 'discourage investments and job growth'. Finally, there is solid scientific evidence that the rules will benefit the air quality of the valley. The District has been developing the rule over several years, involving extensive research and documentation. Please refer to Response to Comments #135, the Staff Report, and associated Appendixes. Accountability is built into the rule as draft Rule 9510 Section 10. In addition, considerable study and analysis went into the District's PM10 and ozone attainment plans, which identified reductions from Indirect Sources as a requirement for attainment of the PM10 and ozone standards. See also Response to Comment #55.

262. COMMENT: MCEDCO is a private/public nonprofit 501c4 organization that offers economic development expertise to the incorporated cities and unincorporated communities within Merced County. MCEDCO's primary mission is to promote and facilitate net, new employment growth, encourage increased corporate investment and assist in the diversification of the Merced County economy. MCEDCO focuses on retention and expansion of existing businesses, small business start-up, and recruitment of new enterprises

MCEDCO's efforts serve the entire community by encouraging new jobs opportunities for residents, increased sales and improved productivity for local business and new tax and fee revenues to support programs and services

offered by the cities and county. Without new business investment, employment growth is not realized and subsequently residential growth falters.

California is already recognized as a costly business location. Businesses frequently cite high fees and development expenses as a disincentive to new investment. The rising cost of property in tandem with additional fees and high operating costs jeopardizes potential wealth generation opportunities.

Environmental issues, in particular clean air for the Valley, are important matters to prospective business investors. However, MCEDCO is concerned that the draft Rules may not directly improve the situation and may deter residential and other construction that is often considered a primary trigger to economic development.

RESPONSE: The District recognizes the author's concerns. However, the District has provided detailed calculations of the emission reductions predicted by the rule as well as potential off-site emission reduction projects available, Appendix B and E respectively. In addition, considerable study and analysis went into the District's PM10 and ozone attainment plans, which identified reductions from Indirect Sources as a requirement for attainment of the PM10 and ozone standards. See also Response to Comment #55.

263. COMMENT: The draft Rules may also thwart affordable housing, a top priority in the Merced area given our ranking as the least affordable community in the nation. Balancing environmental concerns with affordable housing and new employment is a daunting challenge, not likely to be furthered by the draft Rules. Efforts to improve air quality are supported by the MCEDCO provided that said activities reflect a balanced approach with a clear plan for improvements.

RESPONSE: The District feels that it has met the criteria stated by the author. The draft ISR rules are part of a larger plan, the PM10 and ozone attainment plans, that identified emissions inventories for various activities and land uses, looked at the predicted growth, identified controls, modeled future air quality and determined a mix of actions that would reduce air pollutant emissions to bring the valley into attainment for PM10 and ozone. Part of this plan (also mandated by state law – SB 709) is to reduce emissions from indirect and area sources. As stated in Response to Comment # 17, the ISR development process has taken several years, multiple workshops, as well as working with the state-wide URBEMIS working group, careful analysis of existing regulations and programs. For more information, please see the Staff Report and associated Appendixes.

SUMMARY OF COMMENTS AND RESPONSES FROM THE PUBLIC WORKSHOP HELD ON JUNE 30, 2005

EPA: No comment received.

ARB: No comment received.

Industry and Public:

General Comments

1. **COMMENT:** The rule does not address the increase in trip length or vehicle trips resulting within the region from existing development.

RESPONSE: The purpose of the rule is to mitigate the emissions that result directly from new development. While the growth in the footprint of the region can result in increased travel, it is not practical to assign that growth to an individual development.

2. **COMMENT:** With new housing growing the housing inventory by at most 3% a year, we are therefore ignoring 97% of the homes and cars that create pollution. Our legislators have a responsibility to address the issue head on and not hide behind the pretense that burdening 3% of the households can mitigate the pollution of the other 97%.

RESPONSE: The District agrees that Rule 9510 does not address the emissions associated with existing residential, commercial, and industrial development. Given the requirements of the Health and Safety Code Section 40717.5, the District is precluded from regulating emissions resulting from existing trips associated with existing development. The purpose of the rule is to mitigate growth which is occurring at a rate of about 3% per year. In 10 years, the cumulative growth will constitute 30 percent of emissions. In other words, without growth at the projected rate, emissions would be 30 percent lower in 10 years.

3. **COMMENT:** Stakeholders are gravely concerned about the District's ability to take on these complex new tasks accordant workload.

RESPONSE: The District has a long history of analyzing the impact from new developments and suggesting appropriate mitigation. Additionally, the District has extensive experience operating incentive program to purchase off-site emissions reductions. In conjunction with the rule adoption the District will provide an assessment of workload and an appropriate staffing recommendation.

4. **COMMENT:** There needs to be protections built into the program for speedy processing of air quality assessments.

RESPONSE: The draft rule contains timelines for the District process applications. The District received a number of comments concerning how those timelines relate to the land-use approval process. The District will make every effort to ensure that the timelines in the rule do not unduly delay the land-use approval process. The rule allows developers to submit applications prior to beginning the CEQA process. For projects where the project description is not expected to change, all analysis and preliminary emissions estimates can be accomplished prior to the CEQA document being released for public review.

5. **COMMENT:** Why are only NOx and PM10 being addressed when CEQA requires all pollutants to be quantified and mitigated to the extent that they exceed thresholds?

RESPONSE: Rule 9510 is being developed to meet commitments that the District has made in the PM10 and Ozone attainment demonstration plans. The District has not committed to reductions of other pollutants in this rule. While the mitigation contained in the rule will help applicants comply with CEQA that is not the primary purpose of the rule. The revision to the GAMAQI document will outline how this rule will work under CEQA.

6. **COMMENT:** Not all of the classes of development projects identified in Section 2.2 are defined in Section 3.11.

RESPONSE: The District will make the appropriate changes ensure that there are no internal discrepancies in the rule.

7. **COMMENT:** Most buildings in the SJVAB last longer than ten years. The ten-year period should be expanded to at least thirty years, since that is the term of the standard mortgage.

RESPONSE: The District selected ten years based upon a number of factors. First, since the rule has been committed to attain the federal ozone and PM10 standards in 2010 the ten-year time frame is sufficient to get past the attainment deadlines and ensure that they last into the maintenance period. Also, utilizing a thirty-year time period would have a significant financial impact on the region.

8. **COMMENT:** What would happen if a change of use occurs and the previous use required fees that were already paid, and the actual use did not?

RESPONSE: The District is not proposing to re-assess a project at change of use. The program will only deal with new construction.

9. **COMMENT:** Better clarification of the definition of "baseline emissions" is needed.

RESPONSE: The District will ensure that the definition is clear.

10. **COMMENT:** Consultants should either be chosen by the District or the District itself should performed the Air Impact Assessment, so that consultants will be less likely to manipulate numbers.

RESPONSE: The District can ensure that air impact assessments are properly performed. This can be achieved with the District performing the analysis or with private consultants performing an analysis that is reviewed by the District.

11. **COMMENT:** Projected NOx emissions reductions exceed the 2010 SIP commitment. The reductions should stay in line with SIP commitments.

RESPONSE: The District has utilized the plan commitment as a guideline for rule development but the final emissions reductions will be governed by developing an effective rule. Final reductions from the rule will be within range of the SIP commitment. It is also important to achieve as many reductions as feasibly possible, since there are numerous new standards that the District will need to meet.

12. **COMMENT:** The inclusion of the proposed rule in the SIP is prohibited by the Health and Safety Code since this is voluntary compliance with the Clean Air Act and not required.

RESPONSE: The emissions reductions associated with the rule are required to achieve attainment of the federal ozone and PM10 standards and are therefore federally required and are commitments in two federally enforceable plans.

13. **COMMENT:** All requirements pertaining to indirect source review or derived there from should be designated as "not federally enforceable."

RESPONSE: See previous response.

14. **COMMENT:** The inclusion of the proposed rule in the SIP is prohibited by the Health and Safety Code since the authority for this rule is to attain a state, not federal, ambient air quality standard.

RESPONSE: The District is not aware of any such prohibitions since the emissions reductions associated with the rule are needed to attain the applicable National Ambient Air Quality Standards.

15. **COMMENT:** The definition of a development project should include the following additional language: The issuance of a permit for construction or reconstruction, where such permit is required solely to comply with a rule, regulation or order of a local agency shall not be considered to be a development project. The issuance of an operating permit shall not be considered a development project.

RESPONSE: The current definition of a development project adequately addresses projects that have ancillary discretionary approvals relating to the project. The applicability of the rule includes not only discretionary approvals, but also minimum sizes of projects that must comply with the rule.

16. **COMMENT:** It appears that the mitigation measure resulting from this rule are to be used to comply with mandates of attainment plans for ameliorating existing air pollution problems in the Valley. That is, the rule is not primarily intended to prevent new pollution from occurring, they are intended to address pollution that has occurred/is occurring from existing development. Case law in this area would indicate that new development should not be expected to remedy impacts created by previously approved and existing development.

RESPONSE: The purpose of the rule is to reduce the emissions impact from projected development in the San Joaquin Valley not existing development. The emissions inventory in the relevant PM10 and ozone plans contain estimates of emissions totals that include the growth in emissions. The emissions reductions commitment for this rule does not exceed the emissions projected for growth, and therefore only addresses the impact of new development.

17. **COMMENT:** It is unclear how the District will track the various developments and the various iterations of each approval.

RESPONSE: The District will work with local government agencies to ensure that appropriate tracking mechanisms are in place.

18. **COMMENT:** PM2.5 should be included as well.

RESPONSE: The definition for PM10 includes particulates less than 10 microns in size. By definition this would include PM2.5 emissions.

19. **COMMENT:** The rule should require that all NOx and PM emissions be mitigated.

RESPONSE: There are specific previsions of the Health and Safety Code that make it difficult to mitigate 100 percent of projects emissions without violating state law. Additionally, the District has committed to specific emissions reduction levels in the applicable ozone and PM10 plans. The District can achieve these reductions without requiring 100 percent mitigation from projects.

20. **COMMENT:** Discounting the trips at 50% is not defensible. The District should engage the URBEMIS group, composed of professional air regulators to define a reasonable and defensible default number for discounting trips.

RESPONSE: The purpose of discounting the trips by 50% is to ensure that the district does not charge fees on both ends of a trip. If the District did not discount the trips by 50% there is a very real possibility of charging both residential and commercial projects for the same trips, which could result in double counting.

21. **COMMENT:** The rule should recognize the variation in emissions over the life of the development. Therefore, the rule should include a review of actual emissions every five years to ensure that the match between the emissions and the required mitigation is strong.

RESPONSE: The URBEMIS model contains average assumptions for types of development projects. While there is some variation from project to project, and over the life of a project, the assumptions in the model are adequate when applied over a large number of projects.

Applicability

22. **COMMENT:** What was the basis for establishing the project build-out thresholds?

RESPONSE: The project build-out thresholds are based upon the emissions associated with those types of projects. The thresholds reflect 2 tons per year. By setting project build-out thresholds, the District can address the maximum amount of the emissions associated with new development while minimizing the administrative burden on small projects.

23. **COMMENT:** The rule should be set to cover developments that upon build-out create 1 ton or more per year of any pollutant. The size associated with each development project listed in section 2.2 would then be cut in half.

RESPONSE: See previous response.

24. **COMMENT:** The applicability section should include the following language: The increase in emissions from the development project result from an increase in vehicular activity that would not otherwise occur, or the increase in emissions from the development project results from new area sources, not previously authorized.

RESPONSE: By their nature new development projects ultimately result in new trips that would not otherwise occur.

25. **COMMENT:** Other land use categories should be added, such as recreational space and military bases, since these activities generate a significant number of vehicular trip ends.

RESPONSE: The District will add these categories.

26. **COMMENT:** The industrial space threshold should be replaced with light industrial space at 25,000 square feet and heavy industrial space at 100,000 square feet, since trip generation from these types of land use differ significantly.

RESPONSE: Most heavy industrial projects would be exempt from this rule, so distinguishing between the different types of industrial would not be productive.

29. **COMMENT:** The proposed rule does not comply with H&SC Section 40717.5(a)(1) which limits the applicability to activities that contribute to "…air pollution by generating vehicle trips that would not otherwise occur."

RESPONSE: By their nature new developments ultimately result in new trips that would not have otherwise occurred.

30. **COMMENT:** Under the proposed rule, the installation of equipment, wherein such installation requires a public agency "exercise judgment" in approving the permit, would make the project discretionary and subject to Rule 9510 even though the project might not result in vehicular activity.

RESPONSE: These projects would not be subject to the rule since the size of the equipment would be lower than the applicability thresholds of the rule.

31. **COMMENT:** 55,000 square feet of general office space is excessive.

RESPONSE: Comment noted.

32. **COMMENT:** The rule should not retroactively apply to permit applications filed prior to the effective date of the rule. This appears to defer or circumvent CEQA

analysis. The seriousness of the pollution problem in the SJVAB makes all information on air pollution and its mitigation extremely pertinent and necessary to consideration of development projects prior to project approval.

RESPONSE: The rule is not intended to replace the CEQA review for projects. The mitigation developed for a project through the CEQA process can be credited to the requirements of the rule.

33. COMMENT: The applicable square footage thresholds in section 2.2 are discriminatory in that "government space" thresholds are considerably less than non-government identified spaces.

RESPONSE: The applicable square footage thresholds are based upon emissions estimates for different land-use types. These estimates are influenced by a number of factors including trip generation rates that are specific to each land-use type. Government spaces tend to have higher trip rates, so a lower threshold for those spaces are warranted.

34. COMMENT: Will the rule as it relates to urban residential development be applicable to development proposed in the unincorporated areas of the county?

RESPONSE: The rule will apply to new development projects in the entire San Joaquin Valley Air Basin.

35. COMMENT: The definition of "discretionary" projects would be applied inconsistently throughout the SJVAB since different jurisdictions handle them differently. By defaulting to the jurisdictions' interpretation of the term, the District is allowing for the rule to be applied inconsistently.

RESPONSE: The District does not have the authority to change the local government process. Therefore the District is defaulting to the jurisdictions' interpretation, so as not to interfere with the local jurisdictions' land use authority.

36. COMMENT: A simplified and flexible approach should apply to all projects smaller than the exemption thresholds. Smaller projects should be exempt from the detailed analysis, but should still be required to implement all feasible onsite mitigation strategies and make a contribution to offsite mitigation.

RESPONSE: Projects that go through CEQA and have a significant impact are required to implement all feasible mitigation.

Exemptions

37. **COMMENT:** There should be a new exemption section added, section 4.3, which should include the following: Any project subject to federal Section 7 or Section 10 consultations with the United States Fish and Wildlife Services (USFWS) or a 2081 consultation with California Department of Fish and Game (CDFG), since these projects will require life of project mitigation.

RESPONSE: It is not understood how a project that is required to mitigate the life of the project for Fish and Wildlife, would mitigate their air impact. Therefore, this exemption will not be added.

38. **COMMENT:** Section 4.1.4 should read as follows: A development project where the emissions primarily result from direct sources or from emissions units as defined by Rule 2201 (New and Modified Stationary Source Review Rule); or projects subject to Rule 2010 (Permits Required). Examples of exempt sources can be expanded to include: Oil Production and Natural Gas Production, Refineries and Natural Gas Processing Plants, Waste Disposal and Waste Management Facilities, Mineral Extraction and Processing Plants.

RESPONSE: Comment noted, with the exception of waste facilities and mineral facilities. These types of facilities may include a significant traffic component, therefore they should be subject to the rule. The stationary source emissions associated with all facilities will not be included.

39. **COMMENT:** Section 4.1.4 needs to be modified to include gas plants, bulk loading terminals, and gas liquid processing plants.

RESPONSE: See previous response.

40. **COMMENT:** The 50 unit exemption is bound to result in “gaming” or several tract maps coming in at 49 units.

RESPONSE: The District will modify the rule to minimize the potential for circumventing the requirements of the rule.

41. **COMMENT:** The exemption for the applicability should be extended to the reconstruction of owner occupied low-income housing.

RESPONSE: Reconstruction of a single unit would be below the thresholds for rule applicability.

42. **COMMENT:** What is the rationale for exempting transit and transportation projects?

RESPONSE: The exemptions for transit and transportation projects were intended to be from the operational emissions portion of the rule. Since these

projects do not generate or attract trips it would not be appropriate to include these projects operational emission. There are significant emissions from the construction of these projects. The rule will be modified so that the construction requirements apply to transportation projects. Transit projects will continue to be exempt, since they are ultimately considered mitigation.

43. **COMMENT:** This rule is akin to the local conformity rule, Rule 9110 and overlaps with US EPA's General Conformity requirements of 40 CFR 51. In fact, the conformity rules are more stringent that this proposed rule. Sources subject to general conformity should be exempt from the rule.

RESPONSE: In some cases the general conformity rule is more stringent than the DESIGN rule. In those cases federal sources will be given credit for the efforts to meets conformity requirements. In other cases, federal sources are not required to mitigate their emissions if they are already included in the SIP. In those cases the DESIGN rule would be more stringent than the general conformity provisions.

44. **COMMENT:** The definition of projects subject to the rule does not address whether general, regional, community, or specific plan adoption would be considered "discretionary" projects subject to the rule. These plans and subsequent information for URBEMIS inputs are too general to furnish precise estimates of pollution as a result of those plans. Therefore, the consideration and adoption of specific plans should be exempt from the rule, unless the adopting land jurisdiction does, in fact, intend to issue development/construction permits pursuant to a specific plan without subsequent environmental analysis.

RESPONSE: As long as the general, regional, community, or specific plan are not the last discretionary approval of a project or portion of that project, the rule would not be applied to these approvals, but rather to the later more specific discretionary action for the project. If these plans were the last discretionary approval, perhaps the plan or CEQA document could contain a condition of approval or mitigation measure requiring the developer to provide an analysis to the District once the project design is finalized and prior to final ministerial site plan review or subdivision map or issuance of the building permit.

CEQA

45. **COMMENT:** The proposed rule does nothing to protect against CEQA lawsuits with respect to air quality mitigation.

RESPONSE: Due to limitations in state law, the District is unable to develop a rule that provides the same level of mitigation that some communities are seeking through the CEQA process. The District has established a program

through which project proponents can work with the District to fully mitigate their projects through CEQA.

46. **COMMENT:** There is a disconnect between the levels of significance in the Guidelines for Assessing and Mitigating Air Quality Impacts (GAMAQI) and the proposed rule.

RESPONSE: The purpose of the rule is to assist the District in attaining clean air standards. The rule is not intended to satisfy the requirements of CEQA. However, the GAMAQI will be revised to describe how compliance with this rule would affect CEQA.

47. **COMMENT:** What is the basis for the exemption of projects that have a mitigated baseline below two tons per year? Is this basis evidence that 10 projects in the same area producing less than two tons per year each are not cumulatively considerable under CEQA?

RESPONSE: The threshold was in part determined by selecting a level where reductions achieved would meet the commitments outlined in the PM10 and ozone plans. The revisions to the GAMAQI will outline the issue of cumulative impacts, in relation to this rule.

48. **COMMENT:** The District should include in this rulemaking, clear direction from the Governing Board to amend the GAMAQI, through a public hearing process, to formally adopt the concept of NOx mitigation over ten years in Air Quality Assessment methodology for CEQA documents. This would provide clear direction for the connection of this rule to CEQA and provide support for the Lead Agency in the current challenges to Air Assessment methodology in CEQA documents.

RESPONSE: The District will continue to improve its CEQA process to insure that appropriate analysis and mitigation are included for projects. Pending Governing Board adoption of this rule, the GAMAQI will be revised through a public process.

49. **COMMENT:** Please clarify why the District is not committed to amending the GAMAQI to define the exact role that this rule will have in the CEQA process, which would clearly provide relief for local government in CEQA litigation in a matter, air impacts, for which the District is the recognized expert.

RESPONSE: As was mentioned previously, the purpose of the rule is to achieve the emissions reductions necessary to attain the federal PM10 and ozone standards. The primary purpose of the rule is not CEQA compliance. However, the GAMAQI will be revised, and will provide clarification on how this rule works under CEQA.

50. **COMMENT:** The appropriate time for District analysis of projects under the rule would be during the early consultation process, before the overall environmental analysis of a project is completed and before the mitigation measures are approved for the project.

RESPONSE: Since the timelines for land use approval and CEQA vary greatly from jurisdiction to jurisdiction, the District cannot prescribe a timeline that will fit all jurisdictions. To that end, it is up to the developer to determine when would be the best time to approach the District. It is the District's preference that it is as early in the process as practicable so that the analysis and impact assessement could be completed prior to circulation of the CEQA document.

Regulatory Process

51. **COMMENT:** The best time to analyze and mitigate environmental impacts is at the comprehensive higher plan level. However, this rule discourages master planning in favor of piecemeal, small projects due to the liabilities stated for changes in design.

RESPONSE: The applicability of the rule at the last discretionary approval stage does not provide a disincentive to planning at a higher plan level. In fact, the opposite is true. Building in mitigation at the comprehensive plan level will assist in complying with the requirements of the rule.

52. **COMMENT:** The proposed rule creates a major burden for project applicants by imposing new requirements for preparation of detailed air quality studies.

RESPONSE: Many projects are already doing comprehensive analysis during the CEQA process. It is intended that the analyses and work for this rule provide a foundation for and/or complement the analyses required under CEQA. The District will work to provide tools and training to streamline the analysis process.

53. **COMMENT:** The mitigation agreement is wholly duplicative of the mitigation procedures set forth in CEQA, and will create chaos and confusion.

RESPONSE: Given that mitigation is consistent with the CEQA process it should not create chaos or confusion. The mitigation should in most cases be included as a mitigation measure in the CEQA document. Measures provided by the developer after the CEQA process is complete will require an agreement to ensure compliance.

54. **COMMENT:** The requirement for a new assessment based on changes to the construction schedule approaches absurdity with a master-planned community. How can one accurately predetermine market forces over a 20-year period?

RESPONSE: The fact that the rule is applied at the last discretionary approval of a project will mitigate the need to reanalyze projects. If a project is phased over an extremely long period of time it is appropriate to re-analyze the project if the schedule is significantly altered.

55. COMMENT: There is a conflict when the review of the Air Impact Assessment Application is to be done and when the review and assessment of the EIR must be accomplished.

RESPONSE: The District will not prescribe when the application is required. Therefore, it is likely that the same analysis could be used for both purposes.

56. COMMENT: The developer, who might be expected to pay for the mitigation fees in order to get land entitlements, may not be the same entity that purchases the project to eventually build the development. So if the latter decides to terminate the project and not build, there would be an administrative headache in terms of refunds.

RESPONSE: The District has offered the option for a fee deferral agreement that could defer the fees for projects that have an uncertain future.

57. COMMENT: The 30 day review process, plus the time necessary to process an application will significantly add to the development review time for a project's approval.

RESPONSE: The District has altered the timeframes in the rule to ensure that the rule will not result in unnecessary delays in the development process.

58. COMMENT: How would the rule apply to Master Plan Communities/Developments? Would each project in that plan need to be evaluated or just the plan? The difference in administration of the two options would be enormous.

RESPONSE: The rule requires the review at the last discretionary approval for a project.

59. COMMENT: The approval of the Air Impact Assessment should be done prior to CEQA hearings, and the details of the calculations should be made available to the public prior to those hearings.

RESPONSE: It is the District's intent to have the Air Impact Assessment available prior to the adoption of the project.

60. **COMMENT:** We request that the 30 day review period for determining an application complete be shortened to 10 days, since that is more in line with the 10 day review period for Initial Study consultation comments, and since URBEMIS analyses can be done within a matter of minutes, with the exception of EIRs since those can have a 30 day response time.

RESPONSE: Comment noted.

61. **COMMENT:** We request that the District forward a copy of the URBEMIS findings to the local jurisdictions for incorporation in their CEQA documentation prepared for projects.

RESPONSE: The District is willing to share information with local jurisdictions and in fact regularly comments on CEQA documents.

62. **COMMENT:** The rule proposes that cities and counties withhold building permits pending satisfaction of the District requirements.

RESPONSE: The rule does not include this provision.

63. **COMMENT:** The District should ensure timely public access to information used to calculate emissions. This would include publishing the information.

RESPONSE: The District will make all appropriate information available to the public.

Mitigation Fee Act

64. **COMMENT:** The draft rule fails to comply with the nexus test required by AB1600.

RESPONSE: The District has determined that this rule is not subject to AB 1600 (the Mitigation Fee Act) for two reasons. First, the District has no approval authority over development projects and, therefore, is not imposing a fee as a "condition of approval of a development project." Any fee will be assessed as a separate regulatory fee after the project has been approved by the local land use agency. Second, the Mitigation Fee Act applies only to fees assessed for the purpose of defraying the cost of "public facilities." The District does not believe that air pollution mitigation projects such as diesel engine retrofits are public facilities. However, notwithstanding the above, the District has met the "nexus" test under the Mitigation Fee Act or any other legal standard. New developments subject to the rule attract pollution caused by construction activities and vehicle traffic. The rule seeks to mitigate such pollution by allowing the developer to (1) include on-site mitigation measures in the design of the development that mitigate the types of air pollution caused; and/or (2) pay a fee

that will be used to fund emissions reduction projects, such as engine retrofits, that will mitigate the types of air pollution caused. Thus, the purpose of the fee and its uses are clear. In addition, there is clearly a reasonable relationship between new development and a fee imposed to mitigate the air pollution it causes. Finally, the fees will be reasonable in amount in that they will be directly tied to the cost of reducing the emissions caused by the development. The fee is established on a site-specific basis through URBEMIS modeling designed to determine the amounts and types of excess emissions caused by the development and then calculating the cost of reducing those emissions. URBEMIS is currently the best tool in existence for quantifying such emissions and has been used in similar contexts in the past. Thus, the fee meets all nexus requirements outlined in AB 1600.

65. **COMMENT:** The draft rule does not distinguish between the two-prong analytical paths in AB1600.

RESPONSE: See previous response.

66. **COMMENT:** The District has not circulated any documentation reflecting a nexus study.

RESPONSE: See previous response.

Socioeconomic Impact Analysis

67. **COMMENT:** The District has not released a socioeconomic impact analysis as required by the Health and Safety Code.

RESPONSE: The District will be distributing the socioeconomic impact analysis in conjunction with this draft of the rule.

68. **COMMENT:** The socioeconomic Impact analysis should demonstrate the impacts on the following: housing costs, rents, low-income families.

RESPONSE: Comment noted.

69. **COMMENT:** The socioeconomic Impact analysis should demonstrate the impacts of the processing, fee and mitigation proposals on new businesses.

RESPONSE: Comment noted.

70. **COMMENT:** The socioeconomic analysis should make a note of the overall costs to the public of air pollution.

RESPONSE: The District will include a general discussion of the impacts of air pollution on public health in the socioeconomic analysis.

URBEMIS

71. **COMMENT:** URBEMIS is a useful tool for calculating emissions only at the "sketch planning" level. It is not capable of evaluating specific design elements and operational measures, and accordingly, there is no way to do an accurate project-specific analysis of mitigation.

RESPONSE: The District does not agree. In fact, URBEMIS has been utilized to analyze the impact from projects through the CEQA process for years. The model has recently been updated based upon an extensive review of travel behavior studies to ensure that it provides proper credit for design features that are built into a project.

72. **COMMENT:** Please clarify how URBEMIS will be used in the process. Is the operating assumption that all discretionary development, regardless of its consistency with the general plan, is "new" for the purposes of modeling (i.e. additional development, and not replacing land uses/emissions already assumed within the model), or will the assessment be based on its placeholder land use?

RESPONSE: The analysis will be conducted at the last discretionary approval for a project regardless of whether the project is consistent with the existing general plan. If the general plan is the last discretionary approval for that particular land-use the district will analyze the land-use based upon the highest emitting use that could be built under that land-use category. The modeling would be based on approved land uses or those proposed in the case of a large plan area that contains the project being analyzed. This will enable credit to be taken for innovative community design and layout.

73. **COMMENT:** The URBEMIS fleet mix overstates residential emissions by roughly 50%. It is based on the statewide mix of vehicle types, which is comprises 3% of heavy-duty trucks.

RESPONSE: The District is working to ensure that the fleet mix assumptions in URBEMIS are appropriate for each land-use type. While the fleet average may somewhat overestimate emissions residential developments there are heavy duty truck emissions associated with them. These include school buses, refuse collection, package delivery, and other service vehicles.

74. **COMMENT:** The URBEMIS age distribution overstates residential project emissions. The defaults are based on the statewide mix of vehicle types, which are generally older than a new residential fleet. Vehicles, in new housing units that were 10 years or younger, had a 50/50% split on vehicles 5 years or

younger, and older than five years. Housing units older than 10 years had a 36/64% split. This problem cannot be easily revised within the current framework of URBEMIS.

RESPONSE: The District believes that the fleet average is a reasonable assumption for new development projects. There are a number of factors that impact emissions including age, vehicle class, and fleet turnover. If more specific information is available, the District would consider utilizing project specific numbers.

75. **COMMENT:** URBEMIS silt loading factors for entrained PM10 emissions overstate residential project emissions by nearly 50%.

RESPONSE: The District will ensure that the correct silt loading factors are utilized.

76. **COMMENT:** URBEMIS trip lengths are inconsistent with TPA model data and recent statewide travel surveys.

RESPONSE: The District will continue to update trip lengths with local data as the model is updated. Project proponents can utilize project specific information in lieu of the URBEMIS defaults.

77. **COMMENT:** URBEMIS default vehicle speed and estimated vehicle speeds vary by as much as 50-100% of survey data.

RESPONSE: The defaults for vehicle speeds may be modified if project specific information is available.

78. **COMMENT:** URBEMIS is not based on the most recent version of EMFAC in the Ozone SIP.

RESPONSE: As the URBEMIS model is updated it will be updated with the most recent version of EMFAC that is available. The District will ensure that emissions are credited to the Ozone SIP in the proper SIP currency.

79. **COMMENT:** Many commercial and industrial buildings are permitted and built, not knowing who the tenant will be in advance. How will URBEMIS estimate emissions for these types of development?

RESPONSE: In this case the analysis will assume the highest emitting use that would be allowed under the land-use designation.

Construction

80. COMMENT: Construction activities are not considered to be indirect sources.

RESPONSE: The purpose of the rule is to mitigate the emissions associated with new developments, not just indirect source emissions.

81. COMMENT: The rule overlaps and conflicts with existing District and ARB regulations that control emissions from construction activities and equipment, specifically Regulation VIII and the Dust Control Plan requirement.

RESPONSE: The District is proposing modifications to the rule that do not target dust emissions, but rather target mitigating emissions associated with the construction fleet.

82. COMMENT: There is no precedent in District or state regulations that require 100% mitigation of a particular source. 100% mitigation is not reasonable or feasible, as required by CEQA.

RESPONSE: Comment noted.

83. COMMENT: Regulation VIII should address more stringent controls on fugitive PM10 from construction activities and not an indirect source rule.

RESPONSE: Comment Noted.

84. COMMENT: The Regulation VIII list serve and mailing list should be notified of the rule.

RESPONSE: Comment noted.

On-site Mitigation

85. COMMENT: Reductions from many of the individual measures on the Mitigation Checklist are “off-model.”

RESPONSE: The rule includes the provisions that the APCO can approve alternative modeling methodologies. This would include approving appropriate “off-model” adjustments for mitigation that cannot be analyzed in URBEMIS. Many of the mitigation measures that are currently not included in URBEMIS have been removed from the checklist.

86. COMMENT: The Mitigation Checklist needs to be reviewed and modified with input from the development community.

RESPONSE: The District is happy to discuss the checklist with stakeholders.

87. **COMMENT:** Reduction measures such as requiring motorists to abandon vehicles in lieu of intermittent bus scheduling or biking on a 100 degree not appear capable of substantially reducing the amount of smog forming pollutants in our air.

RESPONSE: Any reduction in vehicle use would reduce emissions. URBEMIS accounts for differences in transit service and the quality of the road system to accommodate bicycling. The District is not requiring any on-site mitigation measures, but allowing them to be used. It is the discretion of the developer and the local jurisdiction to require those types of measures.

88. **COMMENT:** Most local jurisdictions are concerned about the mitigation measures being land use and urban design strategies, since these matters are not the District's province. By intending to consider and apply mitigation measures after all other analysis is done, it would appear that the rules would be positioning the District as the ultimate authority on land use and urban design.

RESPONSE: The mitigation measures in the checklist are voluntary. A developer can choose many measures, some measures, or no measures from the checklist. It is up to the local jurisdiction to approve of those measures, in regards to their land use authority. The District expects any design and infrastructure measures must comply with all local development standards and would be included in city/county approved plans and maps. The District has no authority to require that particular measures be included in the project.

89. **COMMENT:** If mixed uses or conjunctive residential and non-residential uses are considered to be a mitigation measure, how will the timing of construction be controlled, since commercial uses tend to postpone construction until the demographics can be analyzed?

RESPONSE: The project will be credited based upon the uses that are planned to be constructed. If the planned uses were changed that would be considered in a subsequent analysis.

90. **COMMENT:** Local land use jurisdictions should be made a party to any mitigation agreements entered with the developer.

RESPONSE: Comment noted.

Off-site Mitigation

91. **COMMENT:** The District has calculated that fees will escalate rapidly and allows for APCO adjustment based on actual costs. This fails the nexus test.

RESPONSE: The District has eliminated the option for APCO discretion to change the fee amount.

92. COMMENT: The District fails to state how the fees will be used.

RESPONSE: The fees will be utilized to purchase emissions reductions through the District's incentive programs.

93. COMMENT: The sequencing of payments does not fit the reality of permitting, financing, and constructing homes.

RESPONSE: The district has provided the option of paying the fees based upon the schedule in the rule, or through a fee deferral agreement with the District. The fee deferral agreement allows the flexibility to collect the fees based upon the project's unique financing situation.

94. COMMENT: The Mitigation Fee Act states that local agencies shall not require the payment of fees until the date of final inspection or the date of certificate of occupancy.

RESPONSE: See response to #64 above.

95. COMMENT: The fee formula needs to be simplified so that there is predictability and a lack of opportunity for controversy.

RESPONSE: The District will develop templates and/or calculators that will allow applicants to easily assess their projects and have predictable outcomes.

96. COMMENT: The impact revenue should be used, first and foremost, within the immediate area of the project that the fees are collected from.

RESPONSE: Fees collected from a project will be spent to mitigate the impacts associated with the particular development project.

97. COMMENT: The district should indicate whether increased district enforcement of existing regulations would be an eligible expenditure of mitigation fees. Air quality improvement would be expected given the responses from the District that its enforcement staff is very limited when apparent violations have been reported.

RESPONSE: The District is not proposing to utilize fees to increase enforcement staff other than staff to enforce the provisions of this rule.

98. **COMMENT:** The fees collected should be used on "traceable" mitigation measures (mitigation must be traced to the activity which the agency approves) as specified in CEQA. Since the proposed rule mainly targets vehicle traffic, traffic synchronization appears to be a logical solution.

RESPONSE: The District proposes to utilize funds for cost-effective emissions reduction projects. The District will track the emissions reductions achieved through the expenditure of fees generated by the rule. If an application for grant funds for traffic synchronization were submitted, the District would assess whether or not it could be funded based on cost-effectiveness and other criteria such as whether the reductions can be verified over time.

99. **COMMENT:** The APCD should develop a Regional Intelligent Transportation Authority (RITA) responsible for regional traffic synchronization, regional transit and intermodal planning, assisting cities with TCM implementation, and integrated collaboration with Caltrans. RITA should be funded by the rule and Section 40605(b) surcharge fees.

RESPONSE: The District will continue to assess opportunities, such as this suggestion, to utilize fees to achieve cost-effective emissions reductions.

100. **COMMENT:** The emissions reduction calculations for off-site mitigation need to calculate the benefit from a new piece of equipment to a less-emitting new piece of equipment.

RESPONSE: There are a variety of incentive programs that the fees can be utilized for. In some cases it is appropriate to compare a base new piece of equipment to less-emitting new piece of equipment. In other cases, where there is useful life left in a piece of equipment, and the equipment is taken out of service, it is appropriate to provide credit for emissions that are eliminated by retiring the old equipment.

101. **COMMENT:** Developers should receive credit for offsite emission reductions created through voluntary implementation of additional mitigation measures applied to previously approved projects. For example, a developer could revegetate or reclaim disturbed surfaces in order to reduce fugitive dust. The developer could then commit these reductions to construction or operational emissions from proposed development projects.

RESPONSE: The District will consider off-site mitigation proposed by a developer on a case-by-case basis. Any mitigation must be surplus and quantifiable.

102. **COMMENT:** We opposed the unilateral authorization to adjust the cost of controls. The APCO should be allowed to adjust the cost of reductions after

providing notice and an opportunity for public comment. We strongly believe that any increase in the mitigation fees should be subject to a cost effectiveness analysis and the approval of any fee increase should be subject to approval by the Governing Board.

RESPONSE: The District has eliminated the APCO discretion to modify fees.

103. COMMENT: It is a concern that the District intends to use these revenues primarily to fund existing programs and activities such as scrapping old vehicles and replacing lawnmowers, rather than to partner more closely with cities and counties to make alternative transportation more accessible and useful. The best use of the money would be to expand/create mass transit systems and alternative transportation routes in the Valley, and to fund measures that reduce traffic volume and relieve traffic congestion.

RESPONSE: The District will consider programs that achieve cost-effective emissions reductions.

104. COMMENT: The District should ensure that the off-site mitigation measures are permanent, as opposed to the short-term benefit of replacing engines. Examples include vanpool systems, incentives for locating affordable housing close to existing job sites.

RESPONSE: While the benefits from the District's incentive programs are credited for a short period of time, the actual reductions from the projects will continue. Additionally, the District has committed a specific tonnage requirement in the short-term to attain the ozone and PM10 attainment deadline of 2010. If the reductions were stretched over an extended period of time the District would not meet its plan goals, or attain the standards. It should also be noted that vanpool systems are currently eligible projects under the REMOVE II incentive program, and would be eligible for funds collected under this rule.

105. COMMENT: The District needs to engage the public, local government, and other agencies to identify the best uses of the funds, and establish a public process and guidelines for determining those best uses.

RESPONSE: Any new incentive program is subject to Governing Board approval, and thus it will be subject to public review.

106. COMMENT: Long-term reductions strategies may appear costly at first, but they can have the largest cumulative emissions avoidance benefits, making them cost effective in the long run. Not only will initial reductions occur, but they will have a self-perpetuating ripple effect of infill and/or redevelopment.

RESPONSE: Cost-effectiveness calculations used by the Moyer Program and the District account for the project life, so long lived projects with low annual reductions may have good cost-effectiveness compared to short lived projects with higher annual reductions. The proposed rule is primarily focused on existing incentive program projects, since they are already established and can demonstrate cost-effective reductions. Upon adoption of the rule, the District will take a closer look at other types of emission reduction projects, and develop incentive program and procedures for viable and cost-effective project types.

107. COMMENT: Similar to an investment portfolio, the District needs to identify a variety of short-, mid- and long-term off-site mitigation strategies.

RESPONSE: See previous response.

Rule 3180

108. COMMENT: If the air impact Assessment Application is done at the same time as the SJVAPCD review of the air impact in a CEQA document, the rule could be a source of funding for the SJVAPCD review of EIR documents.

RESPONSE: It may be possible that some projects that would have been reviewed under CEQA, would now be subject to this rule which requires a more comprehensive look at it. To that end, the District needs to recover any time and materials spent related to this rule.

109. COMMENT: The administrative fee should be reduced initially, and there should be a sunset clause on it once the basic fund is built up to the point that the interest revenue from the funds is sufficient to cover the cost of the program.

RESPONSE: The District will amend the portions of the rule, which is subject to a public review and adoption, if the need arises.

COMMENTS FROM FOCUSED WORKSHOPS HELD ON MARCH 11, 15, 24, 31, 2004

EPA:

1. **COMMENT:** The District should ensure that a "District approved model" is identified by name in the rule and that their use is appropriate based on consultation with EPA and other federal agencies.

   RESPONSE: The rule specifies the District approved model and allows additional models to be approved by the District.

2. **COMMENT:** Section 5.3.2.3 allows the use of the Institute of Transportation Engineers Trip Generation Manual. It is unclear whether this is the same manual that was developed by the Department of Transportation (DOT). We consider the trip generation rates in the DOT manual to be appropriate.

   RESPONSE: The Institute of Transportation Engineers Trip Generation Manual is used by the California Department of Transportation (DOT).

3. **COMMENT:** More specificity is needed for sections: 5.1, 5.3.1.1, 5.3.2.2-4, 5.3.3.6, 5.4.2-3, 5.5, and 5.7.2.2-3, 5.7.3.2

   RESPONSE: Comment noted.

4. **COMMENT:** Section 3.27 defines a "vested project," however; the rule does not specify the process by which a project will be designated as "vested." The rule should indicate what minimum components are required to become a "vested project."

   RESPONSE: "Vested projects" is a relatively standard development procedure in which the developer requests the applicable agency to vest his/her project. If a project is vested, it cannot be liable for future changes in regulations for that agency. In exchange for that status, the applicable agency may require other items or actions of the developer. The procedure for vesting status varies by jurisdiction. The current version of the rule should eliminate the need to specify that process, since vested projects will be treated the same as non vested projects.

5. **COMMENT:** Section 3.25 excludes developments where streets are a portion of the project from the definition of "transportation projects." Rule 9510 should not allow sources to receive credit for road paving associated with new developments, which it appears to allow by this definition and the exemption contained in Section 4.3. The rule should also define those developments where streets are a portion of the project.

RESPONSE: The definition of transportation projects has been modified to exclude projects where the traffic surfaces are a portion of the project. It would be virtually impossible to define developments where the traffic surfaces are a portion of the project, since most developments are designed to accommodate transportation. The emissions from constructing internal roads in a project are included in the construction emissions for the land use and are not considered a transportation project.

6. **COMMENT:** Section 5.5 would be clearer if it stated that the developer shall provide the project information "Upon final local agency discretionary approval."

RESPONSE: Comment noted.

7. **COMMENT:** The District needs to ensure that the level of mitigation that is required under Section 5.1 exceeds the level of mitigation already required under other rules and programs in place, specifically Regulation VIII.

RESPONSE: URBEMIS contains district-specific emission factors, and therefore only the portion of non-regulated emissions will be counted in the estimated project baseline total. The emissions totals contained in Appendix B already have Regulation VIII control subtracted from them.

8. **COMMENT:** In order to ensure consistency between the implementation of this rule and the transportation conformity activities of the MPOs, the District may want to work with these agencies on implementation procedures or additional rule language.

RESPONSE: The District will coordinate with the MPOs.

9. **COMMENT:** Rule 9510 should distinguish the various types of agencies and the various types of permits that would be subject to the rule.

RESPONSE: Many jurisdictions handle permits and projects differently. However, writing a prescriptive rule that identified every kind of project at varying stages of planning would be extremely difficult. To that end, the wording of the current rule meets our needs. If an individual agency had a question regarding their coverage by the rule, the District could make a determination.

10. **COMMENT:** Monitoring programs in Section 5.3.3.6 should be further described for clarity.

RESPONSE: Comment noted.

ARB: No comments.

INDUSTRY/PUBLIC:

Trips

1. **COMMENT:** The proposed program should only regulate new trips and not redirected trips.

RESPONSE: The proposed program has been designed to regulate new sources of emissions.

2. **COMMENT:** Double-counting trips will lead to overestimating and overcharging.

RESPONSE: The proposed program will not be double-counting trips and appropriate modifications have been made to prevent that.

3. **COMMENT:** Trip lengths in URBEMIS are not accurate.

RESPONSE: The trip lengths in URBEMIS are based on data submitted by the local transportation planning agencies. If project specific trip lengths are available, they should be used instead of URBEMIS defaults.

4. **COMMENT:** URBEMIS double-counts reductions from existing rules.

RESPONSE: URBEMIS contains district-specific emission factors, and therefore only the portion of non-regulated emissions will be counted in the estimated project baseline total.

5. **COMMENT:** There are emissions impact from mitigation measures, such as lighting, and increased energy use.

RESPONSE: Any emissions impact from this rule will be considered under CEQA. Emissions from power generation is small in comparison to emissions reduced from vehicles and combustion equipment used at the project site due to emission controls at the power plant and higher efficiency of electrical equipment such as electric lawnmowers.

6. **COMMENT:** There should be a de minimis level of new trips.

   RESPONSE: The rule sets an applicability threshold based upon the emissions from a project.

URBEMIS/Analysis

7. **COMMENT:** URBEMIS is not reliable for establishing a fee schedule.

   RESPONSE: The district maintains that URBEMIS is the right tool for this program. URBEMIS contains district and state specific emissions factors, and is the most widely-used air emissions model in the State of California, and many courts have made decisions based on its output. URBEMIS has also been updated to reflect the state-of-the-science on air mitigation measures.

8. **COMMENT:** Future changes to URBEMIS should be a public process.

   RESPONSE: URBEMIS is owned by all the air districts in the state of California, as well as ARB. The district does not have direct control over whether or not changes to URBEMIS should be public.

9. **COMMENT:** The option of another model should be given.

   RESPONSE: Comment noted.

10. **COMMENT:** Consultants should not be conducting an analysis of the development. There is opportunity for “tweaking” the numbers. It would be more efficient and consistent if the District were to do it.

    RESPONSE: There are adequate safeguards in place to ensure that the District can verify the work of applicant or the applicant’s consultant. Each URBEMIS run creates a document that specifies any changes that were made to default values. The District can then verify any changes with the applicant or the applicant’s consultant.

11. **COMMENT:** The District should use a checklist approach instead of an analysis approach, so that the process is streamlined and there is no fee.

    RESPONSE: Emissions reductions associated with each mitigation measure is dependant upon project specific variables, and therefore cannot be streamlined to a checklist approach.

12. **COMMENT:** There needs to be clear time limits on analyses conducted by the District.

RESPONSE: Comment noted.

13. **COMMENT:** The Expedited Review option sends a mixed message, almost a pay-to-pollute message.

RESPONSE: Comment noted.

14. **COMMENT:** Construction emissions should be addressed, since some projects can take up to 10 years to fully construct.

RESPONSE: Comment noted.

15. **COMMENT:** There should be an appeals section for all analyses.

RESPONSE: Comment noted.

On-Site Mitigation

16. **COMMENT:** The proposed rule would allow the District to indirectly regulate land use at the local level through its required on-site mitigation measures.

RESPONSE: The current draft of rule 9510 gives the developer the option of how to comply with the rule. If certain on-site mitigation measures, such as mixed use development, are not allowed in a jurisdiction, then the developer cannot use that measure. On-site mitigation measures are designed to give the developer the option to reduce the emissions on-site. The developer can choose from a broad range of on-site mitigation measures. Any on-site measures that reduce emissions will reduce the amount emissions that need to be mitigated through fees. This rule does not impinge upon local agency land use authority.

17. **COMMENT:** Some mitigation measures, such as traffic signals or sidewalks, are not put in place for 5-20 years.

RESPONSE: Traffic flow improvements, such as traffic signals, will not be used as a mitigation measure under this program. Sidewalks, if used as a mitigation measure, should be constructed prior to operation of the project.

18. **COMMENT:** Credit should be given for high-density residential projects.

RESPONSE: Comment noted.

19. **COMMENT:** Some of the on-site mitigation measures lack enforceability or may not work.

RESPONSE: The mitigation measures in URBEMIS have been revised to help alleviate that problem. Also, the current version of the rule requires developer and the district will enter into a mitigation agreement that will include provisions for enforcement, in the event that the local jurisdiction does not have enforcement mechanisms in place.

20. **COMMENT:** The fees from this program will overlap with traffic mitigation fees.

RESPONSE: Fees collected for traffic mitigation are primarily aimed alleviating congestion and/or fixing roads. While those items may have an incidental, temporary air benefit, this program intends to directly mitigate emissions from projects. If an activity is conducted or developed, or a mitigation measure is included for traffic mitigation, and it benefits air quality, the assessment/URBEMIS will quantify the air quality benefits.

21. **COMMENT:** There should be a list of mitigation measures so that developers can fast track the process.

RESPONSE: Comment noted. Please see Appendix C.

22. **COMMENT:** The effectiveness of the mitigation measures is unlikely given the climate of the SJVAB.

RESPONSE: The mitigation measures included in the new mitigation component of are based on the most recent research available.

23. **COMMENT:** The district should provide the control efficiencies of the proposed mitigation measures.

RESPONSE: The control efficiencies are contained in Appendix D of this staff report.

24. **COMMENT:** The list of mitigation measures should be open-ended, to allow for new and innovative measures.

RESPONSE: While the District would like to encourage new and innovative mitigation measures, each measure needs to have substantial evidence demonstrating the emissions are in fact reduce because of that measure. The District will consider giving credit to additional mitigation measures as they are proposed.

25. **COMMENT:** The 30-day review time period is excessive given the timelines required by CEQA. It should be 10 days.

RESPONSE: The District will streamline the process where possible**.**

26. **COMMENT:** Title 24 is already being implemented.

RESPONSE: The mitigation measure seeks to take credit for emissions reductions achieved by going above and beyond Title 24.

General

27. **COMMENT:** The program should regulate existing as well as new homebuyers.

RESPONSE: The District is precluded by the Health and Safety Code from charging fees to mitigate existing trips.

28. **COMMENT:** The District should consider an annual fee approach for residential sources.

RESPONSE: Due to provisions of the Health and Safety Code, this approach would be an excessive administrative and enforcement burden.

29. **COMMENT:** Indirect regulations are not the way to go.

RESPONSE: The concept of mitigating the indirect emissions from new development has a long history of being implemented through the California Environmental Quality Act. Likewise, the purpose of this program is to mitigate the impacts of new development.

30. **COMMENT:** Area sources do not generate new vehicle trips.

RESPONSE: The applicability has been changed to reflect new emissions.

31. **COMMENT:** Why is the District focusing on the cleanest developments in the air basin?

RESPONSE: New development is not necessarily the cleanest developments. Depending upon location of the new development, it could be responsible for more vehicle miles traveled and/or trips.

32. **COMMENT:** The District should form a technical advisory committee.

RESPONSE: Comment Noted.

Applicability

33. **COMMENT:** This program should include schools, regional parks, and churches.

RESPONSE: This program will include any new development that is estimated to emit equal to or more than the threshold where indirect sources are the primary source of emissions from the project.

34. **COMMENT:** The current wording of Section 2.0 would include projects that come to the District for an Authority to Construct. Is it the District's intent to include those projects?

RESPONSE: It was not the original intent. The exemptions have been expanded to exempt projects where stationary sources of emissions from a development are the primary source of emissions.

35. **COMMENT:** The current wording of Section 2.0 would exclude State projects, because they do not have to apply for or obtain development permits.

RESPONSE: The new wording should include state projects.

Exemptions

36. **COMMENT:** Low-income housing should not be exempt because 1) residents tend to drive older, more polluting vehicles, 2) there are higher concentrations of people, and 3) those residents can benefit from alternate forms of transportation.

RESPONSE: Comment noted. There is no exemption for low-income housing in the current version of the rule.

37. **COMMENT:** If there is not an exemption for low-income housing with a broader scope, many contractors will go out of business.

RESPONSE: Comment noted.

38. **COMMENT:** Structures that are required to obtain a Permit to Operate (PTO) should be exempt from the rule.

RESPONSE: See response to comment #34.

39. **COMMENT:** Infill projects, schools, public parks, and other public facilities should be exempt.

RESPONSE: See response to comment #33.

40. **COMMENT:** General plans, specific plans, and community plans should be exempt from the rule.

RESPONSE: The rule applies to the last discretionary approval for a project.

Nexus

41. **COMMENT:** The Nexus should identify the benefits of the program.

RESPONSE: As with all District rule, an analysis of the emissions reduction associated with the rule has been developed.

Misc.

42. **COMMENT:** The rule should not distinguish between ministerial and discretionary projects.

RESPONSE: Many jurisdictions handle discretionary and ministerial differently. However, writing a prescriptive rule that identified every kind of project at varying stages of planning would extremely difficult.

43. **COMMENT:** Local agencies may use the Mitigation Agreement as a tool to hinder mitigation for projects.

RESPONSE: Local agencies may disapprove of measures in a Mitigation Agreement due to health, safety, and welfare reasons. For example, if a bus bulb was desired, but the bulb interferes with a pedestrian element, it might be a legitimate cause for disapproval.

44. **COMMENT:** How will the Bakersfield Metropolitan Project be addressed?

RESPONSE: That project will be handled separately through a “task force.”

45. **COMMENT:** How will overlap with CEQA be handled?

RESPONSE: This rule may meet many of the air-related CEQA issues for development in this air basin. The Guidelines for Assessing and Mitigating the Air Quality Impacts (GAMAQI) document will be revised and adopted prior to implementation of the program, and will explicitly define how the district interprets this program in relation to CEQA.

46. **COMMENT:** The socioeconomic analysis should look at the per unit cost differential between a home built in a large residential development and a home built on a smaller development.

RESPONSE: Comment noted.

47. **COMMENT:** The socioeconomic analysis should consider the costs of health if the program was not implemented.

RESPONSE: The socioeconomic analysis is an analysis that is mandated by the Health and Safety Code. That portion of the cost does not require a health benefit analysis. That type of analysis is better handled at the plan stage when demonstrating attainment of a health based standard.

48. **COMMENT:** There should be a clause in the rule that protects developers from later changes of the rule, similar to the Safe Harbor clause in habitat regulations.

RESPONSE: Any potential changes to District rules go through a public process. Any discussion of exemptions to rules or changes to rules should be handled through that process.

49. **COMMENT:** There should not be an administrative fee as well.

RESPONSE: An administrative fee is imperative to recover the districts costs associated with administering this program.

50. **COMMENT:** There should be a broader spectrum of stakeholders involved.

RESPONSE: Notices are distributed via newspapers in all eight counties and published on the district's website. Whether or not portions of the public choose to become involved is up to them.

51. **COMMENT:** The draft rule is silent on enforcement mechanisms. How will this be enforced?

RESPONSE: Any on-site mitigation measures included in the design of the project will be identified in a mitigation checklist. Those measures that do not have an enforcement mechanism through the local agency will be subject to a mitigation agreement between the district and the developer. That agreement will identify those measures and their enforcement.

52. **COMMENT:** The proposed certified mitigation program to be administered by local agencies is impractical.

RESPONSE: Comment noted.

Off-Site Mitigation

53. **COMMENT:** Section 5.8 should allow local jurisdictions to use the fees collected because they may know of local opportunities.

RESPONSE: The District will consider local projects when allocating any fees collected through this program.

54. **COMMENT:** Section 5.8 needs to be more specific.

RESPONSE: Comment noted.

55. **COMMENT:** There should be an appeals section for the expenditure of fees.

RESPONSE: See response to comment #15.

56. **COMMENT:** A process for fee reimbursement should be provided if emissions reductions are not achieved.

RESPONSE: Comment noted.

57. **COMMENT:** There needs to be a mechanism in place to expand off-site projects.

RESPONSE: Comment noted.

58. **COMMENT:** Fee expenditures should be located in the jurisdiction of origination.

RESPONSE: Fee expenditures will be located in a manner that will mitigate the emissions impact from the project.

59. **COMMENT:** All fleets should have the opportunity to obtain grants.

RESPONSE: The district is currently drafting a fleet grant program. Any fleet that submits a cost-effect project consistent with the District's guidelines will be eligible to receive funds.

60. **COMMENT:** There should be an appeals section for all project types, not just the Complete Analysis.

RESPONSE: See response to comment #15.

61. **COMMENT:** The grant programs should focus on diesel and smoking vehicles.

RESPONSE: The grant programs will focus on getting the most cost effective emissions reduction.

62. **COMMENT:** There should not be a limitation on spending the fees on research.

RESPONSE: The district needs to obtain immediate and quantifiable emissions reduction. Research does not meet the district objectives for this program.

63. **COMMENT:** The fees should go towards traffic congestion mitigation.

RESPONSE: The purpose of the program is to mitigate the impacts of development on air quality. While traffic congestion may be a part of the air quality problem, there are already traffic congestion fees in some jurisdictions. Also, traffic congestion mitigation is a temporary fix to the air quality problem. Studies have shown that increasing traffic flow increases capacity, and more capacity attracts more traffic.

COMMENTS FROM SCOPING MEETINGS HELD ON OCTOBER 7 - 9, 2003

EPA: None received.

ARB: None received.

INDUSTRY:

1. COMMENT: Public input and oversight should be built into the process.

RESPONSE: The District intends to provide periodic reports to the District Governing Board that will be available to the public that will enable public oversight. The development of the indirect source rules will be conducted in an open public process that allows for public input at every stage.

2. COMMENT: The fee structure implemented should be a Mello-Roos based fee requiring an annual payment by the owner of record.

RESPONSE: The DESIGN program is designed to reduce the impact that new development has on the growth in emissions. The program gives credit to projects based upon design features that are incorporated into a project to reduce emissions. Any fees charged are utilized to make up the gap between mitigation measures incorporated in the project and a 50% reduction in emissions. This type of program would not be appropriate for a Mello-Roos based program.

3. COMMENT: This program should be handled similarly to that of the school district fees.

RESPONSE: The calculation and collection of school fees is relatively simple compared to calculating air quality impacts of the project. The proposed program gives the opportunity for a project applicant to incorporate design measures that could potentially reduce emissions over the life of that project. This means that each project may need its own determination of emissions after on-site mitigation have been accounted for to calculate the appropriate fee amount.

4. COMMENT: How will the indirect source fee's impact on air pollution be measured and monitored?

RESPONSE: Projects funded with indirect source fees will have annual reporting requirements that will demonstrate that the emissions claimed are being achieved. The District will physically inspect all projects to ensure that the project is accomplished as claimed by the applicant for the funds and will credit those reductions in the appropriate attainment plans and progress reports.

5. **COMMENT:** What provisions will be made for repealing the fee if it is enacted but is not effective at reducing air pollution from automobiles?

RESPONSE: The emission reductions achieved from any fee collected will be subject to reporting and monitoring requirements. All projects that are based on retrofit or replacement of old technology with new technology must use equipment/devices that are emission certified or verified by the California Air Resource Board (ARB) and so are proven effective. The District will consider a periodic review of the entire program to ensure that the anticipated emissions reductions have in fact occurred. District staff would then present the results of the review and a recommendation to the governing board.

6. **COMMENT:** An indirect source fee will act as a disincentive for homebuyers to help clean the air by purchasing a new home.

RESPONSE: The decision to purchase a new home is influenced by a number of factors. If a subdivision incorporates on-site mitigation measures that reduce trips and area source emissions, which would lessen the fee amount and add value to the development, there may be more of an incentive to purchase a new home.

7. **COMMENT:** If fees are to be charged based on automobile usage, all development, not just new development, should be charged.

RESPONSE: The purpose of the program is to reduce the emissions associated with new development. The District prefers a preventative approach. One of the key features of the DESIGN program is to incorporate mitigation measures on-site, which will reduce emissions over the life of the development. This is possible during the design of new projects. It would not be feasible to "retrofit" existing homes and development; accordingly, they would probably pay 100% of the fee amount.

8. **COMMENT:** Infill developments with special measures incorporated into their design should receive a credit from this program.

RESPONSE: The reductions achieved by the DESIGN program are a combination of on-site design elements and off-site emissions reductions that are achieved by buying emissions reductions with fees to make up any shortfall

in on-site mitigation. In-fill projects that incorporate design features that reduce the emissions associated with the project will be given credit for those reductions and will reduce their potential fee amount.

9. **COMMENT:** Fees should be roughly proportional to the number of trips generated by that land use, as directed by the U.S. Supreme Court in the case of Nollan v. California Coastal Commission (1987) and Dolan v. City of Tigard (1994).

RESPONSE: The District expects any fee collected under this rule to meet this condition. The fee formula is based upon the emissions associated with the project.

10. **COMMENT:** The District needs to demonstrate how assessing a fee on land development will mitigate air pollution from automobiles.

RESPONSE: The purpose of the program is to mitigate the emissions associated with new development through on-site mitigations and potential fees. The District will outline the Nexus between any potential fees charged and the projects that they are mitigating.

11. **COMMENT:** Fees should be collected no earlier than at the final inspection or certificate of occupancy and paid at close of escrow, when the calculated emissions would actually begin.

RESPONSE: The fees need to be collected early enough to achieve emissions reductions prior to occupancy. Collecting the fee at occupancy would not provide adequate time to achieve the necessary emissions reductions prior to occupancy. Additionally, not all local agencies within the SJVAB have a Certificate of Occupancy permit for all uses, which would make enforcement of proposed requirements difficult. The proposed Rule 3180 may include the option for a Fee Deferral Agreement, which will operate under the capabilities of the local agency involved.

12. **COMMENT:** Fees should be collected at close of escrow, so <u>all</u> homebuyers are charged. This will lower the fee and generate funding at a much quicker rate.

RESPONSE: Please see Response #7.

13. **COMMENT:** Funds generated should be restricted for use in the jurisdiction where they were generated and should be restricted to uses that relate directly to whichever land use is paying the fee.

RESPONSE: The District will utilize any fees collected to mitigation the impact of the emissions associated with the projects that paid the fees.

14. **COMMENT:** Funds should be collected by the local agency at the building permit stage, and that local agency should utilize the funds for emission reduction activities. The local agency would then provide periodic reports to the District.

RESPONSE: The District has over 10 years of experience managing projects that reduce emissions. Providing training and oversight to all jurisdictions within the SJVAB, to ensure proper use of the funds and track emissions reductions would be time-consuming. Also, the District wants to ensure that existing local agency funds are not replaced with indirect source funds to pay for a project that would have occurred anyways. In order to utilize the funds generated in the most efficient and consistent manner, the District has proposed to manage the funds collected.

15. **COMMENT:** Consideration should be given to projects with low-cost housing or in economically depressed areas.

RESPONSE: The District will consider potential exemptions during the rule development process. On-site measures that enable people to use alternatives to the automobile for their personal transportation needs are very important in low-income areas.

16. **COMMENT:** Several jurisdictions already have fees for the purpose of reducing traffic congestion and automobile emissions that it creates. There should not be another fee that accomplishes the same purpose.

RESPONSE: The District will calculate the benefit of mitigation that is included in the project. If existing fees result in real, quantifiable, surplus emissions reductions the District will credit those reductions to the project.

17. **COMMENT:** There may be some overlap with conformity analyses. This needs to be addressed.

RESPONSE: Emission reductions from the indirect source program are reflected in the motor vehicle conformity budgets in the PM10 Plan. When budgets are set for the next ozone plan, they will also reflect emission reduction estimates. Conformity analysis done for individual transportation projects could take into account changes in trip generation rates and VMT resulting from mitigation incorporated by new development when determining if the transportation project will result in a decrease or increase in emissions. However, the transportation models may not provide the level of detail that would enable the user to provide input for individual development projects.

18. **COMMENT:** How will final build out versus phasing be addressed?

RESPONSE: That issue will be discussed at length during the Administrative Procedures focused workshop.

19. COMMENT: The applicant should assume the responsibility of interacting with the District.

RESPONSE: The District has incorporated this suggestion into the rule language.

20. COMMENT: Fees collected through this program should not fund projects that would have otherwise occurred.

RESPONSE: The District agrees that these projects not be funded. The District will take suggestions on how to prevent that.

21. COMMENT: The computed fee should be increased by 25% or more to fund projects that would improve our air, instead of just offsetting emissions.

RESPONSE: The DESIGN Program is being developed to ensure that any fees will meet the nexus standard. Thus, the fee cannot be set "above" the anticipated emissions.

22. COMMENT: Double counting should be addressed.

RESPONSE: The District is limiting the mitigation associated with the project to 50% of the projects base year emissions. This eliminates any potential double counting.

23. COMMENT: Funds should not be spent on public education processes or research type activities, but on projects where emissions reductions are quantifiable.

RESPONSE: It is mandatory that all projects funded will result in real and quantifiable emissions reductions. The specific policies on how the funds will be spent will be included in the draft staff report at the final workshop.

24. COMMENT: A grant-like program could potentially result in large amounts of fees collected with no projects being implemented. An expenditure program managed by the District and/or the Councils of Governments (COGs) should be developed.

RESPONSE: The District is currently formulating how the funds will be spent.

25. **COMMENT:** The District should clearly explain the relationship between the reductions from this program to the CEQA threshold discussions in the District's Guide to Assessing and Mitigating Air Quality Impacts (GAMAQI). The GAMAQI should be used as an implementation tool for this rulemaking project and it should be updated to provide consistent direction on the preparation of environmental documents.

RESPONSE: The District will calculate emissions for each project based on mitigation measures included in the project. If a project has agreed to mitigation measures as part of CEQA, then those measures will be reflected in the emission calculation. It is anticipated that the GAMAQI will be revised after the rules are adopted to show the relationship between the rules and CEQA.

26. **COMMENT:** Construction emissions should be included in the emissions total, and hence, subject to a fee.

RESPONSE: The District intends to include mitigation for construction emissions in the formula.

27. **COMMENT:** It is likely that mitigation fees will be used to fund the most cost-effective projects first. Thus, as time goes on, costs associated with pollution reduction projects will probably rise. The schedule of fees should be subject to upwards revisions based on this contingency.

RESPONSE: The types of projects available for funding are not static. The District has analyzed the types of projects that it anticipates will be available in the near future and has adjusted the cost-effective factor appropriately for future years.

APPENDIX B

Emissions Reduction Analysis for Proposed Rule 9510 (Indirect Source Review) and Rule 3180 (Administrative Fees for Indirect Source Review)

December 15, 2005

EMISSION REDUCTION ANALYSIS FOR RULE 9510 (Indirect Source Review)

I. INTRODUCTION

Both the 2003 PM10 Plan and the Extreme Ozone Attainment Demonstration Plan, contain emissions reduction commitments for proposed Rule 9510 of 4.1 tons per day of NOx and 5.2 tons per day of PM10 to be achieved by 2010. Those estimates were based on assumptions at the time and are commitments that are necessary to assist the district in meeting the federal and state PM10 and ozone standards. This appendix contains emissions and emissions reduction estimates that update those original estimates.

II. BASELINE EMISSIONS

A. Sources of Emissions from New Development

It is generally accepted in both air quality and transportation planning, as well as in case law that new emissions occur from new development. The construction of new structures is undertaken in order to accommodate the growth in population of a particular area. With the projected growth and development in the San Joaquin Valley Air Basin (SJVAB), there will also be a corresponding growth in emissions from energy usage, landscape maintenance equipment, wood combustion, motor vehicles, and entrained dust from paved and unpaved roads.

Energy Usage

Emissions associated with energy usage from new development primarily occur from two different sources, electricity generation and fuel combustion. NOx and PM10 emissions result from using space heating, water heating, cooking, and from other miscellaneous electrical appliances/equipment. ARB estimates fuel combustion emissions from natural gas, distillate oil or LPG, using EPA emission factors, and gas sales.[1] Emissions attributed to use of electricity generated at power plants are not easily quantified due to the variety of sources that supply electricity, which are located in and out of the basin and the state. Therefore, electrical generation emissions associated with new development will not be quantified or addressed for this program.

1 Air Resources Board, Emissions Inventory Procedural Manual, Vol. III, Methods for Assessing Area Source Emissions, October 1997 with revisions through November 1998, section 7.2-7.3.

Landscape maintenance equipment

Landscape maintenance equipment generates NOx and PM10 emissions from fuel combustion (gasoline, diesel, or LPG or CNG) and from evaporation of unused fuel. Equipment in this category can include leaf blowers, lawn mowers, trimmers, edgers, chainsaws, chippers, etc. ARB uses the OFF-ROAD model to estimate PM10 and NOx emissions using population, activity duration, and emission factors.[2] URBEMIS uses OFF-ROAD results and quantifies emissions by the number of homes and business units.[3] Based on District analysis, the growth in NOx and PM10 emissions from residential landscape maintenance equipment is relatively small, 15 tons per year, despite a projected increase of nearly 1.8 million pieces of residential landscape equipment in the SJVAB. The primary reason for the small emissions increase is that the new equipment is significantly cleaner than the older equipment.

Wood Combustion

Residential wood combustion emissions of PM10 and NOx come from burning wood or similar materials inside fireplaces, wood stoves and inserts. ARB estimates emissions totals using the following factors: tons of wood used per house, BTU rating per cord, number of houses, fraction of active wood combustion devices, average number of days burned per house, and other representative factors.[4] The recent amendment to Rule 4901 (Wood Burning Fireplaces and Wood Burning Heaters) will reduce a significant portion of emissions from those devices. Rule 4901 contains limits on wood combustion devices in new development, however, it still allows new devices in a development of a certain size or larger. Therefore, reductions from this category can still occur if the development can still install those devices and chooses not to.

Motor Vehicle Emissions

Motor vehicle emissions is the largest category of emissions attributed to new development. The inventory includes estimates of exhaust and evaporative VOCs, NOx, and PM10 associated with exhaust, tire wear and brake wear. On-road motor vehicles account for approximately 43% of the entire NOx inventory for 2002.[5] ARB estimates emissions from on-road vehicles using the EMFAC2002 model, which uses emission factors, vehicle numbers and vehicle activity. Emission rates are derived primarily from direct testing by the state or EPA. Vehicle population and vehicle age data are obtained from the Department of Motor Vehicles (DMV). Travel activity, which includes vehicle miles traveled (VMT), distribution of VMT by speed, the number of trips taken per vehicle each day, are provided by the California Department of Transportation

2 Staff report for Public Meeting to Consider Approval of the California Small Off-road engine emissions inventory, http://www.arb.ca.gov/msei/off-road/pubs/sore_final.doc

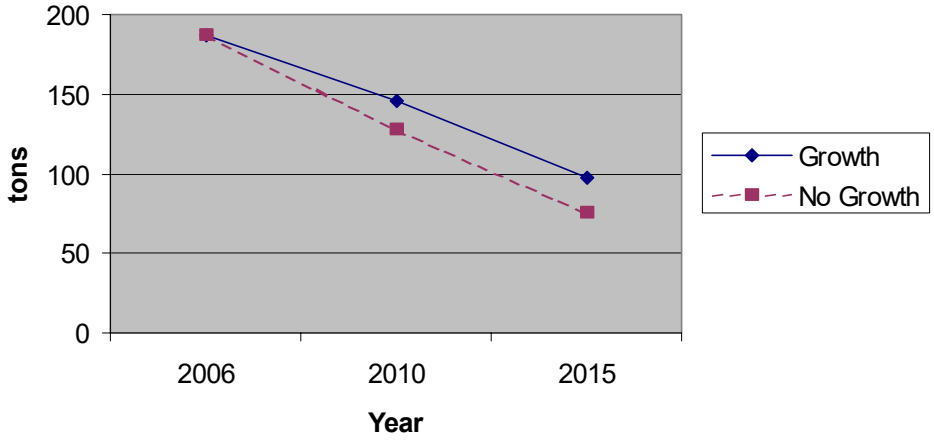
3 URBEMIS2002 Users' Guide, Version 7.4, May 2003, Appendix B.

4 Air Resources Board, Emissions Inventory Procedural Manual, Vol. III, Methods for Assessing Area Source Emissions, October 1997 with revisions through November 1998, section 7.1.

5 2003 PM10 Plan, Chapter 3, NOx Emissions Inventory

(Caltrans), local Metropolitan Planning Organizations (MPOs), local Councils of Governments (COGs), and fleet monitoring.[6] URBEMIS quantifies vehicle emissions attributed to a particular development based on the emission factors and vehicle activity found in EMFAC2002, in combination with project specific data. While the motor vehicle emissions inventory in both the PM10 and ozone plans show that vehicle emissions are declining, emissions would have declined even more if growth were not to occur, thus hampering the ability of the region to reach attainment of the PM10 and ozone standards. The following chart shows the emissions from all motor vehicles for the current population if it would have remained constant (No-Growth), and the emissions from vehicles for the projected population as reported in the 2003 PM10 Plan emissions inventory (Growth). Based on an analysis performed by ARB using EMFAC2002, which can be found in Attachment 1, the difference is an estimated 17.3 tons per day of NOx attributed to projected increase in growth in the SJVAB between 2006 and 2010.

Figure 1
Difference in NOx Emissions for All Vehicle Types



Re-entrained Road Dust

PM10 emissions from road dust occur by vehicles driving on unpaved roads, or by vehicles entraining or re-entraining dust on paved roads. ARB estimates PM10 emissions by using the following factors for different road types: silt loading on roads, vehicle weight, and VMT traveled. The majority of new development occurs on or creates new paved roads, however, some development in rural areas still use unpaved roads. Unpaved road emissions are estimated by using an emission factor and total VMT traveled.[7]

6 Overview of the On-Road Emissions Inventory, http://www.arb.ca.gov/msei/on-road/briefs/emfac6.pdf

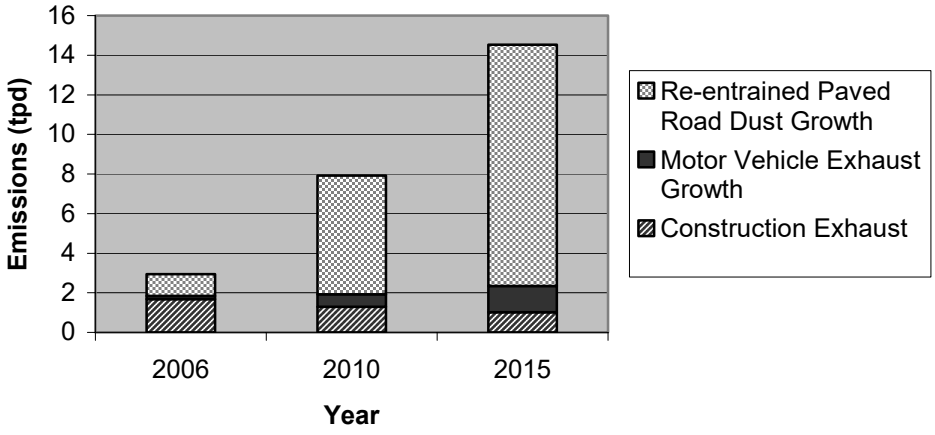
7 Air Resources Board, Emissions Inventory Procedural Manual, Vol. III, Methods for Assessing Area Source Emissions, October 1997 with revisions through November 1998, section 7.9-7.10.

Construction

This category of emissions differ slightly from the others, since all emissions from construction are due to new development, regardless of growth in the category. Emissions associated with construction activities occur for the purpose of building residential, commercial, industrial, institutional, or governmental structures. Emissions result predominantly from equipment associated with site preparation work, which may include scraping, grading, loading, digging, compacting, and other operations. ARB estimates construction emissions by utilizing a computer model called OFF-ROAD. The construction emissions in the OFF-ROAD model are estimated using the population, activity, and fuel usage of the varied types of construction equipment.

The following figure demonstrates PM10 emissions and emissions growth from construction equipment, re-entrained paved road dust, and vehicle exhaust associated with new development.

Figure 2
PM10 Emissions from Development



B. Projected Emissions from New Development

The following table illustrates the projected growth in emissions, as can be discerned from the emissions inventory:

Total Emissions Attributed to Land Use Growth in the SJVAB in 2010

NOx

Emissions Category	Emissions from Growth In 2010 (tpd)	Emissions from Growth during 2006-2010 (tpd)
On-road Vehicles[A]	2.2	17.3
Construction Equipment[C]	21.3	21.3
Total NOx	**23.5**	**137.8**

PM10

Construction Equipment[C]	1.4	1.4
On-road Vehicles[A]	0.2	0.6
Paved Road Dust[B]	1.1	5.2
Total PM10	**2.7**	**13.4**

A. Emissions Growth between 2006 and 2010 was estimated based on an ARB EMFAC 2002 version 2.2 run, dated June 10, 2005 (Attachment 1). This will be revised to obtain a total for 2006.

B. 2003 PM10 Plan emissions inventory

C. ARB Emission Inventory for 2010

It should be noted that some sources of emissions from new development are not included in the above table for several reasons. While there may be difficulties in assessing what portions of the emissions inventory are resulting from new growth, there are new emissions from growth occurring. Therefore, the above table represents a conservative estimate of what will occur, and does not overestimate. Therefore, any reductions applied to the emissions outlined in the above table will represent a conservative estimate of actual reductions resulting from this program.

III. EMISSIONS REDUCTION OPTIONS FOR NEW DEVELOPMENT

A. On-site Project-Specific Emissions Reductions

On-site mitigation measures and their corresponding emission reduction methodologies were developed by Nelson/Nygaard and put into URBEMIS. The following discussion lists measures/conditions, if implemented that would result in emissions reductions from a development project. The maximum percent reduction is in general terms. The actual reduction relies on project specific information and factors, and how the mitigation measure is used in combination with other measures.

Increase Energy Efficiency Beyond Title 24

This measure would reduce emissions by decreasing the amount of natural gas that is needed and in turn combusted for a particular development. Examples of how this could be achieved include: using insulation in the attic and walls, insulating ductwork, using whole house fans, double-paned and/or high performance glazed windows, maximizing the use of natural lighting, installing EnergyStar appliances, orienting the

building north or south to utilize passive heating and cooling, designing the building to maximize natural ventilation, or any number of other items that would decrease the use of natural gas, and therefore decrease emissions. The emissions reductions associated with this mitigation measure in URBEMIS would require a quantification of the % reduction beyond what is already required by Title 24 as determined by a computer model developed for Title 24 purposes.

Electrical landscape maintenance equipment

This measure would reduce emissions by eliminating some or all of the combustion of gasoline or diesel in standard landscape equipment by replacing it with equipment that relies on batteries, an electrical outlet, or manually-powered equipment. Emissions reductions are quantified by using the % of the development that would use non-combustion powered equipment.

Hearth

This measure would reduce emissions by eliminating construction of a wood combustion device that would have otherwise been allowed under Rule 4901.

Net Residential Density

Emissions reductions from this measure would occur when an individual from a particular residential use forgoes the use of the automobile and uses an alternate form of transportation. A considerable volume of research has investigated the links between density and travel behavior and has determined that there is a significant and quantifiable relationship between residential density and automobile use. Three key studies of travel behavior and density itself have identified elasticities, which has been used to develop a formula to determine the reduction in vehicle trips and vehicle miles traveled, and the corresponding emissions reductions. The maximum reduction in trips/VMT and resulting emissions that may occur from this measure is calculated to be 55%.

Mix of Uses

Emissions reductions from this measure would occur when an individual forgoes the use of the automobile and uses other forms of transportation. Research has shown that there is an impact of diversity or mix of uses on travel behavior, which can occur at the macro-scale, such as jobs-housing balance. Numerous studies of travel behavior and mix of uses have identified elasticities, which has been used to develop a formula to determine the reduction in vehicle trips and vehicle miles traveled, and the corresponding emissions reductions. The maximum reduction in trips/VMT and resulting emissions that may occur from this measure is calculated to be 9%.

Local Serving Retail

Emissions reductions from this measure occur when an individual forgoes the use of the automobile, since the proximity of the retail encourages other forms of transportation. The maximum reduction in trips/VMT and resulting emissions that may occur from this measure is calculated to be 2%.

Transit Service

Emissions reductions from this measure would occur when an individual forgoes the use of the automobile and uses transit. Transit choices could include buses, light rail, dedicated shuttles, and trolleys. Since emissions from transit services already exist, the elimination of trip(s) from the automobile would result in emissions reductions. URBEMIS determines emissions reductions from transit use based on a Transit Service Index, which is based on the latest California-specific research on transit use. The maximum reduction in trips/VMT and resulting emissions that may occur from this measure is calculated to be 15%.

Bicycle and Pedestrian Facilities

Emissions reductions from this measure would when an individual forgoes the use of the automobile and uses a bicycle or walks. Since the use of a bicycle or the action of walking does not emit emissions, the elimination of trip(s) from the automobile would result in emissions reductions. URBEMIS determines emissions reductions from bicycle use and pedestrian activities based on quantitative values of network density, sidewalk completeness and bike lane completeness. The maximum reduction in trips/VMT and resulting emissions that may occur from this measure is calculated to be 9%.

Affordable Housing/Senior Housing/ Assisted Living

This measure would reduce emissions by designating residential units as deed-restricted below-market-rate (BMR) housing. Research has shown that lower-income households and senior citizens own fewer vehicles and drive less. By designating residential units as deed-restricted BMR, only lower-income individuals that use the automobile less would occupy those units, which would result in lower emissions due to less automobile use. The maximum reduction in trips/VMT and resulting emissions and resulting emissions that may occur from this measure is calculated to be 4%.

Transportation Demand Management Programs

TDM Programs can include free transit passes, parking restrictions and telecommuting. Emissions reductions from this measure would occur when a landlord provides an incentive, such as transit passes, to individual(s), who then forgoes the use of the automobile and uses transit. These programs provide an incentive for the individual(s) to use the transit, and studies have show that these programs both increase transit ridership and reduce vehicle trips. The maximum reduction in trips/VMT and resulting emissions and resulting emissions that can be achieved under this measure is 25%.

Fleet Modifications

Reductions from this measure occur when a fleet owner makes vehicle specific modifications or agrees to purchase and/or use only vehicles with controls, such as a particulate filters or catalysts. There are numerous options available. The maximum reduction in emissions that can be achieved under this measure varies by control option.

It is important to note that many of the mitigation listed above requires a change in travel behavior of an individual in order for the emissions reductions to occur. It is not guaranteed that the mitigation measures will be successful at changing travel behavior to the exact amount as calculated, however, it represents the best estimate/projection of what will occur based on the most recent research conducted on existing travel behavior to date.

B. Off-site Emissions Reductions

In the event that the emissions impact of a particular project is not fully mitigated on site a proportional fee will be assessed and collected for the NOx and PM10 emissions not mitigated. The fees collected would be placed into a mitigation fund for each pollutant and county, and expended on projects that reduce emissions of that pollutant in that county, utilizing a grant-like program. The district has over eleven years experience with grant programs designed to reduce primarily NOx, and some VOC. Each grant program has had strict guidelines on emissions reductions, qualifying equipment, and the related administration of the program. Based on that experience, the District has decided that a grant program would provide the most cost-effective emissions reductions for the money that will be collected.

The District has employed the California Air Resources Board (ARB) and the California Department of Transportation document "*Methods to Find the Cost Effectiveness of Funding Air Quality Projects"* for finding the cost effectiveness and emission reduction benefits for a wide variety of emission reduction projects. This document can also be accessed through an associated on-line database. The methods described are generally accepted and include: a list of information needed to calculate cost effectiveness, emission factors, project life, defaults that may be used when project-specific data is not available (assumptions) and formulas to calculate vehicle emission reductions for three major pollutants, NOx, PM10, and VOC's. Many of those methods were used to develop the grant programs that could be funded under this program.

The most successful District grant program has been the Heavy-Duty Engine Incentive Program. This program replaces older model high polluting engines with newer and cleaner burning engines. Eligible project types funded under the heavy-duty program include, but are not limited to: on-road and off road vehicles and equipment, agricultural pump engines, marine vessels, forklifts, truck stop electrification technology, and school bus projects.

The Voluntary Accelerated Vehicle Retirement (Scrap) Program is designed to accelerate the voluntary retirement of older, higher polluting passenger vehicles. Monetary incentives are provided to individuals who agree to scrap their high polluting passenger vehicles. Ideally, this incentive money will help them purchase newer vehicles with cleaner burning engines.

The Light and Medium Duty Vehicle Incentive Program is designed to encourage the purchase and use of cleaner engine technology for passenger vehicles. To be eligible under the program, the light and medium duty vehicles must be powered by natural gas, electricity, fuel cells, or gasoline-electric hybrid technology.

The Carl Moyer Program provides incentive funds for significant near-term reductions in NOx. Eligible project types under the Carl Moyer Program include: new alternative fuel vehicle projects, on and off-road vehicle engine replacement projects, agricultural pump engine replacements, locomotive engine replacements, marine vessels, forklifts, and airport ground support equipment engine replacements. Projects are funded based on cost effectiveness, utilizing criteria developed by the state in coordination with the air districts and the statewide Incentive Program Implementation Team (IPI).

In addition to the sources listed above, the District receives grant funds from other state and federal funding sources including: the State's Lower Emission School Bus Program, Peaker Plant Offset funds, and the State's NOx and PM Program funds.

IV. EMISSIONS REDUCTION OPTIONS FOR CONSTRUCTION

Construction PM10 emissions can be mitigated in numerous ways. The following discussion lists measures/conditions, if implemented that would result in emissions reductions from construction activities. The percent reduction identified was based on the URBEMIS2002 Users' Guide.

A. On-site Reduction Options

There are several on-site construction emissions reductions available. The following lists the current mitigation measures that reduce PM10 and NOx. There is a statewide effort to update the construction portion of URBEMIS, so there may be more mitigation measures identified that are not included in this appendix.

Equipment Exhaust Control

There are several options available for controlling NOx and PM10 emissions from equipment used for construction. Options can include, purchasing newer equipment, altering fuel usage, modifying an engine, using exhaust after-treatments, or renting equipment that help meet the rule requirements. New equipment can provide a high percentage of emissions reductions, depending on the horsepower and the year of the equipment. Reductions that can occur from using newer equipment reductions range from 8-62% for PM10, and 20-38% for NOx. Different fuels are available for use that would reduce emissions from construction equipment. Ultra-low sulfur diesel can achieve a 5-9% reduction in PM10. Alternative diesel fuels can achieve 5-16% reduction in NOx and a 40-63% reduction in PM10. Diesel oxidation catalysts can reduce PM10 by 25-50%. Diesel particulate filters can reduce PM10 by 85%. Selective Catalytic Reduction can reduce NOx by 80% and PM10 by 25%.

Worker Commute Trip Reductions

This measure would entail using a shuttle to take construction workers to a retail establishment for lunch. This would eliminate numerous trips, which would reduce vehicle exhaust, and entrained and/or re-entrained road dust. The maximum PM10 reduction from this measure is 1.3%.

B. Off-site Reduction Options

Since any fees collected will reduce construction emissions off-site, the same emissions reduction options listed in section III above apply.

V. PROJECT-SPECIFIC EMISSIONS REDUCTIONS

Each development project, subject to Rule 9510, will have an assessment of the project performed. The assessment will include an APCO-approved model run that identifies the project or project phase baseline emissions and the emissions reduction resulting from on-site mitigation measures. The remaining emissions will be quantified and will fund emissions reduction project(s), using the fee formulas identified below.

Area and Operational NOx Fee Formula

The NOx fee formula must identify the total tonnage of mitigation required, subtract the tonnage mitigated on-site, and multiply the remaining tonnage by the cost of reductions in order to determine the cost to reduce emissions off-site.

Figure 3

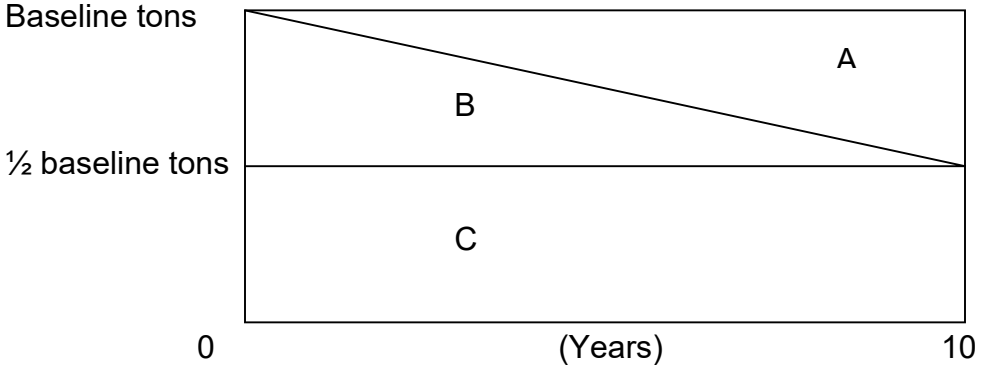


Figure 3 represents a development project's NOx emissions over a period of ten years. Section A represents the emissions reductions projected to be achieved from ARB's tailpipe control, which is 25% of the total project's 10 years emissions. The remaining 75% is the project's estimated NOx emissions for ten years. The mitigation required by Rule 9510 is represented by the triangle B, which equal to a third of the non-A section. Thus, the total tonnage of mitigation required can be identified as follows:

$$\frac{\text{Estimated Baseline Emissions (tons) x 10 years x 75\%}}{3}$$

which is equal to:

$$\text{EBE (tons) x 2.5}$$

The next step is to subtract the percent reduction achieved from on-site mitigation measures. This is determined by using the estimated baseline emissions over ten years and applying the percent mitigation, as follows:

$$\text{Estimated Baseline Emissions (tons) x 10 years x 75\% x Actual \% Mitigation} = \text{EBE x 7.5 x APM}$$

Thus,

$$\text{(EBE x 2.5) - (EBE x 7.5 x APM)}$$

determines the total emissions remaining to mitigate off-site. That number then needs to multiplied by dollars per ton, in order to determine total dollars required to mitigation emissions off-site. The resulting NOx Air Impact Mitigation Fee is as follows:

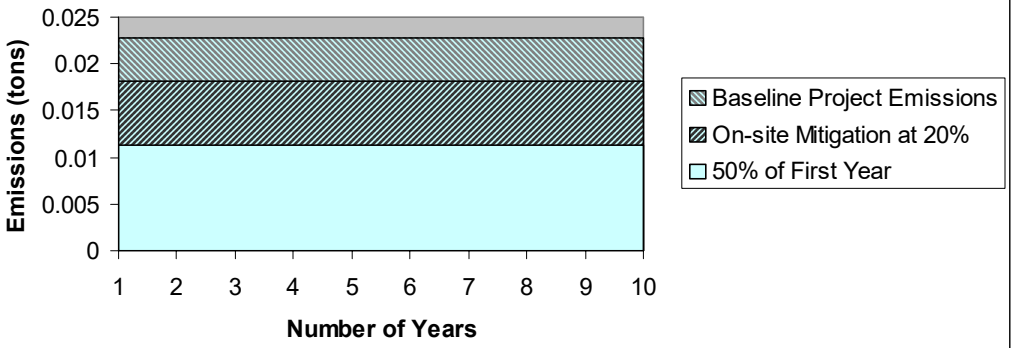
$$\text{[EBE x 2.5] - [EBE x 7.5 x APM] } \mathbf{x} \text{ [Cost of NOx Reductions/ton]}$$

It is important to note that the percent reduction achieved onsite, results in a greater reduction of the NOx fee. While on-site mitigation is not required, the “bigger bang for the buck” is achieved with as much on-site mitigation as possible.

Area and Operational PM10 Fee Formula

The Air Impact Mitigation Fee for PM10 is more straightforward since a project’s PM10 emissions remain relatively constant over the life of the project. For ease of understanding, Figure 4 below demonstrates the relationship between baseline emissions, mitigated emissions and half of the baseline emissions.

Figure 4
PM10 Project Emissions and Reductions Compared to 50% of the First Year Emissions



The required PM10 mitigation is half of the baseline emissions for ten years. In order to determine the emissions that are subject to a fee, half of the baseline emissions need to be subtracted from the Mitigated Emissions and multiplied by cost of reductions in dollars per ton. Thus the resulting PM10 Air Impact Mitigation Fee is calculated as follows:

(Mitigated PM10 emissions – ½ Baseline PM10 emissions) (Cost of PM10 Reductions)

Construction Formulas

The Air Impact Mitigation Fees for construction are based on the project's estimated construction equipment emissions, and compared to the statewide fleet average emissions. The required information is as follows: 1)a list of construction equipment used, 2)the model year, and 3)the hours estimated to be used is compiled, which can be determined from the National Construction Estimator or using project-specific information if known. Then the model specific emission factors are used to determine the actual estimated emissions (designated as AEE). The same hours are multiplied by a statewide average fleet emission factor for a particular year, to determine the statewide average estimated emissions (designated as SEE). Since the requirement is to reduce construction NOx emissions by 20% beyond the statewide average, this is determined as follows:

NOx Construction = (AEE) – [(1.00 x SEE) – (SEE x 0.20)]
(AEE) – [1.00SEE – 0.20SEE]
(AEE – 0.8SEE)

PM10 is almost identical, except that the requirement is to reduce construction PM10 emissions by 45% beyond the statewide average.

PM10 Construction = (AEE) – [(1.00 x SEE) – (SEE x 0.45)]
(AEE) – [1.00SEE – 0.45SEE]
(AEE – 0.55SEE)

VI. EMISSIONS REDUCTIONS FROM RULE 9510

Both the 2003 PM10 Plan and the Extreme Ozone Attainment Demonstration Plan, contain emissions reduction commitments for proposed Rule 9510 of 4.1 tons per day of NOx and 5.2 tons per day of PM10 to be achieved by 2010. Those estimates were based on assumptions at the time and are commitments that are necessary to assist the district in meeting the federal and state PM10 and NOx standards. The methodology contained in this section and related attachments demonstrate the draft emission reductions for the program.

As part of determining the emissions reductions, sources that are exempt from the rule need to be subtracted out. The District has numerous years of experience in commenting on projects subject to CEQA. Based on that experience and the thresholds contained in Rule 9510, it is estimated that 15% of all development project emissions will be exempt from the provisions that rule. Attachment 2 and Attachment 3 identify the growth in emissions for each pollutant for each year, and subtract the emissions that will be exempt from the program. Once the emissions subject to the program are identified, the required mitigation is applied, which is 33.3% of baseline NOx emissions over ten years, 50% of baseline operational PM10 emissions over ten years, 20% of construction NOx emissions and 45% of construction PM10 emissions. The reductions achieved on-site were calculated by multiplying the estimated percent of sources opting to use on-site measures, the percent reduction achieved on-site, by the baseline emissions. Off-site reductions were estimated differently. Since grant programs typically rely on project life to determine cost effectiveness and emissions reductions, the reduction was divided by the average project life for that pollutant's cost-effectiveness, which is 7 years for NOx and 12 years for PM10, and spread out over that number of years. Attachment 2 and 3 contain the detailed emission reductions calculations. The results of those calculations reveal that the program, as currently defined, will result in reductions of 5.4 tons per day of NOx in 2010 and 5.8 tons per day of PM10 in 2010.

Attachment 1 - Emissions and Growth in Emissions from Motor Vehicles

Passenger Cars						
Total - Growth						
	VMT	**Pop**	**ROG**	**NOx**	**PM10**	**CO**
CY 2006	46,763,000	1,186,080	27.53	25.64	1.69	282.88
CY 2007	48,037,000	1,215,840	25.06	23.34	1.73	260.25
CY2008	49,324,000	1,246,060	22.80	21.26	1.77	239.16
CY2009	50,625,000	1,276,970	20.74	19.32	1.81	219.49
CY2010	51,952,000	1,308,670	18.80	17.52	1.85	200.89
CY2011	53,253,000	1,340,690	17.11	15.87	1.90	184.01
CY2012	54,544,000	1,373,190	15.61	14.39	1.94	168.64
CY2013	55,835,000	1,406,290	14.28	13.07	1.99	154.78
CY2014	57,127,000	1,440,000	13.12	11.89	2.04	142.42
CY2015	58,427,000	1,474,400	12.12	10.85	2.08	131.38
Total - No Growth						
	VMT	**Pop**	**ROG**	**NOx**	**PM10**	**CO**
CY 2006	46,763,000	1,186,080	27.53	25.64	1.69	282.88
CY 2007	46,817,000	1,184,970	23.52	21.39	1.68	242.70
CY2008	46,857,000	1,183,740	20.86	18.97	1.68	217.58
CY2009	46,878,000	1,182,430	18.52	16.81	1.67	194.91
CY2010	46,885,000	1,181,030	16.38	14.86	1.67	174.13
CY2011	46,849,000	1,179,460	14.55	13.13	1.67	155.73
CY2012	46,784,000	1,177,840	12.96	11.61	1.67	139.41
CY2013	46,702,000	1,176,250	11.58	10.29	1.66	125.00
CY2014	46,601,000	1,174,680	10.39	9.13	1.66	112.39
CY2015	46,487,000	1,173,100	9.37	8.14	1.66	101.32
Total - Difference						
	VMT	**Pop**	**ROG**	**NOx**	**PM10**	**CO**
CY 2007	1,220,000	30,870	1.54	1.95	0.05	17.55
CY2008	2,467,000	62,320	1.94	2.29	0.09	21.58
CY2009	3,747,000	94,540	2.22	2.51	0.14	24.58
CY2010	5,067,000	127,640	2.42	2.66	0.18	26.76
CY2011	6,404,000	161,230	2.56	2.74	0.23	28.28
CY2012	7,760,000	195,350	2.65	2.78	0.27	29.23
CY2013	9,133,000	230,040	2.70	2.78	0.33	29.78
CY2014	10,526,000	265,320	2.73	2.76	0.38	30.03
CY2015	11,940,000	301,300	2.75	2.71	0.42	30.06

Light-Duty Truck (GVWR < 3,751 lbs)						
Total - Growth						
	VMT	**Pop**	**ROG**	**NOx**	**PM10**	**CO**
CY 2006	19,277,000	504,871	16.65	16.97	0.75	191.39
CY 2007	19,879,000	518,651	15.59	15.63	0.77	177.66

CY2008	20,503,000	532,766	14.54	14.39	0.78	164.45
CY2009	21,148,000	547,300	13.50	13.21	0.80	151.41
CY2010	21,810,000	562,308	12.50	12.10	0.82	138.99
CY2011	22,456,000	577,812	11.70	11.10	0.84	128.18
CY2012	23,103,000	593,638	10.97	10.22	0.86	118.33
CY2013	23,754,000	609,742	10.27	9.41	0.88	109.08
CY2014	24,410,000	626,177	9.61	8.68	0.90	100.56
CY2015	25,072,000	642,987	9.02	8.01	0.93	92.73
Total - No Growth						
	VMT	**Pop**	**ROG**	**NOx**	**PM10**	**CO**
CY 2006	19,277,000	504,871	16.65	16.97	0.75	191.39
CY 2007	19,374,000	505,480	14.54	14.03	0.75	163.40
CY2008	19,478,000	506,121	13.21	12.57	0.74	147.26
CY2009	19,582,000	506,782	11.96	11.22	0.74	132.09
CY2010	19,683,000	507,465	10.80	10.01	0.74	118.19
CY2011	19,756,000	508,326	9.87	8.96	0.74	106.40
CY2012	19,816,000	509,186	9.04	8.04	0.74	95.88
CY2013	19,869,000	510,001	8.26	7.22	0.74	86.35
CY2014	19,912,000	510,803	7.55	6.49	0.74	77.79
CY2015	19,949,000	511,590	6.93	5.86	0.74	70.11
Total - Difference						
	VMT	**Pop**	**ROG**	**NOx**	**PM10**	**CO**
CY 2007	505,000	13,171	1.05	1.60	0.02	14.26
CY2008	1,025,000	26,645	1.33	1.82	0.04	17.19
CY2009	1,566,000	40,518	1.54	1.99	0.06	19.32
CY2010	2,127,000	54,843	1.70	2.09	0.08	20.80
CY2011	2,700,000	69,486	1.83	2.14	0.10	21.78
CY2012	3,287,000	84,452	1.93	2.18	0.12	22.45
CY2013	3,885,000	99,741	2.01	2.19	0.14	22.73
CY2014	4,498,000	115,374	2.06	2.19	0.16	22.77
CY2015	5,123,000	131,397	2.09	2.15	0.19	22.62

Light-Duty Truck (GVWR 3,751 to 5,750 lbs)						
Total - Growth						
	VMT	**Pop**	**ROG**	**NOx**	**PM10**	**CO**
CY 2006	14,206,000	363,542	11.60	15.81	0.74	133.05
CY 2007	14,550,000	373,494	11.03	14.80	0.76	125.36
CY2008	14,919,000	383,713	10.48	13.85	0.78	117.89
CY2009	15,308,000	394,213	9.95	12.93	0.80	110.66
CY2010	15,718,000	405,048	9.44	12.05	0.83	103.67
CY2011	16,150,000	416,094	8.90	11.17	0.85	96.52
CY2012	16,591,000	427,382	8.39	10.34	0.87	89.90
CY2013	17,045,000	438,884	7.89	9.56	0.90	83.57
CY2014	17,507,000	450,596	7.40	8.83	0.92	77.55
CY2015	17,972,000	462,557	6.97	8.16	0.95	72.09

Total - No Growth						
	VMT	Pop	ROG	NOx	PM10	CO
CY 2006	14,206,000	363,542	11.60	15.81	0.74	133.05
CY 2007	14,180,000	364,010	10.37	13.49	0.74	116.90
CY2008	14,173,000	364,523	9.61	12.29	0.74	107.14
CY2009	14,175,000	365,028	8.90	11.17	0.74	98.08
CY2010	14,185,000	365,543	8.25	10.14	0.74	89.63
CY2011	14,208,000	366,056	7.59	9.16	0.75	81.45
CY2012	14,230,000	366,582	6.99	8.27	0.75	74.06
CY2013	14,257,000	367,092	6.42	7.46	0.75	67.24
CY2014	14,281,000	367,573	5.87	6.72	0.75	60.96
CY2015	14,300,000	368,032	5.41	6.06	0.75	55.36
Total - Difference						
	VMT	Pop	ROG	NOx	PM10	CO
CY 2007	370,000	9,484	0.66	1.31	0.02	8.46
CY2008	746,000	19,190	0.87	1.56	0.04	10.75
CY2009	1,133,000	29,185	1.05	1.76	0.06	12.58
CY2010	1,533,000	39,505	1.19	1.91	0.09	14.04
CY2011	1,942,000	50,038	1.31	2.01	0.10	15.07
CY2012	2,361,000	60,800	1.40	2.07	0.12	15.84
CY2013	2,788,000	71,792	1.47	2.10	0.15	16.33
CY2014	3,226,000	83,023	1.53	2.11	0.17	16.59
CY2015	3,672,000	94,525	1.56	2.10	0.20	16.73

Medium-Duty Truck (GVWR 5,751 to 8,500 lbs)						
Total - Growth						
	VMT	Pop	ROG	NOx	PM10	CO
CY 2006	5,521,000	141,790	5.01	7.94	0.29	57.52
CY 2007	5,679,000	146,113	4.79	7.46	0.30	54.45
CY2008	5,844,000	150,494	4.57	7.00	0.31	51.57
CY2009	6,017,000	155,025	4.36	6.56	0.32	48.81
CY2010	6,196,000	159,717	4.16	6.15	0.33	46.11
CY2011	6,369,000	164,373	3.96	5.74	0.33	43.46
CY2012	6,547,000	169,143	3.77	5.35	0.34	40.99
CY2013	6,728,000	174,015	3.60	4.99	0.36	38.71
CY2014	6,914,000	178,995	3.44	4.65	0.37	36.65
CY2015	7,105,000	184,102	3.29	4.34	0.38	34.70
Total - No Growth						
	VMT	Pop	ROG	NOx	PM10	CO
CY 2006	5,521,000	141,790	5.01	7.94	0.29	57.52
CY 2007	5,535,000	142,403	4.47	6.84	0.29	50.71
CY2008	5,552,000	142,967	4.16	6.25	0.29	46.84
CY2009	5,571,000	143,548	3.87	5.71	0.29	43.19
CY2010	5,591,000	144,140	3.60	5.20	0.29	39.82
CY2011	5,603,000	144,606	3.35	4.73	0.29	36.65
CY2012	5,615,000	145,080	3.12	4.30	0.30	33.75

CY2013	5,628,000	145,550	2.91	3.91	0.30	31.12
CY2014	5,640,000	146,015	2.72	3.55	0.30	28.80
CY2015	5,653,000	146,480	2.54	3.24	0.30	26.65
Total - Difference						
	VMT	**Pop**	**ROG**	**NOx**	**PM10**	**CO**
CY 2007	144,000	3,710	0.32	0.62	0.01	3.74
CY2008	292,000	7,527	0.41	0.75	0.02	4.73
CY2009	446,000	11,477	0.49	0.85	0.03	5.62
CY2010	605,000	15,577	0.56	0.95	0.04	6.29
CY2011	766,000	19,767	0.61	1.01	0.04	6.81
CY2012	932,000	24,063	0.65	1.05	0.04	7.24
CY2013	1,100,000	28,465	0.69	1.08	0.06	7.59
CY2014	1,274,000	32,980	0.72	1.10	0.07	7.85
CY2015	1,452,000	37,622	0.75	1.10	0.08	8.05

Light Heavy-Duty Truck (GVWR 8,501 to 10,000 lbs)						
Total - Growth						
	VMT	**Pop**	**ROG**	**NOx**	**PM10**	**CO**
CY 2006	2,281,000	34,879	2.13	5.00	0.12	12.85
CY 2007	2,304,000	35,651	1.96	4.95	0.12	11.55
CY2008	2,321,000	36,449	1.84	4.89	0.13	10.52
CY2009	2,334,000	37,270	1.74	4.84	0.13	9.70
CY2010	2,344,000	38,123	1.68	4.71	0.13	9.01
CY2011	2,351,000	38,998	1.65	4.58	0.13	8.49
CY2012	2,356,000	39,887	1.63	4.46	0.13	8.06
CY2013	2,362,000	40,784	1.63	4.34	0.13	7.67
CY2014	2,371,000	41,696	1.63	4.23	0.13	7.34
CY2015	2,384,000	42,634	1.64	4.13	0.13	7.04
Total - No Growth						
	VMT	**Pop**	**ROG**	**NOx**	**PM10**	**CO**
CY 2006	2,281,000	34,879	2.13	5.00	0.12	12.85
CY 2007	2,246,000	34,746	1.91	4.82	0.12	11.24
CY2008	2,205,000	34,626	1.74	4.64	0.12	9.99
CY2009	2,161,000	34,511	1.61	4.48	0.12	8.97
CY2010	2,115,000	34,405	1.51	4.24	0.12	8.13
CY2011	2,068,000	34,309	1.45	4.02	0.11	7.46
CY2012	2,021,000	34,213	1.40	3.82	0.11	6.91
CY2013	1,976,000	34,113	1.36	3.63	0.11	6.42
CY2014	1,934,000	34,014	1.33	3.45	0.11	5.98
CY2015	1,897,000	33,921	1.31	3.28	0.10	5.60

Total - Difference						
	VMT	**Pop**	**ROG**	**NOx**	**PM10**	**CO**
CY 2007	58,000	905	0.05	0.13	0.00	0.31
CY2008	116,000	1,823	0.10	0.25	0.01	0.53
CY2009	173,000	2,759	0.13	0.36	0.01	0.73

CY2010	229,000	3,718	0.17	0.47	0.01	0.88
CY2011	283,000	4,689	0.20	0.56	0.02	1.03
CY2012	335,000	5,674	0.23	0.64	0.02	1.15
CY2013	386,000	6,671	0.27	0.71	0.02	1.25
CY2014	437,000	7,682	0.30	0.78	0.02	1.36
CY2015	487,000	8,713	0.33	0.85	0.03	1.44

Light Heavy-Duty Truck (GVWR 10,001 to 14,000 lbs)						
Total - Growth						
	VMT	**Pop**	**ROG**	**NOx**	**PM10**	**CO**
CY 2006	624,000	10,645	0.76	2.78	0.06	4.45
CY 2007	626,000	10,885	0.75	2.67	0.05	4.18
CY2008	630,000	11,133	0.74	2.57	0.05	3.93
CY2009	637,000	11,387	0.72	2.47	0.05	3.67
CY2010	645,000	11,651	0.70	2.33	0.05	3.42
CY2011	653,000	11,922	0.68	2.19	0.05	3.18
CY2012	664,000	12,200	0.66	2.06	0.05	2.98
CY2013	674,000	12,484	0.64	1.93	0.05	2.79
CY2014	686,000	12,773	0.62	1.81	0.05	2.63
CY2015	699,000	13,071	0.60	1.70	0.05	2.46
Total - No Growth						
	VMT	**Pop**	**ROG**	**NOx**	**PM10**	**CO**
CY 2006	624,000	10,645	0.76	2.78	0.06	4.45
CY 2007	611,000	10,609	0.73	2.60	0.05	4.07
CY2008	599,000	10,576	0.70	2.43	0.05	3.73
CY2009	590,000	10,544	0.67	2.29	0.05	3.40
CY2010	582,000	10,514	0.63	2.10	0.05	3.09
CY2011	575,000	10,489	0.60	1.92	0.04	2.80
CY2012	569,000	10,465	0.56	1.76	0.04	2.56
CY2013	564,000	10,442	0.53	1.61	0.04	2.34
CY2014	560,000	10,420	0.50	1.48	0.04	2.15
CY2015	556,000	10,400	0.47	1.35	0.04	1.96
Total - Difference						
	VMT	**Pop**	**ROG**	**NOx**	**PM10**	**CO**
CY 2007	15,000	276	0.02	0.07	0.00	0.11
CY2008	31,000	557	0.04	0.14	0.00	0.20
CY2009	47,000	843	0.05	0.18	0.00	0.27
CY2010	63,000	1,137	0.07	0.23	0.00	0.33
CY2011	78,000	1,433	0.08	0.27	0.01	0.38
CY2012	95,000	1,735	0.10	0.30	0.01	0.42
CY2013	110,000	2,042	0.11	0.32	0.01	0.45
CY2014	126,000	2,353	0.12	0.33	0.01	0.48
CY2015	143,000	2,671	0.13	0.35	0.01	0.50

Medium Heavy-Duty Truck (GVWR 14,001 to 33,000 lbs)						
Total - Growth						
	VMT	Pop	ROG	NOx	PM10	CO
CY 2006	1,844,000	32,324	4.23	20.26	0.61	31.38
CY 2007	1,897,000	33,004	3.94	19.34	0.58	29.10
CY2008	1,951,000	33,694	3.69	18.42	0.57	27.07
CY2009	2,005,000	34,411	3.45	17.53	0.56	25.24
CY2010	2,058,000	35,155	3.22	16.29	0.54	23.47
CY2011	2,113,000	35,925	3.00	15.10	0.52	21.80
CY2012	2,168,000	36,711	2.79	13.96	0.50	20.22
CY2013	2,223,000	37,512	2.60	12.87	0.49	18.77
CY2014	2,279,000	38,329	2.40	11.85	0.48	17.36
CY2015	2,334,000	39,167	2.23	10.88	0.46	16.05
Total - No Growth						
	VMT	Pop	ROG	NOx	PM10	CO
CY 2006	1,844,000	32,324	4.23	20.26	0.61	31.38
CY 2007	1,849,000	32,166	3.83	18.83	0.56	28.33
CY2008	1,853,000	32,009	3.49	17.48	0.54	25.68
CY2009	1,856,000	31,864	3.19	16.21	0.52	23.34
CY2010	1,857,000	31,726	2.90	14.68	0.49	21.15
CY2011	1,859,000	31,605	2.64	13.27	0.46	19.15
CY2012	1,860,000	31,488	2.39	11.96	0.43	17.32
CY2013	1,859,000	31,376	2.17	10.76	0.41	15.68
CY2014	1,859,000	31,267	1.96	9.65	0.39	14.15
CY2015	1,857,000	31,163	1.77	8.65	0.37	12.76
Total - Difference						
	VMT	Pop	ROG	NOx	PM10	CO
CY 2007	48,000	838	0.11	0.51	0.02	0.77
CY2008	98,000	1,685	0.20	0.94	0.03	1.39
CY2009	149,000	2,547	0.26	1.32	0.04	1.90
CY2010	201,000	3,429	0.32	1.61	0.05	2.32
CY2011	254,000	4,320	0.36	1.83	0.06	2.65
CY2012	308,000	5,223	0.40	2.00	0.07	2.90
CY2013	364,000	6,136	0.43	2.11	0.08	3.09
CY2014	420,000	7,062	0.44	2.20	0.09	3.21
CY2015	477,000	8,004	0.46	2.23	0.09	3.29

Heavy Heavy-Duty Truck (GVWR 33,001 to 60,000 lbs)						
Total - Growth						
	VMT	Pop	ROG	NOx	PM10	CO
CY 2006	4,845,000	31,643	6.00	82.30	1.85	44.21
CY 2007	4,978,000	32,260	5.70	78.05	1.72	41.00
CY2008	5,123,000	32,896	5.44	73.87	1.65	38.44
CY2009	5,281,000	33,555	5.18	69.88	1.60	36.18
CY2010	5,449,000	34,235	4.90	64.43	1.52	33.93
CY2011	5,628,000	34,939	4.64	59.06	1.44	31.99

CY2012	5,817,000	35,648	4.39	53.91	1.37	30.10
CY2013	6,019,000	36,370	4.13	49.01	1.31	28.31
CY2014	6,235,000	37,118	3.91	44.50	1.26	26.84
CY2015	6,451,000	37,891	3.68	40.44	1.22	25.19
Total - No Growth						
	VMT	**Pop**	**ROG**	**NOx**	**PM10**	**CO**
CY 2006	4,845,000	31,643	6.00	82.30	1.85	44.21
CY 2007	4,852,000	31,440	5.49	75.87	1.67	39.47
CY2008	4,866,000	31,251	5.10	69.98	1.57	36.07
CY2009	4,890,000	31,071	4.73	64.51	1.48	33.09
CY2010	4,918,000	30,896	4.37	57.97	1.37	30.23
CY2011	4,951,000	30,738	4.03	51.80	1.27	27.78
CY2012	4,989,000	30,577	3.71	46.09	1.18	25.48
CY2013	5,034,000	30,420	3.41	40.86	1.10	23.37
CY2014	5,086,000	30,279	3.15	36.19	1.03	21.61
CY2015	5,133,000	30,148	2.90	32.08	0.97	19.78
Total - Difference						
	VMT	**Pop**	**ROG**	**NOx**	**PM10**	**CO**
CY 2007	126,000	820	0.21	2.18	0.05	1.53
CY2008	257,000	1,645	0.34	3.89	0.08	2.37
CY2009	391,000	2,484	0.45	5.37	0.12	3.09
CY2010	531,000	3,339	0.53	6.46	0.15	3.70
CY2011	677,000	4,201	0.61	7.26	0.17	4.21
CY2012	828,000	5,071	0.68	7.82	0.19	4.62
CY2013	985,000	5,950	0.72	8.15	0.21	4.94
CY2014	1,149,000	6,839	0.76	8.31	0.23	5.23
CY2015	1,318,000	7,743	0.78	8.36	0.25	5.41

School Bus						
Total - Growth						
	VMT	**Pop**	**ROG**	**NOx**	**PM10**	**CO**
CY 2006	186,000	3,982	0.32	2.54	0.10	3.59
CY 2007	190,000	4,082	0.31	2.57	0.10	3.39
CY2008	195,000	4,185	0.31	2.60	0.10	3.35
CY2009	200,000	4,290	0.31	2.63	0.10	3.26
CY2010	205,000	4,398	0.31	2.65	0.10	3.22
CY2011	210,000	4,512	0.31	2.67	0.10	3.19
CY2012	216,000	4,627	0.32	2.66	0.10	3.15
CY2013	221,000	4,743	0.31	2.64	0.10	3.03
CY2014	227,000	4,861	0.31	2.62	0.10	2.93
CY2015	232,000	4,981	0.31	2.60	0.10	2.81
Total - No Growth						
	VMT	**Pop**	**ROG**	**NOx**	**PM10**	**CO**
CY 2006	186,000	3,982	0.32	2.54	0.10	3.59
CY 2007	185,000	3,978	0.30	2.50	0.10	3.30
CY2008	185,000	3,975	0.29	2.47	0.10	3.17

CY2009	185,000	3,972	0.29	2.43	0.09	3.01
CY2010	185,000	3,969	0.28	2.39	0.09	2.90
CY2011	185,000	3,969	0.28	2.34	0.09	2.80
CY2012	185,000	3,968	0.27	2.27	0.09	2.69
CY2013	185,000	3,967	0.26	2.20	0.09	2.53
CY2014	185,000	3,966	0.25	2.13	0.08	2.39
CY2015	185,000	3,963	0.24	2.06	0.08	2.23
Total - Difference						
	VMT	**Pop**	**ROG**	**NOx**	**PM10**	**CO**
CY 2007	5,000	104	0.01	0.07	0.00	0.09
CY2008	10,000	210	0.02	0.13	0.00	0.18
CY2009	15,000	318	0.02	0.20	0.01	0.25
CY2010	20,000	429	0.03	0.26	0.01	0.32
CY2011	25,000	543	0.03	0.33	0.01	0.39
CY2012	31,000	659	0.05	0.39	0.01	0.46
CY2013	36,000	776	0.05	0.44	0.01	0.50
CY2014	42,000	895	0.06	0.49	0.02	0.54
CY2015	47,000	1,018	0.07	0.54	0.02	0.58

Urban Bus						
Total - Growth						
	VMT	**Pop**	**ROG**	**NOx**	**PM10**	**CO**
CY 2006	330,000	2,407	1.30	4.70	0.08	11.25
CY 2007	338,000	2,468	1.29	4.69	0.08	11.08
CY2008	347,000	2,531	1.28	4.68	0.08	10.88
CY2009	356,000	2,595	1.28	4.67	0.08	10.78
CY2010	365,000	2,661	1.27	4.66	0.08	10.55
CY2011	374,000	2,730	1.27	4.64	0.08	10.29
CY2012	384,000	2,800	1.26	4.56	0.08	9.87
CY2013	393,000	2,870	1.26	4.54	0.08	9.41
CY2014	403,000	2,942	1.26	4.44	0.08	9.05
CY2015	413,000	3,014	1.25	4.40	0.08	8.47
Total - No Growth						
	VMT	**Pop**	**ROG**	**NOx**	**PM10**	**CO**
CY 2006	330,000	2,407	1.30	4.70	0.08	11.25
CY 2007	330,000	2,406	1.25	4.56	0.07	10.78
CY2008	329,000	2,404	1.21	4.44	0.07	10.32
CY2009	329,000	2,403	1.17	4.31	0.07	9.97
CY2010	329,000	2,402	1.14	4.19	0.07	9.51
CY2011	329,000	2,402	1.11	4.07	0.07	9.04
CY2012	329,000	2,401	1.07	3.90	0.07	8.45
CY2013	329,000	2,401	1.04	3.79	0.06	7.86
CY2014	329,000	2,400	1.02	3.61	0.06	7.37
CY2015	329,000	2,398	0.98	3.49	0.06	6.72

Total - Difference						
	VMT	Pop	ROG	NOx	PM10	CO
CY 2007	8,000	62	0.04	0.13	0.01	0.30
CY2008	18,000	127	0.07	0.24	0.01	0.56
CY2009	27,000	192	0.11	0.36	0.01	0.81
CY2010	36,000	259	0.13	0.47	0.01	1.04
CY2011	45,000	328	0.16	0.57	0.01	1.25
CY2012	55,000	399	0.19	0.66	0.01	1.42
CY2013	64,000	469	0.22	0.75	0.02	1.55
CY2014	74,000	542	0.24	0.83	0.02	1.68
CY2015	84,000	616	0.27	0.91	0.02	1.75

Motorhome

Total - Growth						
	VMT	Pop	ROG	NOx	PM10	CO
CY 2006	531,000	34,851	0.84	2.04	0.03	21.00
CY 2007	552,000	36,150	0.80	2.01	0.03	19.78
CY2008	574,000	37,508	0.75	1.97	0.03	18.26
CY2009	598,000	38,927	0.70	1.93	0.03	16.91
CY2010	624,000	40,417	0.66	1.86	0.03	15.57
CY2011	651,000	42,003	0.60	1.79	0.03	14.09
CY2012	679,000	43,650	0.56	1.72	0.03	12.73
CY2013	709,000	45,360	0.50	1.63	0.04	11.26
CY2014	741,000	47,134	0.45	1.54	0.04	9.86
CY2015	772,000	48,973	0.40	1.46	0.04	8.67
Total - No Growth						
	VMT	Pop	ROG	NOx	PM10	CO
CY 2006	531,000	34,851	0.84	2.04	0.03	21.00
CY 2007	538,000	35,232	0.78	1.95	0.03	19.27
CY2008	546,000	35,632	0.71	1.87	0.03	17.33
CY2009	554,000	36,045	0.65	1.78	0.03	15.65
CY2010	563,000	36,475	0.59	1.68	0.03	14.04
CY2011	573,000	36,951	0.53	1.57	0.03	12.39
CY2012	583,000	37,440	0.48	1.47	0.03	10.92
CY2013	593,000	37,940	0.42	1.36	0.03	9.41
CY2014	604,000	38,449	0.37	1.25	0.03	8.04
CY2015	615,000	38,965	0.32	1.15	0.03	6.89

Total - Difference						
	VMT	Pop	ROG	NOx	PM10	CO
CY 2007	14,000	918	0.02	0.06	0.00	0.51
CY2008	28,000	1,876	0.04	0.10	0.00	0.93
CY2009	44,000	2,882	0.05	0.15	0.00	1.26
CY2010	61,000	3,942	0.07	0.18	0.00	1.53
CY2011	78,000	5,052	0.07	0.22	0.00	1.70
CY2012	96,000	6,210	0.08	0.25	0.00	1.81
CY2013	116,000	7,420	0.08	0.27	0.01	1.85

CY2014	137,000	8,685	0.08	0.29	0.01	1.82
CY2015	157,000	10,008	0.08	0.31	0.01	1.78

Motorcycle						
Total - Growth						
	VMT	**Pop**	**ROG**	**NOx**	**PM10**	**CO**
CY 2006	342,000	38,680	2.17	0.55	0.02	20.14
CY 2007	352,000	39,251	2.14	0.57	0.03	20.42
CY2008	361,000	39,854	2.06	0.57	0.02	19.23
CY2009	369,000	40,483	1.99	0.56	0.02	18.12
CY2010	376,000	41,132	1.93	0.56	0.02	17.19
CY2011	383,000	41,807	1.88	0.56	0.02	16.31
CY2012	389,000	42,499	1.85	0.56	0.02	15.62
CY2013	395,000	43,204	1.83	0.56	0.02	15.05
CY2014	401,000	43,920	1.81	0.57	0.02	14.58
CY2015	408,000	44,655	1.80	0.57	0.02	14.21
Total - No Growth						
	VMT	**Pop**	**ROG**	**NOx**	**PM10**	**CO**
CY 2006	342,000	38,680	2.17	0.55	0.02	20.14
CY 2007	343,000	38,255	2.08	0.55	0.02	19.89
CY2008	343,000	37,861	1.95	0.54	0.02	18.27
CY2009	342,000	37,486	1.84	0.52	0.02	16.79
CY2010	339,000	37,121	1.74	0.51	0.02	15.52
CY2011	337,000	36,780	1.66	0.49	0.02	14.37
CY2012	333,000	36,453	1.59	0.48	0.02	13.42
CY2013	330,000	36,136	1.53	0.47	0.02	12.61
CY2014	327,000	35,827	1.48	0.46	0.02	11.91
CY2015	324,000	35,529	1.43	0.45	0.02	11.32
Total - Difference						
	VMT	**Pop**	**ROG**	**NOx**	**PM10**	**CO**
CY 2007	9,000	996	0.06	0.02	0.01	0.53
CY2008	18,000	1,993	0.11	0.03	0.00	0.96
CY2009	27,000	2,997	0.15	0.04	0.00	1.33
CY2010	37,000	4,011	0.19	0.05	0.00	1.67
CY2011	46,000	5,027	0.22	0.07	0.00	1.94
CY2012	56,000	6,046	0.26	0.08	0.00	2.20
CY2013	65,000	7,068	0.30	0.09	0.00	2.44
CY2014	74,000	8,093	0.33	0.11	0.00	2.67
CY2015	84,000	9,126	0.37	0.12	0.00	2.89

San Joaquin Valley - Total						
Total - Growth						
	VMT	**Pop**	**ROG**	**NOx**	**PM10**	**CO**
CY 2006	96,748,000	2,385,690	78.53	186.52	6.33	813.73
CY 2007	99,384,000	2,447,850	73.37	176.07	6.25	758.21
CY2008	102,094,000	2,511,290	68.48	166.08	6.27	704.76
CY2009	104,878,000	2,576,430	63.91	156.53	6.30	654.24
CY2010	107,741,000	2,643,520	59.57	145.29	6.30	606.01
CY2011	110,590,000	2,711,800	55.70	134.46	6.30	561.51
CY2012	113,456,000	2,781,370	52.19	124.18	6.32	520.59
CY2013	116,360,000	2,852,260	48.93	114.56	6.34	482.43
CY2014	119,300,000	2,924,540	45.95	105.61	6.38	447.77
CY2015	122,271,000	2,998,430	43.32	97.54	6.43	415.80
Total - No Growth						
	VMT	**Pop***	**ROG**	**NOx**	**PM10**	**CO**
CY 2006	96,748,000	2,385,690	78.53	186.52	6.33	813.73
CY 2007	96,860,000	2,385,690	69.25	167.42	6.09	710.08
CY2008	96,988,000	2,385,690	63.03	153.93	5.95	643.40
CY2009	97,114,000	2,385,690	57.40	141.45	5.83	582.49
CY2010	97,233,000	2,385,690	52.20	127.97	5.68	526.32
CY2011	97,291,000	2,385,690	47.65	115.47	5.54	476.01
CY2012	97,315,000	2,385,690	43.59	103.99	5.42	430.85
CY2013	97,326,000	2,385,690	39.89	93.55	5.30	389.92
CY2014	97,319,000	2,385,690	36.58	84.13	5.20	353.53
CY2015	97,284,000	2,385,690	33.68	75.81	5.12	320.71
Total - Difference						
	VMT	**Pop**	**ROG**	**NOx**	**PM10**	**CO**
CY 2007	2,524,000	62,160	4.12	8.65	0.16	48.13
CY2008	5,106,000	125,600	5.45	12.15	0.32	61.36
CY2009	7,764,000	190,740	6.51	15.08	0.47	71.75
CY2010	10,508,000	257,830	7.37	17.32	0.62	79.69
CY2011	13,299,000	326,110	8.05	18.99	0.76	85.50
CY2012	16,141,000	395,680	8.60	20.19	0.90	89.74
CY2013	19,034,000	466,570	9.04	21.01	1.04	92.51
CY2014	21,981,000	538,850	9.37	21.48	1.18	94.24
CY2015	24,987,000	612,740	9.64	21.73	1.31	95.09

* Note: The EMFAC model slightly redistributed vehicle populations within vehicle classes; however, the total vehicle population are all CY2006 numbers. See below:

CY2007 with CY2006 Veh Pop: 2,385,695 Compared to: 2,385,690
% Difference: 0.00021%

Attachment 2
NOx Emissions and Emissions Reductions

Emission Inventory Category	NOx Emissions (tons per day) 2006	2007	2008	2009	2010	2011	2012	2013	2014
Total Growth in Motor Vehicle Emissions[A]	0.0	8.3	11.6	14.3	16.4	17.9	19.0	19.8	20.2
Total Annual Growth in Motor Vehicles Emissions[A]	0.0	8.3	3.2	2.7	2.1	1.5	1.1	0.7	0.5
Rule Penetration (tpd)[B]	0.0	7.1	2.7	2.3	1.8	1.3	1.0	0.6	0.4
On-Site Reductions									
Estimated Sources to perform on-site reductions[C]	40%	45%	50%	55%	60%	65%	70%	70%	70%
Average Mitigation achieved on-site (%)[C]	7%	9%	11%	13%	14%	15%	15%	15%	15%
Reductions from 2006 Development	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Reductions from 2007 Development		0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2
Reductions from 2008 Development			0.2	0.1	0.1	0.1	0.1	0.1	0.1
Reductions from 2009 Development				0.2	0.2	0.1	0.1	0.1	0.1
Reductions from 2010 Development					0.1	0.1	0.1	0.1	0.1
Reductions from 2011 Development						0.1	0.1	0.1	0.1
Reductions from 2012 Development							0.1	0.1	0.1
Reductions from 2013 Development								0.1	0.1
Reductions from 2014 Development									0.0
Total On-site Reductions[D]	**0.0**	**0.3**	**0.4**	**0.6**	**0.7**	**0.8**	**0.8**	**0.8**	**0.8**
Off-site Reductions									
Remaining Subject Emissions[E]	0.0	6.8	2.6	2.2	1.6	1.2	0.9	0.5	0.4
Reductions from 2006 Development	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Reductions from 2007 Development		2.4	2.4	2.4	2.4	2.4	2.4	2.4	
Reductions from 2008 Development			0.9	0.9	0.9	0.9	0.9	0.9	0.9
Reductions from 2009 Development				0.8	0.8	0.8	0.8	0.8	0.8
Reductions from 2010 Development					0.6	0.6	0.6	0.6	0.6
Reductions from 2011 Development						0.4	0.4	0.4	0.4
Reductions from 2012 Development							0.3	0.3	0.3
Reductions from 2013 Development								0.2	0.2
Reductions from 2014 Development									0.1
Total Off-site Reductions[F]	**0.0**	**2.4**	**3.4**	**4.1**	**4.7**	**5.1**	**5.4**	**5.6**	**3.3**
Total Reductions	**0.0**	**2.7**	**3.8**	**4.7**	**5.4**	**5.9**	**6.3**	**6.5**	**4.2**

A. ARB performed an EMFAC2002 model run that estimated the growth between 2006 and 2015 (Attachment 1). Since this analysis needs growth per year, the current year's missions are subtracted by the previous year's emissions to obtain the annual growth.

Medium-Heavy and Heavy-Heavy Duty emissions have been reduced by 12% to account for through-valley traffic

B. Rule penetration is estimated to be 85% based on District experience with CEQA projects.

C. Staff estimate

D. Determined by multiplying rule penetration of operational emissions, estimated sources to perform on-site reductions, average mitigation achieved on-site, and adding the reductions for each year

E. Determined by subtracting a particular years on-site reduction from the Rule Penetration of Operational Emissions for that year.

F. Determined by multiplying Remaining Subject Emissions with 250%, and dividing by 7 to account for the average project life of the estimated emission reduction projects.

G. The rule requires mitigation of 250% of the first years emissions. That total was then divided by 7 to account for the average project life of the estimated emission reduction projects.

On-Site reductions are reduced over time to account for the reduction in mobile emissions

Attachment 3
PM10 Emissions and Emissions Reductions

EMISSIONS INVENTORY CATEGORY	ANNUAL GROWTH IN PM10 EMISSIONS (tons per day)[A] 2006	2007	2008	2009	2010	2011	2012	2013	2014
Operational PM10 Emissions									
Re-entrained Paved Road Dust[B]:									
Freeway	0.4	0.4	0.4	0.3	0.3	*0.3*	*0.3*	*0.3*	*0.3*
Collector Streets	0.1	0.1	0.1	0.1	0.1	*0.1*	*0.1*	*0.1*	*0.1*
Major Streets	0.4	0.4	0.4	0.4	0.4	*0.5*	*0.5*	*0.5*	*0.5*
Local Streets	0.2	0.2	0.1	0.2	0.2	*0.2*	*0.2*	*0.2*	*0.2*
Rural Streets	0.4	0.4	0.4	0.4	0.4	*0.5*	*0.5*	*0.5*	*0.5*
On-road vehicles[C]	0.0	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1
Total Annual Growth in Operational PM10 Emissions	**1.1**	**1.2**	**1.1**	**1.3**	**1.3**	**1.5**	**1.5**	**1.5**	**1.5**
Cumulative Growth in Operational PM10 Emissions[D]	1.1	2.3	3.4	4.7	6.0	7.5	9.1	10.6	12.2
Rule Penetration of Operational Emissions (tpd)[E]	0.9	1.0	1.0	1.1	1.1	1.3	1.3	1.3	1.3
On-site Reductions									
Estimated Sources to perform on-site reductions[F]	40%	45%	50%	55%	60%	65%	70%	70%	70%
Average Mitigation achieved on-site (%)[F]	7%	9%	11%	13%	14%	15%	15%	15%	15%
Reductions from 2006 Development	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Reductions from 2007 Development		0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Reductions from 2008 Development			0.05	0.05	0.05	0.05	0.05	0.05	0.05
Reductions from 2009 Development				0.08	0.08	0.08	0.08	0.08	0.08
Reductions from 2010 Development					0.09	0.09	0.09	0.09	0.09
Reductions from 2011 Development						0.13	0.13	0.13	0.13
Reductions from 2012 Development							0.14	0.14	0.14
Reductions from 2013 Development								0.14	0.14
Reductions from 2014 Development									0.14
Total On-site Reductions (tpd)[G]	**0.0**	**0.1**	**0.1**	**0.2**	**0.3**	**0.4**	**0.6**	**0.7**	**0.8**
Off-site Reductions									
Remaining Subject Emissions[H]	0.9	1.0	0.9	1.0	1.0	1.2	1.2	1.2	1.2
Reductions from 2006 Development	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Reductions from 2007 Development		0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Reductions from 2008 Development			0.4	0.4	0.4	0.4	0.4	0.4	0.4
Reductions from 2009 Development				0.4	0.4	0.4	0.4	0.4	0.4
Reductions from 2010 Development					0.4	0.4	0.4	0.4	0.4
Reductions from 2011 Development						0.5	0.5	0.5	0.5
Reductions from 2012 Development							0.5	0.5	0.5
Reductions from 2013 Development								0.5	0.5
Reductions from 2014 Development									0.5
Total Off-site Reductions[I]	**0.4**	**0.8**	**1.2**	**1.6**	**2.0**	**2.5**	**3.0**	**3.5**	**4.0**
Total Operational PM10 Reductions[J]	**0.4**	**0.9**	**1.3**	**1.8**	**2.3**	**2.9**	**3.5**	**4.2**	**4.8**

A-P

See footnotes on following pages.

EMISSIONS INVENTORY CATEGORY	ANNUAL EMISSIONS (tons per day)[K] 2006	2007	2008	2009	2010	2011	2012	2013	2014
Construction Equipment Emissions									
Total Construction Equipment NOx Emissions[L]	26.9	25.5	24.1	22.7	21.3	20.1	18.9	17.6	16.4
Construction Equipment PM10 Equivalent[M]	17.9	17.0	16.1	15.1	14.2	13.4	12.6	11.7	10.9
Rule Penetration of Construction Equipment Emissions (tpd)[E]	15.2	14.4	13.7	12.9	12.1	11.4	10.7	10.0	9.3
On-site Reductions									
Estimated Sources to perform fleet reductions (%)[F]	10%	20%	30%	40%	50%	50%	50%	50%	50%
Average Fleet Reductions (%)[N]	20%	20%	20%	20%	20%	20%	20%	20%	20%
Construction Fleet Reductions[G]	**0.3**	**0.6**	**0.8**	**1.0**	**1.2**	**1.1**	**1.1**	**1.0**	**0.9**
Off-site Reductions									
Remaining Emissions (tpd)[4]	14.9	13.9	12.8	11.8	10.9	10.3	9.6	9.0	8.4
Reductions from 2006 Development	0.4	0.4	0.4	0.4	0.4	0.4	0.4		
Reductions from 2007 Development		0.4	0.4	0.4	0.4	0.4	0.4	0.4	
Reductions from 2008 Development			0.4	0.4	0.4	0.4	0.4	0.4	0.4
Reductions from 2009 Development				0.3	0.3	0.3	0.3	0.3	0.3
Reductions from 2010 Development					0.3	0.3	0.3	0.3	0.3
Reductions from 2011 Development						0.3	0.3	0.3	0.3
Reductions from 2012 Development							0.3	0.3	0.3
Reductions from 2013 Development								0.3	0.3
Reductions from 2014 Development									0.2
Total Off-site Reductions[O]	**0.4**	**0.8**	**1.2**	**1.5**	**1.8**	**2.1**	**2.4**	**2.2**	**2.1**
Construction Equipment Reductions[J]	**0.7**	**1.4**	**2.0**	**2.5**	**3.0**	**3.2**	**3.4**	**3.2**	**3.0**

A. Annual Growth in emisions were determined by subtracting one years emissions from the previous year's emissions.
Emissions' growth in 2011-2014 were determined by taking the difference between 2015 and 2010 and dividing that by 5 years.

B. The growth in these emissions were taken directly from the emissions inventory, and were reported by road type. Control for Regulation VIII is accounted for.

C. These totals were obtained from ARB. Current year's emissions are subtracted by the previous year's emissions to obtain the annual growth.

D. Cumulative growth was determined by creating a running total of emissions from each year

E. Rule penetration is estimated to be 85% based on District experience with CEQA projects.

F. District staff estimate

G. Determined by multiplying rule penetration of operational emissions, estimated sources to perform on-site reductions, average mitigation achieved on-site, and adding the reductions for each year.

H. Determined by subtracting a particular years on-site reduction from the Rule Penetration of Operational Emissions for that year.

I. Equals 5 x Remaining Subject Emissions That total was then divided by 12 to account for the average project life of the estimated emission reduction projects.

J. Determined by adding On-site Reductions and Off-site Reductions

K. Total emissions were used for each year, since all construction activity each year is for new development

L. These emissions were taken from ARB and interpolated based on 2005, 2010, and 2015.

M. Modeling in the 2003 PM10 indicated that 1.5 tons of NOx are equivalent to 1.0 tons of PM10.

N. This is a rule requirement

O. Determined by multiplying Remaining Subject Emissions with 20%, and dividing by 7 to account for the average project life of the estimated emission reduction projects.

P. Determined by multiplying Remaining Subject Emissions with 45%, and dividing by 12 to account for the average project life of the estimated emission reduction projects.

ANNUAL PM10 EMISSIONS (tons per day)[K]

EMISSIONS INVENTORY CATEGORY	2006	2007	2008	2009	2010	2011	2012	2013	2014
Construction PM10 Exhaust Emissions									
PM10 Exhaust from Construction Equipment[L]	1.7	1.6	1.5	1.4	1.4	1.3	1.2	1.2	1.1
Rule Penetration of Construction PM10 & PM10 Equiv. Emissions (tpd)[E]	1.4	1.4	1.3	1.2	1.2	1.1	1.0	1.0	0.9
On-site Reductions									
Estimated Sources to perform on-site reductions (%)[F]	10%	20%	30%	40%	50%	50%	50%	50%	50%
Average Mitigation achieved on-site (%)[N]	45%	45%	45%	45%	45%	45%	45%	45%	45%
Onsite Reductions (tpd)[G]	**0.1**	**0.1**	**0.2**	**0.2**	**0.3**	**0.2**	**0.2**	**0.2**	**0.2**
Off-site Reductions									
Remaining Emissions (tpd)[H]	1.4	1.2	1.1	1.0	0.9	0.8	0.8	0.8	0.7
Reductions from 2006 Development	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Reductions from 2007 Development		0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Reductions from 2008 Development			0.04	0.04	0.04	0.04	0.04	0.04	0.04
Reductions from 2009 Development				0.04	0.04	0.04	0.04	0.04	0.04
Reductions from 2010 Development					0.03	0.03	0.03	0.03	0.03
Reductions from 2011 Development						0.03	0.03	0.03	0.03
Reductions from 2012 Development							0.03	0.03	0.03
Reductions from 2013 Development								0.03	0.03
Reductions from 2014 Development									0.03
Reductions from 2015 Development									
Total Off-site Reductions[P]	**0.1**	**0.1**	**0.1**	**0.2**	**0.2**	**0.2**	**0.3**	**0.3**	**0.3**
Total Construction PM10 Reductions (tpd)[J]	**0.1**	**0.2**	**0.3**	**0.4**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**
TOTAL ESTIMATED PM10 REDUCTIONS (tpd)	**1.2**	**2.4**	**3.6**	**4.7**	**5.8**	**6.6**	**7.5**	**7.9**	**8.3**

A. Annual Growth in emisions were determined by subtracting one years emissions from the previous year's emissions. Emissions' growth in 2011-2014 were determined by taking the difference between 2015 and 2010 and dividing that by 5 years.

B. The growth in these emissions were taken directly from the emissions inventory, and were reported by road type. Control for Regulation VIII is accounted for.

C. These totals were obtained from ARB. Current year's emissions are subtracted by the previous year's emissions to obtain the annual growth.

D. Cumulative growth was determined by creating a running total of emissions from each year

E. Rule penetration is estimated to be 85% based on District experience with CEQA projects.

F. District staff estimate

G. Determined by multiplying rule penetration of operational emissions, estimated sources to perform on-site reductions, average mitigation achieved on-site, and adding the reductions for each year.

H. Determined by subtracting a particular years on-site reduction from the Rule Penetration of Operational Emissions for that year.

I. Equals 5 x Remaining Subject Emissions That total was then divided by 12 to account for the average project life of the estimated emission reduction projects.

J. Determined by adding On-site Reductions and Off-site Reductions

K. Total emissions were used for each year, since all construction activity each year is for new development

L. These emissions were taken from ARB and interpolated based on 2005, 2010, and 2015.

M. Modeling in the 2003 PM10 indicated that 1.5 tons of NOx are equivalent to 1.0 tons of PM10.

N. This is a rule requirement

O. Determined by multiplying Remaining Subject Emissions with 20%, and dividing by 7 to account for the average project life of the estimated emission reduction projects.

P. Determined by multiplying Remaining Subject Emissions with 45%, and dividing by 12 to account for the average project life of the estimated emission reduction projects.

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APPENDIX C

On-Site Emission Reduction Checklist for Proposed Rule 9510 (Indirect Source Review) and Rule 3180 (Administrative Fees for Air Impact Assessment Applications) and On-Site Enhancing Measures List

November 17, 2005

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MIXED USE OR NON-RESIDENTIAL ON-SITE EMISSION REDUCTION LIST

No.	Measure – Objective
	LOCATION
Bicycle Infrastructure	
M-1	Project is located within 1/2 mile of existing or planned Class I or II bike lanes on arterial/collector streets, or where a suitable parallel route exists. *(URBEMIS Location: Operational Emissions: Mitigation Measures: Bicycle and Pedestrian Node)*
Mass Transit Infrastructure	
M-2	Project is located within 1/4-1/2 mile of a transit stop. *(URBEMIS Location: Operation Emissions: Mitigation Measures: Transit Service Node)*
	* Office floor area ratio is 0.75 greater within 1/4 mile of existing transit stop.
Mixed Use/Density	
M-3	Include high density residential, mixed, or retail/commercial uses on site or locate near (within a 1/2 mile of project center). *(URBEMIS Location: Operational Emissions: Mitigation Measures: Mix of Uses Node and/or Operational Emissions: Mitigation Measures: Local Serving Retail)*
	* Day care facilities
	* Restaurant or cafeteria
	* Bank or ATM
	* Dry cleaners
	* Post office / services
	* Entertainment (movie / video)
	* Recreation facility / fitness center
	* Public Park
	* Residential development / On-site employee living spaces
M-4	Average Residential density is 7 Dwelling Units (DU) per acre or greater. *(URBEMIS Location: Land Use Selection - Acreage)*
	▪ Project contains ancillary residential units - "Granny Flats"
M-5	Designate a portion of residential units as deed-restricted below-market-rate (BMR) housing. *(URBEMIS Location: Operational Emissions: Mitigation Measures: Affordable Housing Node)*
	▪ Include Affordable Housing/Senior Housing/ Assisted Living
	BICYCLE/PEDESTRIAN
Bicycle Storage	
M-6	Provide Class I and Class II bicycle parking facilities on-site. Bicycle parking facilities should be near destination points and easy to find. At least one bicycle parking space for every 20 vehicle parking spaces. *(URBEMIS Location: Operational Emissions: Mitigation Measures: Transportation Demand Management Node)*
	* One bicycle parking space for every 10 car parking spaces is considered appropriate.
	* Provide secure bicycle storage at public parking facilities.

⊗ These operational, program-oriented measures must be implemented for at least 10years from build-out to qualify as an emission reduction measure

No.	Measure - Objective
M-7	Provide shower and locker facilities to encourage employees to bike and/or walk to work, typically one shower and three lockers for every 25 employees. *(URBEMIS Location: Operational Emissions: Mitigation Measures: Transportation Demand Management Node)*
M-8	Provide Class I bicycle parking at apartment complexes or condos without garages. *(URBEMIS Location: Operational Emissions: Mitigation Measures: Transportation Demand Management Node)*

Pedestrian- Bicycle Oriented Infrastructure

M-9	Install Class I or II bike lanes on arterial/collector streets, or where a suitable route exists. *(URBEMIS Location: Operational Emissions: Mitigation Measures: Bicycle and Pedestrian Node)*
M-10	Install complete, separate, safe, and convenient pedestrian sidewalks/paths that connect multiple uses. This can be implemented through the following project designs: *(URBEMIS Location: Operational Emissions: Mitigation Measures: Bicycle and Pedestrian Node)*
	* Provide direct pedestrian connections
	* Provide paths and building access which are physically separated from street parking lot traffic and that eliminates physical \barriers such as walls, berms, landscaping and slopes that impede the use of pedestrians, bicycle facilities, or public transportation vehicles
	* Place store entrances close to adjacent sidewalks.
	* Provide pedestrian signalization and signage to improve pedestrian safety
	* Provide continuous sidewalks separated from the roadway by landscaping and on-street parking.
	* Provide clearly delineated crosswalks at intersections.
	* Provide on and off-site pedestrian facility improvements such as overpasses and wider sidewalks
	* Provide on and off-site pedestrian facility improvements such as trails linking them to designated pedestrian commuting routes and/or on-site overpasses and wider sidewalks.
	* Provide street lighting
	* Provide shaded pathways (e.g. provide street trees or building overhangs)
	* Link cul-de-sacs and dead-end streets to encourage pedestrian and bicycle travel
	* Provide traffic calming modifications to project roads, such as narrower streets, speed platforms, bulb-outs and intersection modifications designed to reduce vehicle speeds, to encourage pedestrian and bicycle travel.
	* Provide a parking lot design that-includes clearly marked and shaded pedestrian pathways between transit facilities and building entrances
	* Provide pedestrian access between bus service and major transportation points and destination points within the project.
	* Minimize building setback to adjacent existing or planned pedestrian infrastructure
	* Setback distance is minimized between development and transit, bicycle, or pedestrian corridor
	* Setback distance is minimized between development and neighboring properties

TRANSPORTATION DESIGN

Signage

M-11	Provide a display case or kiosk displaying transportation information in a prominent area accessible to employees, residents, or visitors. *(URBEMIS Location: Operational Emissions: Mitigation Measures: Transportation Demand Management Node)*
	* Display Bike Route Maps
	* Display Bus Schedules
	* Display other transportation information such as carpooling, carsharing, etc.

⊗ These operational, program-oriented measures must be implemented for at least 10years from build-out to qualify as an emission reduction measure

No.	Measure - Objective
Streets	
M-12	Project design uses models by the Local Government Commission (LGC) in the "Smart Growth Guidebook," such as: street block patterns that form an interconnected grid, short block faces, numerous alleys and narrow streets. *(URBEMIS Location: Operational Emissions: Mitigation Measures: Bicycle and Pedestrian Node)*
PARKING	
Strategies: Pricing and Preferential Parking	
M-13	Develop and implement parking pricing strategies, such as charging parking lot fees to low occupancy (single occupant vehicles) vehicles. *(URBEMIS Location: Operational Emissions: Mitigation Measures: Transportation Demand Management Node)*
M-14	Provide preferential parking spaces near the entrance of buildings for those who carpool/vanpool/rideshare and provide signage. *(URBEMIS Location: Operational Emissions: Mitigation Measures: Transportation Demand Management Node)*
Parking Amount	
M-15	Provide parking reduction. The following are guidelines: *(URBEMIS Location: Operational Emissions: Mitigation Measures: Parking Supply)*
	* Office 25%
	* Medical office 8%
	* Commercial 5%
	* Industrial 10%
	* Additional 10-20% if located along transit station
BUILDING/SITE DESIGN	
Energy Efficiency	
M-16	Increase the building energy efficiency rating above what is required by Title 24 requirements. This can be accomplished by any combination of measures. The following is an idea list of measures that may be implemented to achieve this measure (this list should not be considered comprehensive): *(URBEMIS Location: Area Emissions: Mitigation Measures Node)*
	General
	* Participate in and implement available PUC energy-efficient rebate programs including air conditioning, gas heating, refrigeration, and lighting programs.
	* Install efficient heating and other appliances, such as water heaters, cooking equipment, refrigerators, furnaces and boiler units beyond Title 24 requirements (see Title 24, Part 6, Energy Efficiency Standards for Residential and Nonresidential Buildings: http://www.energy.ca.gov/title24/standard)
	* Capture waste heat and re-employ it in nonresidential buildings.
	* Trees should be carefully selected and located to protect the building(s) from energy consuming environmental conditions and to shade paved areas
	* Improve the thermal integrity/efficiency of buildings, and reduce the thermal load with automated and timed temperature controls or occupant sensors.
	Roof
	* Install "Green Roof" System
	* Install EPA/DOE Energy Star labeled roof materials
	* Install roof photovoltaic energy systems as a standard feature (on new homes)

⊗ These operational, program-oriented measures must be implemented for at least 10years from build-out to qualify as an emission reduction measure

No.	Measure - Objective
M-16	*Solar Design*
Cont	* Design buildings with proper orientation, fenestration, and other design components that maximize the potential of passive cooling and heating, include shading master plan
	Components
	* Use devices that minimize the combustion of fossil fuels.
	* Install low nitrogen oxide (NOx) hot water heaters.
	* Install high efficiency Energy Star heating or ground source heat pumps
	* Install energy efficient interior lighting.
	* Install built-in energy efficient appliances.
	* Install door sweeps and weather stripping if more efficient doors and windows are not available.
	* Install energy-efficient and automated controls for air conditioning
	* Install of energy-efficient lighting (includes controls) and process systems such as water heaters, furnaces and boiler units.
	* Install electrical outlets on the exterior walls of both the front and back of residences or all commercial buildings to promote the use of electric landscape maintenance equipment.
	* Install electric vehicle recharging station with both conductive and inductive charging capabilities in residential garages / parking lots.
	* Install a gas outlet for use with outdoor cooking appliances, and in any proposed fireplaces, including outdoor recreational fireplaces or pits.
	* Use low energy street lights (i.e. sodium).
	* Use low energy traffic signals (i.e. light emitting diode).
	* Install Medium Efficiency Filters
	* Install High Efficiency Filters
	* Install HEPA (High Efficiency Particle Arrestance) Filters
	* Install "whole-house" or "fresh-air" ventilation system

Building Maintenance/Indoor Air Quality

M-17	Reduce VOC emissions from Architectural Coatings⊗ *(URBEMIS Location: Area Emissions: Architectural Coatings - Nonresidential)*
	* Use Low-VOC Coatings
	* Use surfaces that do not require coatings, such as stone or brick
	* Use No-VOC Coatings

Fuel Combustion

M-18	Provide Electrical outlets at front and rear of residences for the use of electrically powered landscape equipment (See Measure 47 below) *(URBEMIS Location: Area Emissions: Mitigation Measures Node)*
M-19	Provide electrical outlets at non-residential units for the use of electrically powered landscape equipment. In combination with Measure M-31 below. *(URBEMIS Location: Area Emissions: Mitigation Measures Node)*
M-20	Reduce Wood Fireplaces and/or Woodstove above that required by District Rule 4901. *(URBEMIS Location: Area Emissions: Hearth Fuel Combustion Node)*

OPERATIONAL MEASURES

Telecommunication

M-23	Implement an employee telecommuting policy *(URBEMIS Location: Operational Emissions: Mitigation Measures: Transportation Demand Management Node)*
	* Install videoconferencing system
	* Include teleconferencing capabilities, such as web cams or satellite linkage, which will allow employees to attend meetings remotely without requiring them to travel out of the area.

⊗ These operational, program-oriented measures must be implemented for at least 10years from build-out to qualify as an emission reduction measure

No.	Measure - Objective
M-23	* Offer low cost financing to employees for the purchase of telecommuting equipment, or lend company-owned equipment.
Cont	* Provide satellite work offices when appropriate. Applicable to office/industrial and educational institutions.

Alternative Transit

M-24	Provide guaranteed ride home⊗ *(URBEMIS Location: Operational Emissions: Mitigation Measures: Transportation Demand Management Node)*
M-25	Provide carpool matching assistance⊗ *(URBEMIS Location: Operational Emissions: Mitigation Measures: Transportation Demand Management Node)*
M-26	Provide Car-Sharing Services⊗ *(URBEMIS Location: Operational Emissions: Mitigation Measures: Transportation Demand Management Node)*
M-27	Employ or appoint an Employee Transportation Coordinator to work with the TMA and the District⊗ *(URBEMIS Location: Operational Emissions: Mitigation Measures: Transportation Demand Management Node)*
	* Implement a rideshare program
	* Provide incentives to employees to carpool/vanpool, take public transportation, telecommute, walk, bike, etc.
	* Participate in an employee "flash-pass" program, which provides free travel on transit buses.
	* Provide transit pass subsidy (100%) and/or commute alternative allowance
	* Participate in alternative transportation programs such as CalTrans rideshare where deemed appropriate by local transportation planning agencies and/or APCD
	* Provide transit-use incentives, as approved by applicable transportation planning agencies such as subsidized transit passes and accommodation of unusual work schedules to encourage transit use
	* Provide funds for on line computer rideshare matching.
	* Provide an employer subsidized shuttle service to connect to existing transit sites.
	* Provide an employer subsidized free or reduced transit fares for midday central business district trips.
	* Provide financial incentives to carpoolers for vehicle tune-up or maintenance
	* Implement a lunchtime shuttle to reduce single occupant vehicle trips.
	* Provide Flextime for non-SOV (single occupancy vehicle) commuters
	* Maintain a fleet of bicycles for employee and business use
M-28	Provide transit pass subsidy (100%) and/or commute alternative allowance⊗ *(URBEMIS Location: Operational Emissions: Mitigation Measures: Transportation Demand Management Node)*
M-29	Provide a display case or kiosk displaying transportation information in a prominent area accessible to employees or residents. *(URBEMIS Location: Operational Emissions: Mitigation Measures: Transportation Demand Management Node)*
	* Provide ridesharing information in a homeowner's association package.

Work Schedules

M-30	Implement alternative work schedules such as compressed workweek schedules where weekly work hours are compressed into fewer than five days.⊗ Examples of these options are: 9/80, 4/40, 3/36 *(URBEMIS Location: Operational Emissions: Mitigation Measures: Transportation Demand Management Node)*

Landscaping

M-31	Project provides and/or requires use of electric maintenance equipment; including, but not limited to electric lawn mowers, electric leaf blowers. In combination with measure M-19. *(URBEMIS Location: Area Emission: Mitigation Measures Node)*
	* Prohibit gas powered landscape maintenance equipment within developments.

⊗ These operational, program-oriented measures must be implemented for at least 10years from build-out to qualify as an emission reduction measure

No.	Measure - Objective
M-31 *Cont*	* Contract only with commercial landscapers who operate with equipment that complies with the most recent California Air Resources Board certification standards, or standards adopted no more than three years prior to date of use.
	* Provide battery powered or electric landscape maintenance equipment for new residences, commercial and industrial land uses.

Fleet / Engines

M-32	Implement clean air business practices such as using low-emission delivery vehicles, contract with alternative-fuel waste hauling companies, contracting with carrier, delivery, security, or other services utilizing electric, low-emission, alternative fuel, convert fleet to cleaner vehicles or utilizing heavy-duty vehicles that are CARB certified to optional low-emission standards for NOx.⊗ *(URBEMIS Location: Operational Emissions: Mitigation Measures: On-Road Trucks)*
	Medium Trucks - 5,751 to 8,500 lbs
	* ESW Particulate Reactor
	* PuriNOx Emulsified Diesel fuel
	* CCRT Particulate Filter
	* CRT Particulate Filter
	* Cleaire Longview (ultra low diesel)
	Light Heavy - 8,501 to 10,000 lbs
	* DCM DOC Muffler w/series 6000 or 6100 catalyst
	* ESW Particulate Reactor
	* PuriNOx Emulsified Diesel fuel
	* CCRT Particulate Filter
	* CRT Particulate Filter
	* Cleaire Longview (ultra low diesel)
	Light Heavy - 10,001 to 14,000 lbs
	* DCM DOC Muffler w/series 6000 or 6100 catalyst
	* ESW Particulate Reactor
	* PuriNOx Emulsified Diesel fuel
	* CCRT Particulate Filter
	* CRT Particulate Filter
	* Cleaire Longview (ultra low diesel)
	Medium Heavy - 14,001 to 33,000 lbs
	* AZ Purifier & AZ Purimuffler (Cummins & Navistart: 1991-03)
	* DCM DOC Muffler w/series 6000 or 6100 catalyst
	* ESW Particulate Reactor
	* PuriNOx Emulsified Diesel fuel
	* DPM DPF muffler with/Series 6300 catalyst formulation
	* CCRT Particulate Filter
	* CRT Particulate Filter
	* Lubrizol Engine Control Systems Purifilter
	* Cleaire Longview (ultra low diesel)

⊗ These operational, program-oriented measures must be implemented for at least 10years from build-out to qualify as an emission reduction measure

No.	Measure - Objective
M-32 Cont	*Heavy Heavy - 33,001 to 60,000 lbs*
	* DCM DOC Muffler w/series 6000 or 6100 catalyst
	* Cleaire Flash and Match oxidation catalyst
	* ESW Particulate Reactor
	* PuriNOx Emulsified Diesel Fuel
	* DPM DPF muffler w/series 6300 catalyst formulation
	* CCRT Particulate Filter
	* CRT Particulate Filter
	* Lubrizol Engine Control Systems Purifilter
	* Cleaire Flash Match system (Cummins M11 engines only)
	* Cleaire Longview (ultra low diesel)
	Line Haul Vehicles >60,000 lbs
	* DCM DOC Muffler w/series 6000 or 6100 catalyst
	* Cleaire Flash and Match oxidation catalyst
	* ESW Particulate Reactor
	* PuriNOx Emulsified Diesel Fuel
	* DPM DPF muffler w/series 6300 catalyst formulation
	* CCRT Particulate Filter
	* CRT Particulate Filter
	* Lubrizol Engine Control Systems Purifilter
	* Cleaire Flash Match system (Cummins M11 engines only)
	* Cleaire Longview (ultra low diesel)
	Urban Bus
	* ESW Particulate Reactor
	* PuriNOx Emulsified Diesel Fuel
	* CCRT Particulate Filter
	* CRT Particulate Filter
	* Cleaire Longview (ultra low diesel)
	School Bus
	* ESW Particulate Reactor
	* PuriNOx Emulsified Diesel Fuel
	* CCRT Particulate Filter
	* CRT Particulate Filter
	* Cleaire Longview (ultra low diesel)
	General
	* Utilize electric fleet vehicles
	* Utilize Ultra Low-Emission fleet vehicles
	* Utilize methanol fleet vehicles
	* Utilize liquid propane gas fleet vehicles

⊗ These operational, program-oriented measures must be implemented for at least 10years from build-out to qualify as an emission reduction measure

No.	Measure - Objective
M-32	* Utilize compressed natural gas fleet vehicles
Cont	* Replace diesel fleet with alternative fuel engine technology and infrastructure
	* Retrofit existing equipment to reduce emissions using methods such as particulate filters, oxidation catalysts, or other approved technologies.
	* Fleet vehicles that use clean-burning fuels as may be practicable
	* Adopt a Vehicle Idling Policy requiring all vehicles under company control to adhere to a 5 minute idling policy.
	* Conversion to cleaner engines
	* Use of cleaner (reduced sulfur) fuel
	* Regular maintenance – keep equipment well tuned
	* Add-on control devices, e.g., particulate traps, catalytic oxidizers
	* Repower/Retrofit heavy-duty diesel fleet with cleaner diesel engine technology and/or diesel particulate filter after-treatment technology
	* Replace diesel fleet with alternative fuel engine technology and infrastructure
	* Replace auxiliary power units with cleaner engine technology, alternative fuels, or require electric connection while at loading dock
	* Replace diesel fleet vehicles with cleaner fueled low emission vehicles (i.e. school buses, buses, on- and off- road heavy duty vehicles, lighter duty trucks and passenger vehicles)

⊗ These operational, program-oriented measures must be implemented for at least 10years from build-out to qualify as an emission reduction measure

RESIDENTIAL ON-SITE EMISSION REDUCTION LIST

No.	Measure - Objective
	LOCATION
	Bicycle Infrastructure
R-1	Project is located within 1/2 mile of existing or planned Class I or II bike lanes on arterial/collector streets, or where a suitable parallel route exists. *(URBEMIS Location: Operational Emissions: Mitigation Measures: Bicycle and Pedestrian Node)*
	Mass Transit Infrastructure
R-2	Project is located within 1/4-1/2 mile of a transit stop. *(URBEMIS Location: Operation Emissions: Mitigation Measures: Transit Service Node)*
	Mixed Use/Density
R-3	Include high density residential, mixed, or retail/commercial uses on site or locate near (within a 1/2 mile of project center) these uses to minimize the need for trips. *(URBEMIS Location: Operational Emissions: Mitigation Measures: Mix of Uses Node and/or Operational Emissions: Mitigation Measures: Local Serving Retail)*
	* Day care facilities
	* Restaurant or cafeteria
	* Bank or ATM
	* Dry cleaners
	* Post office/services
	* Entertainment (movie/video)
	* Recreation facility/fitness center
	* Public Park
	* Residential development/On-site employee living spaces
R-4	Average Residential density is 7 Dwelling Units (DU) per acre or greater. *(URBEMIS Location: Land Use Selection- Acreage)*
	* Project contains ancillary residential units - "Granny Flats"
R-5	Designate a portion of residential units as deed-restricted below-market-rate (BMR) housing. *(URBEMIS Location: Operational Emissions: Mitigation Measures: Affordable Housing Node)*
	* Include Affordable Housing/Senior Housing/ Assisted Living
	BICYCLE/PEDESTRIAN
	Bicycle Storage
R-6	Provide Class I bicycle parking at apartment complexes or condos without garages *(URBEMIS Location: Operational Emissions: Mitigation Measure: Transportation Demand Management Node)*
	Pedestrian- Bicycle Oriented Infrastructure
R-7	Install Class I or II bike lanes on arterial/collector streets, or where a suitable route exists. *(URBEMIS Location: Operational Emissions: Mitigation Measures: Bicycle and Pedestrian Node)*
R-8	Install complete, separate, safe, and convenient pedestrian sidewalks/paths that connect multiple uses. This can be implemented through the following project designs: *(URBEMIS Location: Operational Emissions: Mitigation Measures: Bicycle and Pedestrian Node)*
	* Provide direct pedestrian connections

⊗ These operational, program-oriented measures must be implemented for at least 10years from build-out to qualify as an emission reduction measure

No.	Measure - Objective
R-18	* Provide paths and building access which are physically separated from street parking lot traffic and that eliminates physical \barriers such as walls, berms, landscaping and slopes that impede the use of pedestrians, bicycle facilities, or public transportation vehicles.
Cont	* Place store entrances close to adjacent sidewalks.
	* Provide pedestrian signalization and signage to improve pedestrian safety
	* Provide continuous sidewalks separated from the roadway by landscaping and on-street parking.
	* Provide clearly delineated crosswalks at intersections.
	* Provide on and off-site pedestrian facility improvements such as overpasses and wider sidewalks
	* Provide on and off-site pedestrian facility improvements such as trails linking them to designated pedestrian commuting routes and/or on-site overpasses and wider sidewalks.
	* Provide street lighting
	* Provide shaded pathways (e.g. provide street trees or building overhangs)
	* Link cul-de-sacs and dead-end streets to encourage pedestrian and bicycle travel
	* Provide traffic calming modifications to project roads, such as narrower streets, speed platforms, bulb-outs and intersection modifications designed to reduce vehicle speeds, to encourage pedestrian and bicycle travel.
	* Provide pedestrian access between bus service and major transportation points and destination points within the project.

Transportation Design

Signage

R-9	Provide a display case or kiosk displaying transportation information in a prominent area accessible to residents, or visitors. *(URBEMIS Location: Operational Emissions: Mitigation Measures: Transportation Demand Management Node)*
	* Display Bike Route Maps
	* Display Bus Schedules
	* Display other transportation information such as carpooling, carsharing, etc.

Streets

R-10	Project design uses models by the Local Government Commission (LGC) in the "Smart Growth Guidebook," such as: street block patterns that form an interconnected grid, short block faces, numerous alleys and narrow streets. *(URBEMIS Location: Operational Emissions: Mitigation Measures: Bicycle and Pedestrian Node)*

Building/Site Design

Energy Efficiency

R-12	Increase the building energy efficiency rating above what is required by Title 24 requirements. This can be accomplished by any combination of measures. The following is an idea list of measures that may be implemented to achieve this measure (this list should not be considered comprehensive): *(URBEMIS Location: Area Emissions: Mitigation Measures Node)* *General*
	* Participate in and implement available PUC energy-efficient rebate programs including air conditioning, gas heating, refrigeration, and lighting programs.

⊗ These operational, program-oriented measures must be implemented for at least 10years from build-out to qualify as an emission reduction measure

No.	Measure - Objective
R-12	* Install efficient heating and other appliances, such as water heaters, cooking equipment, refrigerators, furnaces and boiler units beyond Title 24 requirements (see Title 24, Part 6, Energy Efficiency Standards for Residential and Nonresidential Building
Cont	* Trees should be carefully selected and located to protect the building(s) from energy consuming environmental conditions and to shade paved areas
	* Improve the thermal integrity/efficiency of buildings, and reduce the thermal load with automated and timed temperature controls or occupant sensors.
	Roof
	* Install "Green Roof" Technology
	* Install EPA/DOE Energy Star labeled roof materials
	* Install roof photovoltaic energy systems as a standard feature (on new homes)
	Solar Design
	* Design buildings with proper orientation, fenestration, and other design components that maximize the potential of passive cooling and heating, include shading master plan
	Components
	* Use devices that minimize the combustion of fossil fuels.
	* Install low nitrogen oxide (NOx) hot water heaters.
	* Install high efficiency Energy Star heating or ground source heat pumps
	* Install energy efficient interior lighting.
	* Install built-in energy efficient appliances.
	* Install door sweeps and weather stripping if more efficient doors and windows are not available.
	* Install energy-efficient and automated controls for air conditioning
	* Install of energy-efficient lighting (includes controls) and process systems such as water heaters, furnaces and boiler units.
	* Install electrical outlets on the exterior walls of both the front and back of residences to promote the use of electric landscape maintenance equipment.
	* Install electric vehicle recharging station with both conductive and inductive charging capabilities in residential garages / parking lots.
	* Install a gas outlet for use with outdoor cooking appliances, and in any proposed fireplaces, including outdoor recreational fireplaces or pits.
	* Use low energy street lights (i.e. sodium).
	* Use low energy traffic signals (i.e. light emitting diode).
	* Install Medium Efficiency Filters
	* Install High Efficiency Filters
	* Install HEPA (High Efficiency Particle Arrestance) Filters
	* Install "whole-house" or "fresh-air" ventilation system

Fuel Combustion

R-13	Provide Electrical outlets at front and rear of residences for the use of electrically powered landscape equipment (See Measure R-18 below). *(URBEMIS Location: Area Emissions: Mitigation Measures Node)*
R-14	Reduce Wood Fireplaces and/or Woodstove above that required by District Rule 4901. *(URBEMIS Location: Area Emissions: Hearth Fuel Combustion Node)*

⊗ These operational, program-oriented measures must be implemented for at least 10years from build-out to qualify as an emission reduction measure

No.	Measure - Objective
	OPERATIONAL MEASURES
Alternative Transit	
R-15	Provide Car-Sharing Services⊗ *(URBEMIS Location: Operational Emissions: Mitigation Measures: Transportation Demand Management Node)*
R-16	Transit pass subsidy (100%) and/or commute alternative allowance⊗ *(URBEMIS Location: Operational Emissions: Mitigation Measures: Transportation Demand Management Node)*
R-17	Provide a display case or kiosk displaying transportation information in a prominent area accessible to residents. *(URBEMIS Location: Operational Emissions: Mitigation Measure: Transportation Demand Management Node)* * Provide ridesharing information in a homeowner's association package. * Provide an opportunity to receive either a complimentary bicycle or electric bicycle retrofit kit to each residential buyer * Provide electric shuttle or minibus service to transit stops * Provide free transfers between all shuttles and transit. * Operation of a shuttle bus to shopping, health care, public services sites and other nearby trip attractors to reduce automobile use.
Landscaping	
R-18	Project provides and/or requires use of electric maintenance equipment; including, but not limited to electric lawn mowers, electric leaf blowers, etc (In combination with measure R-13 above).⊗ *(URBEMIS Location: Area Emissions: Mitigation Measures Node)* * Prohibit gas powered landscape maintenance equipment within developments. * Contract only with commercial landscapers who operate with equipment that complies with the most recent California Air Resources Board certification standards, or standards adopted no more than three years prior to date of use. * Provide battery powered or electric landscape maintenance equipment for new residences.

⊗ These operational, program-oriented measures must be implemented for at least 10years from build-out to qualify as an emission reduction measure

ON-SITE ENHANCING MEASURES

No.	Measure - Objective
	LOCATION
Mass Transit Infrastructure	
A	* Project is located within one mile of a park and ride lot operated by a transportation agency.
	TRANSPORTATION DESIGN
Transit Support	
B	Include transit support features in the project where deemed appropriate by the local agency with jurisdiction over the project as demand and service routes warrant subject to review and approval by local transportation planning agencies, including (but not limited to):
	* On-site/off-site turnouts
	* Route signs and displays
	* Bus turnouts/bulbs
	* Street lighting
	* Passenger benches
	* Shelters at transit access points
C	Develop park-and-ride lots
Streets	
D	Make street design/speeds consistent with requirements for neighborhood electric vehicles
	PARKING
Parking Amount	
E	Use of any excess parking over zone code requirements as on-site parking-n-ride lots.
Parking Construction	
F	Provide a parking lot design that includes clearly marked and shaded pedestrian pathways between transit facilities and building entrances
G	Loading and unloading facilities for transit and carpool/vanpool users. (Provide Signage)
H	Provide grass paving or reflective surface paving for unshaded parking lot areas, driveways, or fire lanes that reduce standard paving by 10% or more.
	* Portland concrete is the preferred paving material
	* Other reflective surfaces to be determined in consultation with SJVAPCD.
	* "Chip Seal" methodology
	* Green Pavement http://www.invisiblestructures.com/GP2/grasspave.htm
I	Structural soil should be used under paved areas to improve tree growth.
J	Provide electric vehicle charging facilities with preferential parking

ON-SITE ENHANCING MEASURES

No.	Measure - Objective
	BUILDING/SITE DESIGN
Telecommuting Infrastructure	
K	Provide necessary infrastructure for telecommuting
	* Provide fiber optic wiring and connections
	* Provide T1 wiring and connections
	* Install a teleconferencing facility
	* Install a on-site telecommunications center
	* Build new homes with internal wiring/cabling that allows telecommuting, teleconferencing, and telelearning
Landscaping	
L	Plant trees sufficient to shade 1/2 the paved area within 15 years after development is constructed.
M	Landscape with low-emission native drought-resistant species (plants, trees and bushes) to reduce the demand for gas powered landscape maintenance equipment. Contact the District for a list of low-emission trees and shrubs.
	OPERATIONAL MEASURES
Telecommunication	
N	Provide free-access telework terminals in multi-family projects
O	Provide a community videoconferencing system coordinated with TMA.
P	Design and implement "Shop by Telephone" or "Shop-by-Computer" services. Applicable to shopping centers and retail facilities.
Goods Movement	
Q	Establish delivery services. Applicable to retail facilities (frequent use), shopping centers, and restaurants.
R	If the development is a grocery store or large retail facility, provide home delivery service for customers.
S	Schedule goods movement for off-peak traffic hours.

APPENDIX D

Recommended Changes to URBEMIS for Proposed Rule 9510 (Indirect Source Review) and Rule 3180 (Administrative Fees for Air Impact Assessment Applications)

Area and On-road: Jones & Stokes Memo
Operational: Nelson/Nygaard Memo

November 17, 2005

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Jones & Stokes

Revised Memorandum

Date: October 20, 2004

To: Jennifer Barba, San Joaquin Valley Unified Air Pollution Control District

From: Tim Rimpo

Subject: **Recommendations for URBEMIS2002 On-Road and Area Source Mitigation Measures**

Introduction

This memorandum describes Jones & Stokes' proposed approach for updating URBEMIS2002's on-road and area source emission calculations and mitigation measures. The information included in the memo combines and modifies information in two previous memos based on comments received from the District and the URBEMIS Working Group during several conference calls held during the summer of 2004.

ON-ROAD MITIGATION MEASURES

The current version of URBEMIS2002 (version 7.5.0) includes operational mitigation measures that focus on travel behavior. They include measures designed to encourage individuals to walk, bike, or use transit in lieu of driving. A separate memo prepared by Nelson\Nygaard Consulting Associates (September 9, 2004) describes proposed changes to URBEMIS2002's operational mitigation measures.

In its current format, URBEMIS does not allow the user to enter mitigation measures to reduce on-road emissions associated with medium- and heavy-duty vehicles. This memorandum describes Jones & Stokes' proposed approach for incorporating operational on-road mitigation measures into URBEMIS2002.

The proposed addition of on-road mitigation to URBEMIS would focus on those measures that can be used to reduce emissions from diesel powered medium and heavy-duty engines (over 14,000 lbs). Although these on-road mitigation measures could be used to reduce emissions for any land use designation, they are most useful for land uses with a high percentage of on-road truck use, such as warehouses, manufacturing firms, and industrial uses. Other land uses that have a large number of on-road truck trips, such as large retail stores, may also reduce emissions using this new mitigation option.

Jones & Stokes' original proposal was to group on-road mitigation measures into the following four categories:

- Repower existing engines,
- Retrofit existing engines,
- Purchase new engines, and/or
- Use alternative fuels.

However, after discussing this topic with the San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD) during the May 13th, 2004 conference call, it became clear that this approach had too many uncertainties and could not be accurately estimated by URBEMIS.

Instead, for project applicants wishing to provide on-road mitigation for medium- or heavy-duty trucks, the applicant would be required to work with the SJVUAPCD to estimate the pounds per day and tons per year emission reductions associated with the project. URBEMIS would be modified so that the user has the option of entering the pounds per day and tons per year emission reductions as calculated by the SJVUAPCD.

This approach would work much the same way in other air districts. The project applicant would need to work with the air district to determine the emission reduction associated with a project. That emission reduction would then be entered directly into URBEMIS.

AREA SOURCE MITIGATION MEASURES

URBEMIS2002 currently can be used to estimate emissions from five categories:

- Natural gas fuel combustion,
- Woodstove fuel combustion,
- Fireplace wood combustion,
- Landscape fuel combustion, and
- Consumer products.

We propose adding one additional area source category, architectural coatings, to the area source emissions module. Each of these six area source emission categories is discussed separately below.

Natural Gas Combustion

Emission Factors

URBEMIS2002 can be used to estimate natural gas fuel combustion emissions from cooking and water and space heating using an approach first described in Tables A9-12, A9-12-A, and A9-12-B in the South Coast Air Quality Management District CEQA handbook (South Coast Air Quality Management District 1993). The equation used to estimate CO, ROG, NOx, and PM10 emissions from natural gas combustion is described in the URBEMIS2002 User's Manual. No changes are proposed to those emission factors.

Mitigation Measures – Natural Gas Combustion

URBEMIS currently includes three categories of area source mitigation measures: residential, commercial, and industrial. The residential and commercial categories include several mitigation measure check boxes that apply to space and water heating. They include:

- Solar water heaters;
- Central water heaters;
- Orient buildings north/south; and
- Increase insulation beyond Title 24.

One additional mitigation measure - all electric landscape maintenance equipment – is included in URBEMIS for residential and commercial land uses. That mitigation measure is described separately below under the landscape fuel combustion heading. Orienting buildings north/south is currently the only industrial mitigation measure included within URBEMIS.

Jones & Stokes proposes modifying the natural gas combustion mitigation measures so that only three measures are included, one each for residential, commercial, and industrial land uses. Each measure would be based on building energy efficiency relative to Title 24, California's energy efficiency regulation for residential and nonresidential buildings. The three URBEMIS measures are as follows:

- ❑ Residential Land Uses: Increase energy efficiency ___% beyond Title 24.
- ❑ Commercial Land Uses: Increase energy efficiency ____% beyond Title 24.
- ❑ Industrial Land Uses: Increase energy efficiency ____% beyond Title 24.

The user would be required to turn on the appropriate measure and enter the percentage increase in energy efficiency. Emission reductions would be proportional to the increase in building energy efficiency beyond Title 24. For example, the developer of a

commercial land use that proposes an increase in energy efficiency 10% beyond the Title 24 requirements would receive a 10% reduction in natural gas combustion emissions compared to uncontrolled emissions.

Title 24 requires that compliance (with Title 24) be demonstrated before a building permit can be issued. This requirement applies to any heated building in California. Consequently, the percentage increase in energy efficiency beyond Title 24 would be based on the required compliance documentation.

Residential natural gas combustion primarily includes space heating, water heating, and cooking. One comment raised during the May 13th conference call was whether natural gas used for cooking is properly accounted for in the above mitigation. Data published by the California Air Resources Board (Emission Inventory Source Category 7.2 Residential Natural Gas Combustion, Revised November 1998) lists the percentage of residential natural gas use by category. That evaluation shows that approximately six percent of natural gas used in California residences is for cooking. Title 24 includes specific measures for natural gas cooking equipment. Since Title 24 covers natural gas cooking and because the cooking category is relatively small compared to total gas use, the mitigation measures listed above for total natural gas are sufficient to account for natural gas used for cooking.

Wood Stoves, Natural Gas Fireplaces, and Wood Fireplaces

Currently, URBEMIS includes wood stoves and wood fireplaces as separate area source emission categories. We propose modifying how these two emission source categories appear within URBEMIS and adding a third category, natural gas fireplaces.

The user, upon selecting this category, would be shown a screen with four tabs, which represent four separate screens that can be selected. As illustrated in the following table, the first screen would list the percentage of woodstoves, natural gas stoves, and fireplaces associated with the selected residential land uses. The remaining three screens would show the values that could be modified by the user for woodstoves, natural gas fireplaces, and wood fireplaces, respectively.

In the San Joaquin Valley, the percentage of homes with each of the three hearth options would vary based on housing density allowed by the SJVUAPCD's Rule 4901. For example, if the residential land uses entered by the user had a housing density of three per acre, then URBEMIS would, on the first "hearth" screen, show the percentages in the second column of Table 1.

The following table illustrates the percentages for the three situations allowed by Rule 4901. Where the housing density is 3 per acre, 2 homes or 67% could use woodstoves and 33% of the homes would be allowed to have wood stoves. For housing densities

exceeding three per acre, the percentage of woodstoves would decrease and the percentage of natural gas stoves would increase. Where the density of homes is between 2 and 3, 100% of homes are assumed to have wood stoves. Finally, when the density of homes is 2 per acre, half are assumed to have a fireplace and half are assumed to have woodstoves.

Table 1. Wood Stove, Natural Gas Fireplace, and Wood Fireplace Percentages

	PERCENTAGE OF HOMES WITH THIS OPTION		
	3 or more homes per acre	More than 2, less than 3 homes per acre	2 or fewer homes per acre
Wood Stoves	67%	100%	50%
Natural Gas Stoves	33%	0%	0%
Fireplaces	0%	0%	50%
None of the Above	0%	0%	0%
Total	100%	100%	100%
Assumption	Assumes 3 per acre	Assumes 2.5 per acre	Assumes 2 per acre
Based on SJVUAPCD Rule 4901.			

For areas outside of the San Joaquin Valley, URBEMIS will assume the following percentages:

- Wood Stoves: 35%
- Natural Gas Stoves: 55%
- Fireplaces: 10%
- None of the above: 0%.

These percentages represent the existing percentages within URBEMIS for wood stoves and fireplaces while also assuming that the remaining homes will have natural gas stoves.

Each air district would have the option to modify these default percentages.

Wood Stove Emission Factors

The emission factors currently used by URBEMIS to calculate wood stove emissions are the most recently available, based on a review of the wood stove emission factors at the U.S. EPA's emission factor web site (http://www.epa.gov/ttn/chief/ap42/ch01/final/c01s10.pdf). Consequently, no changes are proposed to URBEMIS' wood stove emission rates. The emission rate equations are listed in the URBEMIS2002 User's Manual.

Natural Gas Stove Emission Factors

Jones & Stokes will incorporate natural gas stove emission factors into URBEMIS using the AP-42 emission factors for natural gas combustion (U.S. EPA, 1998). Emissions will be estimated using the following equations:

Pounds per day = A * B * C * D

Tons per year = Pounds per day * (E / 2000)

Where: A = fireplace emission rate for each pollutant,

- 94 pounds NOx / standard cubic foot (scf),
- 40 pounds CO/scf,
- 5.5 pounds ROG/scf,
- 7.6 pounds PM10/scf, and
- 0.6 pounds SO_2/scf.

B = amount of natural gas burned per day (scf),
C = number of residential units,
D = percentage of units with natural gas fireplaces, and
E = days per year (for tons per year emission calculations).

The emission equation will assume that the average stove is 30,000 Btu's, that there is 1,020 Btu's per standard cubic foot of gas, that the stove is used for an average of 2 hours per day during the winter months, and 100 days per year (200 hours per year).

Wood Fireplace Emission Factors

The emission factors currently used by URBEMIS to calculate fireplace emissions are the most recently available, based on a review of the fireplace emission factors at the U.S. EPA's emission factor web site http://www.epa.gov/ttn/chief/ap42/ch01/final/c01s09.pdf Consequently, no changes are proposed to URBEMIS' fireplace emission rates.

Wood Stoves, Natural Gas Fireplaces, and Wood Fireplaces Mitigation Measures

Currently, URBEMIS2002 has no mitigation measures for woodstoves or wood fireplaces (Natural gas fireplaces are not currently part of URBEMIS2002.). Mitigation measures will be included in URBEMIS2002. The proposed change will allow the user to make changes to the percentages of wood stoves, natural gas fireplaces, and wood fireplaces that will be installed in new residences.

Landscape Fuel Combustion

Emission Factors

Landscape maintenance equipment generates emissions from fuel combustion, from evaporation of unburned fuel, and from fugitive dust generated by equipment such as leaf blowers. Emissions include NOx, ROG, CO, and PM10. The emission factors used to estimate equipment emissions include exhaust and evaporation. Emission factors have not yet been developed for the fugitive dust generated by certain types of equipment generate.

Equipment in the landscape category includes lawn mowers, roto tillers, shredders/grinders, blowers, trimmers, chain saws, and hedge trimmers used in residential and commercial applications. Engines in this category are 25 horsepower or less. This category also includes air compressors, generators, and pumps used primarily in commercial applications (California Air Resources Board 2004).

The California Air Resources Board has enacted regulations to limit emissions from landscape maintenance equipment. Beginning in 1994 these regulations imposed emission limits on all landscape maintenance equipment sold. Those regulations became more stringent for equipment sold in 1999 and later. Consequently, the emissions from this source category are similar to automobile emissions in that the turnover in the equipment fleet plays an important part in how quickly emission reductions are achieved.

URBEMIS2002 estimates emissions from this source category based on the year in which the user is attempting to estimate emissions. The California Air Resources Board has prepared estimates of emissions in 2000 and 2010. The proposed equations for this source category are divided into residential and commercial categories. The residential equation applies only to SFHU. The commercial equation is based on emissions per business unit and includes multifamily residential land uses.

The equations shown below are similar to those currently used by URBEMIS except that the pounds of pollutant per single-family residential unit and commercial business have been updated to reflect recent data developed by the California Air Resources Board (Cordero, M. and W. Wong, 2003).

2000 Emissions - Residential
ROG (pounds/day) = 0.0077 pounds ROG / SFHU/day * SFHU
CO (pounds/day) = 0.0449 pounds CO / SFHU/day * SFHU
NOx (pounds/day) = 0.0003 pounds NOx / SFHU/day * SFHU
PM10 (pounds/day) = 0.0002 pounds PM10 / SFHU/day * SFHU

2000 Emissions - Commercial
ROG (pounds/day) = 0.1593 pounds ROG / Business Unit * Number Business Units
CO (pounds/day) = 0.9298 pounds CO / Business Unit * Number Business Units
NOx (pounds/day) = 0.0061 pounds NOx / Business Unit * Number Business Units
PM10 (pounds/day) = 0.0041 pounds / PM10 Business Unit * Number Business Units

2010 Emissions - Residential
ROG (pounds/day) = 0.0038 pounds ROG / SFHU/day * SFHU
CO (pounds/day) = 0.0305 pounds CO / SFHU/day * SFHU
NOx (pounds/day) = 0.0005 pounds NOx / SFHU/day * SFHU
PM10 (pounds/day)= 0.0001 pounds PM10 / SFHU/day * SFHU

2010 Emissions - Commercial
ROG (pounds/day) = 0.0899 pounds ROG / Business Unit *Number Business Units
CO (pounds/day) = 0.6310 pounds CO / Business Unit * Number Business Units
NOx (pounds/day) = 0.0094 pounds NOx / Business Unit * Number Business Units
PM10 (pounds/day)= 0.0013 pounds PM10 / Business Unit * Number Business Units

The residential emission factors shown in the 2000 emission equations are based on total California single family residential emissions divided by the total number of California SFHU in 2000. Similarly, the commercial emission factors for 2000 are based on total California non-farm business emissions divided by the California's total 2000 business units (U.S. Department of Commerce 2003). For the commercial equations, URBEMIS2002 bases the number of business units on the number of non single-family housing land uses specified by the user.

The 2010 emission rates are based on ARB's estimates of emissions for this source category, broken into residential and commercial categories.

URBEMIS2002 will use the emission rates shown for 2000 for 2000 emissions. For 2001 through 2009, URBEMIS2002 will use interpolated emission factors by assuming a uniform decrease in the emission rate each year between 2000 and 2010. In 2010 and succeeding years, the 2010 emission rates will be used.

Average annual emissions assume that daily emissions would occur only during the summer period of 180 days. The end user will be able to modify the length of the summer period.

Mitigation Measures – Landscape Fuel Combustion

URBEMIS2002 currently allows the user to specify a mitigation measure in which electric powered equipment can be used to replace gas-powered equipment. However, this is currently an all or none mitigation measure. The following measure will allow the user to enter a percentage representing the proportion of residential and non-residential equipment that will be replaced by electrically powered equipment as follows:

- Replace ____% of residential landscape equipment with electrically powered equipment and provide electrical outlets at the front and rear of residences.

- Replace ____% of non-residential landscape equipment with electrically powered equipment and provide electrical outlets for the use of such equipment.

Consumer Products

Emission Factors

Consumer products comprise one of the largest solvent-use categories of reactive organic gases in California. Consumer product emissions are any chemically formulated product used by household and institutional consumers. They include a wide range of product categories, including air fresheners, automotive products, household cleaners, and personal care products (California Air Resources Board, 2000).

Emissions associated with these products primarily depend on the increased population associated with residential development. URBEMIS estimates consumer products when one or more residential land uses have been selected by the user. ROG emissions associated with consumer product use are currently estimated with the following equation:

ROG (pounds/day) = 0.0171 daily pounds of ROG per person * number of residential units * 2.861 persons per residence

The revised consumer products emission factor equation includes modifications of the pounds ROG per person and persons per residence variables:

ROG (pounds/day) = 0.013 daily pounds of ROG per person * number of residential units * 2.93 persons per residence (will vary by county).

The ROG emission factor is based on an average of the total estimated ROG emissions from consumer products divided by the total California population (California Air Resources Board, 2004; California Department of Finance, 2004). The ROG pounds per person emission factor ranges from 0.1927 in 2003 to 0.2182 in 2020. An average of these emission factors – 0.2055 pounds ROG per person – will be incorporated into URBEMIS as the default emission factor.

The persons-per-residence shown in the equation above is a California average. Within URBEMIS, separate estimates of persons per residence will be included for each county.

Mitigation Measures – Consumer Products

No feasible mitigation measures have been identified to reduce consumer product emissions.

Architectural Coatings

Emission Factors

Currently, URBEMIS estimates architectural coatings emissions as part of the construction module but not as part of area sources. However, a percentage of buildings are repainted each year and the ROG emissions associated with those buildings will be incorporated as an area source emission category.

Architectural coating emissions will be calculated using the same approach as in the construction module except that two additional variables will be added, one for residential coatings and one for non-residential. Those variables, which can be edited by the user, will show the percentage of a project's total square footage that will be repainted each year. We currently propose using 10% for both residential and non-residential buildings. However, this value may change as we continue to research this issue. Also, the individual air districts will have the option of modifying this percentage.

Mitigation Measures – Architectural Coatings

There are few feasible mitigation measures available to reduce evaporative emissions associated with architectural coatings. The best approaches involve using materials that require no architectural coatings during building construction or using coatings with lower ROG content than are currently required by regulation.

Instead of being considered a mitigation measure, we will assume that the use of "no-coatings" building materials is part of the project. Consequently, the use of coatings free building materials would have to be accounted for within the unmitigated portion of URBEMIS. This could be accounted for be reducing the coating thickness or the conversion factors (2.7 for residential, 2.0 for non-residential) that is used to convert building square footage to the amount of surfact area to be painted.

Although the use of low ROG content coatings is a feasible mitigation measure, it is considered unenforceable, especially during the operational phase of a project. Consequently, no mitigation measures will be incorporated into the architectural coatings category of the URBEMIS area source mitigation measures.

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M E M O R A N D U M

To: Tim Rimpo

From: Patrick Siegman

Date: October 10, 2004

Subject: **Final Recommendations for URBEMIS 2002 Mitigation Measures**

Introduction

This memorandum sets out recommendations to revise the operational mitigation component of URBEMIS 2002. These have been developed with three main aims in mind:

- **Simplify** the existing mitigation component, which while extremely detailed, is daunting to new users and has extensive data requirements. In particularly, the division between "environment factors" and "mitigation measures" can be confusing.
- **Improve consistency.** Many of the inputs to the mitigation component are extremely subjective (e.g. whether some, few or no bike routes provide wide paved shoulders and have few curb cuts). We propose making these more quantitative, and/or providing additional guidance in the users' manual or within the program itself.
- **Improve accuracy and transparency.** While many of the inputs to the current mitigation component have been proven to have an impact of travel behavior, research is still at an early stage of assessing quantitative impacts, and how these interrelate with other mitigation strategies. The recommendations here update the current mitigation component in the light of new research.

An extensive body of research has been compiled as to the impacts of particular mitigation strategies on travel behavior. However, in general, this has either had an academic focus, or been undertaken for the purposes of developing citywide or regional travel models. For example, many agencies have sophisticated procedures for assessing non-single occupancy auto travel at the level of TAZ or above, but not at the development level. There is extremely little guidance on how to use this data in the type of application needed for URBEMIS 2002 – namely, to provide quantitative estimates of the impact on trip generation and vehicle miles traveled (VMT) at the development level.

Many agencies do provide credits for individual developments that implement mitigation measures, for example when assessing impact fees or conducting traffic studies. Some California examples include C/CAG in San Mateo County and VTA in Santa Clara County. A brief, national review was also conducted for purposes of this memorandum.1 In general, however, these credit programs are only loosely based on the latest travel research, and it could be argued that they function more at a policy level, in providing incentives for developers to incorporate elements such as demand management programs that the agency considers desirable.

The recommendations here therefore attempt to bridge the gap between academic studies and complex regional or area-wide models on the one hand, and more site-specific traffic assessments on the other hand. The emphasis is on providing the best possible estimate while minimizing data requirements. The overall effect, compared to the existing mitigation component, is to reduce the number of inputs required, but make them more quantitative.

It cannot be too highly stressed that the trip reductions recommended here are valid at a sketch-planning level only, and are subject to considerable uncertainty. While they should ideally be expressed as a range, in order to expressly account for this uncertainty, a single value is needed for purposes of the Indirect Source Review in order to allow the appropriate fee to be calculated. The same limitations noted in the documentation for the existing mitigation component still apply, and are worth repeating here:

> The URBEMIS 2002 mitigation component is a significant advance over past attempts to quantify the benefits of air quality mitigation measures, however, users should recognize that travel behavior is very complex and difficult to predict. The component relies on the user to determine factors critical to travel behavior that are somewhat subjective. As GIS and electronic traffic monitoring and data collection become a reality in many cities, the ability to identify factors critical to walking, bicycling, and transit use will be enhanced. The URBEMIS 2002 mitigation component provides a starting point for using currently available data to demonstrate the benefits of urban design and traditional mitigation measures in reducing air quality impacts.

1 Agencies contacted included: New York Metropolitan Transportation Council; Atlanta Regional Commission; Alameda County, CA; and San Luis Obispo County, CA.

The mitigation component results, however, should still be interpreted as the mid-point of a range. Recent research has pointed towards the dangers inherent in reporting precise values, when the results are the subject of considerable uncertainty (Shoup, 2003). However, although the methodological dangers are obvious, there is generally no question about the *direction* of the relationship, only its size and the appropriate variable. Some adjustment is better than none at all – which is what most conventional trip generation methodologies provide (Ewing & Cervero, 2001). In addition, existing project-level trip generation methodologies, even though well-accepted within the transportation planning and engineering profession, are themselves subject to considerable uncertainty, and results are reported with unwarranted precision (Shoup, 2003).

Other considerations that should be noted include:

- The key output that is sought here is reduction in *vehicle trips.* Research results, however, often report results in terms of VMT. Where no alternative is available, we assume that VMT is proportional to vehicle trips.
- Elasticities are generally used to make the calculations, since when used with care, they provide a satisfactory, means of preparing first-cut aggregate response estimates for various types of transportation system changes (Pratt *et. al.,* 2000). They also provide a transparent and accessible method of reporting results, that can be transferred from one region to another (Ewing & Cervero, 2001).
- There are major theoretical issues regarding the direction of causality that have still to be resolved in the research. For example, does an increase in density lower vehicle trip generation rates, or do more dense places attract people who tend to make fewer vehicle trips? For the purposes of this analysis, however, the distinction is unimportant. The key issue (using the same example) is that more dense places are associated with fewer vehicle trips.
- Local planning controls and development economics are assumed to provide an important "reasonableness" check on the recommended trip reductions. For example, reductions in parking supply will not normally be allowed unless the local jurisdiction is confident that complementary trip reduction measures will be applied. Equally, it is unlikely that frequent transit service will be provided to a destination with low potential ridership, given competing demands on an agency for service.

About the Trip Generation Manual

At its heart, the URBEMIS mitigation component is a tool for modifying the average trip rates reported in the Institute for Transportation Engineers' *Trip Generation* manual to make

them more accurate, so that they fairly reflect the particular characteristics of a proposed development. Before modifying these average rates, it is therefore useful to understand the manual itself: how the average rates were derived; the original data sources that underlie the manual; and the manual's own recommendations about when, and why, its average trip generation rates should be modified. Some key points are these:

- The ITE manual normally predicts trip generation from new buildings using just two variables. Typically, the user first selects a broad *land use type* (e.g. "High-Rise Residential Condominium/Townhouse"). Second, the user inputs the *quantity* of that land use type (e.g. "100 dwelling units").
- An important advantage of this simple approach is that very little information about a project is needed to predict trip generation, and trip generation calculations are simple.
- A primary disadvantage of such two-variable formulas is that they do not take into account the multiple other variables (parking price, transit service, etc.) that transportation research has shown to strongly affect trip generation, and so the variation in trip rates *within* each land use category is frequently very high.

Recognizing these points, the *Trip Generation* manual therefore advises the reader that the average trip generation rates reported in the manual "represent weighted averages from studies conducted throughout the United States and Canada since the 1960s. Data were primarily collected at suburban locations having little or no transit service, nearby pedestrian amenities, or travel demand management (TDM) programs. At specific sites, the user may wish to modify trip generation rates presented in this document to reflect the presence of public transportation service, ridesharing or other TDM measures, enhanced pedestrian and bicycle trip-making opportunities, or other special characteristics of the site or surrounding area."

However, while the studies may have been *primarily* conducted at such suburban sites, it appears from the sources referenced that for some land uses, particularly higher density residential land uses, many sites studied included at least some transit service, sidewalks, and other characteristics associated with lower vehicle trip rates. For the "High-Rise Residential Condominium/Townhouse", for example, the manual's text shows that sites were surveyed in such cities as Vancouver, Canada: a city where it is difficult to find high-density condominiums that lack sidewalks, transit service, and a mix of uses nearby.

As part of our research, we made several calls to and exchanged correspondence with the staff at the Institute for Transportation Engineers. The staff was unable to provide any additional data (beyond the text of the manual itself) on the characteristics of the developments used in its trip generation studies, and was also unable to provide the actual studies – the original data – which underlie the manual's conclusions. Therefore, it is not possible to define with certainty the precise characteristics of an "average site".

Given this paucity of information available on the original sources for the *Trip Generation* manual's, conclusions about the average characteristics of the different land uses in the manual (e.g., average residential density, or the percentage of neighborhood streets with sidewalks) necessarily must be estimated, rather than precisely calculated. Fortunately, a large body of other research on travel behavior and land use is available, and reasonable estimates can be made based upon this research.

Recommendations

1. Combine "environmental factors" and "mitigation measures."

URBEMIS 2002 distinguishes between "environmental factors" for pedestrians, cyclists and transit (i.e., the character of the existing neighborhood), and "mitigation measures" (i.e. those added by the development). The environmental factors both provide a mitigation measure in themselves (e.g. the credit for existing or planned transit service), and are also used to weight the mitigation measures (i.e., a lower credit is given for a mitigation measure in an area that has a low environmental factor).

The distinction does make it easier to give credits for specific mitigation measures (e.g. bus bulbs, sidewalks and bicycle parking). However, we recommend that the distinction be removed, since it also brings several important disadvantages. Most of these relate to either complexity, or the relative advantages of infill vs. greenfield development, as follows:

- The pedestrian environmental factors appear to be given less weight than the mitigation measures, even when it is taken into account that the environmental factors are also used to weight the mitigation measures. The credit for the surrounding pedestrian environment is 2%, compared to the maximum allowable reduction of 9%. This means that smaller, infill developments will be eligible for lower credits, since by their nature they will be more dependent on the surrounding environment and have more limited ability to fund mitigation measures.
- On a related point, the importance of the environmental factors compared to mitigation measures is largely a function of scale, i.e. development size. Larger projects, particularly on greenfield sites, will be starting from a "blank sheet," and on-site mitigation measures will be paramount. The appropriate trip reductions for smaller, infill developments, in contrast, will be more a function of the surrounding environment.
- Combining the environmental factors and mitigation measures would make the component easier to understand, particularly for inexperienced users. At present, the separation can be confusing.

2. Scale

This question relates to the area that should be analyzed. We recommend that this should be either the area within a half-mile radius from the center of the project, or the entire project area, whichever is larger. This is the same approach taken in the existing URBEMIS mitigation component. In effect, the smaller the development, the greater the consideration given to the wider project area.

3. Provide Post-Modeling Adjustments to Reward Other Mitigation Measures

One of the impacts of these recommendations would be to narrow the range of mitigation measures that are considered in the analysis. Some potential mitigation measures are excluded even though they are likely to have a travel behavior impact, either because they cannot be readily quantified, or because this would risk double counting an impact already quantified elsewhere (i.e. another variable, such as intersection density, serves as a proxy). We therefore recommend consideration of how post-model adjustments can be used to provide financial incentives for developers to incorporate these mitigation measures. This may include all those that are in the current mitigation component, but are not recommended for continued inclusion, including:

- Street trees
- Traffic calming
- Design maximizing visual interest for pedestrians, and “eyes on the street”
- Zero building setbacks
- Direct pedestrian connections
- Street furniture and artwork
- Pedestrian signalization and signage
- Street lighting
- Low speed limits on bicycle routes
- Safe routes to schools
- Bicycle parking ordinance
- Transit stop amenities
- Route signs and displays
- Bus turnouts and bulbs
- Structured parking

4. Modifying Average Trip Generation Rates

In general, both the recommended trip rate modifications and the overall philosophy of the mitigation component are similar to those in the existing URBEMIS model, and build extensively off this work. The major differences between the existing mitigation component and these recommendations are found in (a) the input variables, which are

designed to be more quantitative and less subjective, and are fewer in number, and (b) the formulas, which take advantage of the latest research on residential travel behavior.

Neighborhood-level trip generation and vehicle miles traveled vary by more than 80% in California cities (Figure 1). As the documentation for the existing mitigation component recognizes, areas with low trip generation and VMT levels have the highest development densities, a wide variety of uses within walking distance, safe and comfortable pedestrian access, paid parking requirements, and a high level of transit service.

Similarly, residential trip rates reported in the *Trip Generation* manual vary widely, both *within* individual land use types, and *between* land use types (Figure 2). For the land use type "Single Family Detached Housing", for example, reported rates ranged from a low of 4.31 daily trips per dwelling unit, to a high of 21.85 daily trips. The *Trip Generation* manual reports that, "This land use included data from a wide variety of units with different sizes, price ranges, locations and ages. Consequently, there was a wide variation in trips generated within this category." Between residential land use categories, the variation is still greater, as would be expected. For example, the average trip rate for the "Residential Condominium/Townhouse" land use type is 5.86 (or 39% lower than the average single-family detached house), while the lowest trip rate is 1.83 (or 80.9% lower). At the extremes, considering all residential land uses, the highest residential rate reported (21.85 trips/day) is more than ten-fold higher than the lowest rate reported (1.83 trips/day).

Figure 1 Daily Trips by Density, San Francisco Bay Area

	Households/Residential Acre					
	< 2	**2-5**	**5-10**	**10-20**	**20-50**	**> 50**
Mean Households/Residential Acre	1.4	3.6	6.7	13.5	30.6	121.9
Daily Vehicle Trips/Household	6.4	5.9	5.0	3.8	2.9	1.2
% Reduction in Daily Vehicle Trips/Household compared to lowest density areas	0%	9%	23%	41%	55%	82%

Source: MTC Household Travel Survey, 1990, cited in Holtzclaw, 2002

Figure 2 ITE Trip Rates for Selected Residential Land Uses

Land Use Code	Land Use Type	ITE Trip Rate		
		Low	Average	High
210	Single-Family Detached Housing	4.31	9.57	21.85
221	Low-Rise Apartment	5.1	6.59	9.24
230	Residential Condominium/Townhouse	1.83	5.86	11.79
222	High-Rise Apartment	3	4.2	6.45
232	High-Rise Residential Condo./Townhouse	3.91	4.18	4.93

Based on these data in Figures 1 and 2, and a wide range of additional transportation research, we have developed a set of formulas for modifying the average trip rates for residential land uses has been developed. For the URBEMIS user, the procedure for modifying residential trip generation rates will remain generally similar to the existing process, with three basic steps:

1. In the "Land Use Selection" screen, the user will enter the land use types (e.g. "Apartment, Low-Rise") and the number of dwelling units of each type.
2. Next, if the mitigation component is used, the user will be prompted to review the default values for several key variables (e.g. residential density, level of transit service) for each residential land use type. If the project's land uses have characteristics that are different from the default values (as they usually will be), the user will enter the correct values, in place of the default values.
3. Within the program, the formulas described hereafter will be used to calculate the resulting trip generation rates.

In keeping with the conclusions of current transportation research, a single set of formulas is used to modify the trip rates for all residential land use types. The input variables for these formulas assess five key land use characteristics (or "mitigation measures", in URBEMIS terms):

- Net residential density (measured by Households per Residential Acre)
- Mix of uses (using a jobs/housing measure)
- Presence of local-serving retail
- Level of transit service (measured by a transit service index)
- Bicycle and pedestrian friendliness (measured by an "pedestrian factor" index based on intersection density, sidewalk completeness, and bike lane completeness)

For each ITE residential land use type, a set of default values for these variables has been defined. If the default values for a residential land use type are left unchanged when running the mitigation component, then the resulting trip generation rate will be the standard ITE average trip generation rate for that land use type. For single-family detached housing, for example, the default values include a residential density of three units per residential acre, a transit service index score of 0 (representing no transit service within one-quarter mile of the site), and an intersection density of 250 intersections per square mile (typical of post-war cul-de-sac residential subdivisions). Figure 4 shows the default values for each land use type.

To achieve the lowest residential trip rate reported in *Trip Generation* (a manual which primarily measures stand-alone, single-use projects with little or no transit service), the input values required would include a density of 160 units per residential acre, the maximum level of transit service, the best possible mix of uses and local retail, and a pedestrian score equivalent to a complete sidewalk coverage with a network of blocks no larger than 300 feet on a side. This would result in a rate of 1.83 trips/day, or an 81% reduction from the average single-family house rate).

This is similar to the 82% difference in household trip generation between the lowest density areas with the poorest transit service (6.4 vehicle trips per household per day), and the highest-density areas with good transit and a higher quality pedestrian environment (1.2 vehicle trips per household per day), as shown in Figure 1. Figure 4 shows the input values that would be required to achieve this rate, as well as the input values required to achieve maximum possible reduction allowed.

In theory, choosing the maximum possible values for each of the *physical design variables* described above could result in a residential trip generation rate as low as 0.9 daily trips per unit. This represents a 90% reduction from the average rate for a single-family detached house. To achieve this rate, however, a neighborhood would have to have remarkable characteristics, similar to Manhattan or Hong Kong: a density of 380 units per acre, or more than three times the average density of San Francisco's densest neighborhoods (North Beach and Chinatown), the highest possible level of transit service, and so on.2

The recommended reductions for the individual physical design mitigation measures for residential uses are summarized in Figure 3. The remainder of the memorandum discusses the justification for these levels, along with the mitigation measures for non-residential uses. In general, the recommended maximums for individual components have been set at a level so that this overall 90% maximum reduction from the average single-family house

2 While rare in California, these extreme cases of Manhattan-like densities can be seen in projects such as San Francisco's single-room occupancy hotels for very low income residents, which achieve such densities by omitting parking and providing very small living quarters.

rate is maintained for residential land uses. While a greater reduction may sometimes seem warranted for an individual measure, a lower value has been selected to stay within this 90% maximum – a practice that helps avoid the considerable dangers of double counting.

In addition to the variables above, which primarily measure physical design characteristics, the formulas include mitigation measures that assess *demand management programs and similar measure*s. A maximum additional reduction of 7.75% from the average single-family house rate is possible through these measures.

Non-Residential Land Uses

For non-residential land uses, the general procedure for modifying rates is similar, and based upon many of the same research results. To modify non-residential trip generation rates, the following procedure is used:

1. For *physical design* mitigation measures, the formulas to determine percentage reductions are identical to the formulas for residential land uses, except for the 'Residential Density' measure, which cannot apply.
2. Additional mitigation measures are applied for *demand management programs and similar measures.* For non-residential uses, the number of available demand management measures is greater, as is the possible percentage reduction.

However, there is a key difference between the formulas used to modify residential rates, and the formulas used to modify non-residential rates:

1. For residential land uses, the percentage reductions shown for each mitigation measure refer to the percentage reduction from 9.57 trips per day (the rate for single family homes). The default values for each residential land use (Figure 4) are set at levels such that keeping these values generates the average trip rate for that land use.

2. For non-residential land uses, the percentage reductions shown for each mitigation measure refer simply to the percentage reduction from the average ITE trip generation rate for that land use. No special default values are required: they are simply set to create a 0% reduction as the starting value.

Figure 3 Summary of Recommended Trip Reductions

	Residential	Non-Residential	Comments
Physical Measures			
Net Residential Density	Up to 55%	N/A	
Mix of Uses	Up to 9%	Up to 9%	
Local-Serving Retail	2%	2%	
Transit Service	Up to 15%	Up to 15%	
Pedestrian/Bicycle Friendliness	Up to 9%	Up to 9%	
Physical Measures sub-total	*Up to 90%*	*Up to 35%*	
Demand management and similar measures			
Affordable Housing	Up to 4%	N/A	
Parking Supply	N/A	No limit	Only if greater than sum of other trip reduction measures
Parking Pricing/Cash Out	N/A	Up to 25%	
Free Transit Passes	25% * reduction for transit service	25% * reduction for transit service	
Telecommuting	N/A	No limit	Not additive with other trip reduction measures (see text)
Other TDM Programs	N/A	Up to 2%, plus 10% of the credit for transit and ped/bike friendliness	
Demand Management sub-total3	*Up to 7.75%*	*Up to 31.65%*	

3 This sub-total excepts the measures for parking supply and telecommuting, which have no limit.

Figure 4 Default Values for Residential Land Use Trip Generation Formulas

Default Values for Residential Trip Rate Formulas

Land Use Code	Land Use Type	Residential Density	Housing Units	Employees	Retail?	Transit Service	Intersection Density	Sidewalks	Bike Lanes	Ped factor	ITE Trip Rate Low	ITE Trip Rate Average	ITE Trip Rate High
210	Single-Family Detached Housing	3	100	17	no	0.00	250	0	0	0.06	**4.31**	**9.57**	**21.85**
221	Low-Rise Apartment	16	100	26	no	0.06	250	0.5	0	0.23	**5.1**	**6.59**	**9.24**
230	Residential Condominium/Townhouse	16	100	60	yes	0.10	400	1	0	0.44	**1.83**	**5.86**	**11.79**
223	Mid-Rise Apartment	38	100	60	yes	0.14	400	1	0	0.44	**NA**	**4.68**	**NA**
222	High-Rise Apartment	62	100	60	yes	0.14	400	1	0	0.44	**3**	**4.2**	**6.45**
232	High-Rise Residential Condo./Townhouse	64	100	60	yes	0.14	400	1	0	0.44	**3.91**	**4.18**	**4.93**

Trip Rates Resulting When Default Values Are Used

Land Use Code	Land Use Type	Reductions: Residential Density	Mix of Uses	Local Retail	Transit	Bike/Ped	Total	Resulting Trip Rate
210	Single-Family Detached Housing	0.0%	-0.6%	0.0%	0.0%	0.6%	0.0%	9.57
221	Low-Rise Apartment	27.9%	0.5%	0.0%	0.6%	2.1%	31.1%	6.59
230	Residential Condominium/Townhouse	27.9%	3.9%	2.0%	1.1%	3.9%	38.8%	5.86
223	Mid-Rise Apartment	39.8%	3.9%	2.0%	1.5%	3.9%	51.1%	4.68
222	High-Rise Apartment	44.8%	3.9%	2.0%	1.5%	3.9%	56.1%	4.20
232	High-Rise Residential Condo./Townhouse	45.1%	3.9%	2.0%	1.5%	3.9%	56.3%	4.18

Example Residential Trip Rate Calculations

Land Use Code	Land Use Type	Residential Density	Housing Units	Employees	Retail?	Transit Service	Intersection Density	Sidewalks	Bike Lanes	Ped factor	ITE Trip Rate Low	ITE Trip Rate Average	ITE Trip Rate High
210	"Worst Case" Single-Family	0.1	100	0	no	0.00	80	0	0	0.02	-	-	**21.85**
230	"Best Case" Res. Condo/Townhouse	160	100	150	yes	1.00	1300	1	0	0.67	**1.83**	-	-
NA	Maximum Possible Reduction	380	100	150	yes	1.00	1300	1	1	1.00	**NA**	**NA**	**NA**

Trip Rates Resulting When Example Values Are Used

Land Use Code	Land Use Type	Reductions: Residential Density	Mix of Uses	Local Retail	Transit	Bike/Ped	Total	Resulting Trip Rate
210	"Worst Case" Singe-Family Detached	-20.7%	-3.0%	2.0%	0.0%	0.2%	-21.5%	11.63
230	"Best Case" Res. Condo/Townhouse	51.4%	9.0%	2.0%	12.5%	6.0%	80.9%	1.82
NA	Maximum Possible Reduction	55.0%	9.0%	2.0%	15.0%	9.0%	90.0%	0.95

5. Data Requirements

Figure 5 shows the inputs that are required to complete the mitigation component in full, along with suggested data sources. Note, however, that the mitigation component can still be run, even if some of these inputs are missing. While no reduction would be granted for the particular mitigation measure for which the input was required, credits could be granted for other trip reduction measures.

Figure 5 Data Requirements and Suggested Sources

Required Input	Suggested Source		Comments
	Project	Surrounding Development	
Net residential density	Project plans	Block-level census data	Net residential data excludes land not devoted to residential uses
Number of housing units	Project plans	Block-level census data	Same basic source as for net residential density
Number of jobs	Project plans	Census Transportation Planning Package. Local jurisdiction may provide more current or fine-grained data	If data are only available per square foot, US Dept. Energy produces figures on average employee density
Local serving retail	Project plans	Site observations	
Below-market-rate units	Project plans	N/A	
Parking supply	Project plans	N/A	
Transit service	Transit agency maps/schedules		
Intersection density	Project plans	Street plans	Count can be automated if available in GIS
Sidewalk completeness	Project plans	Site observations	Count can be automated if available in GIS
Bike lane completeness	Project plans	Site observations	Count can be automated if available in GIS
Parking pricing	Development agreement or similar	Site observations (if applicable)	
Free transit pass provision	Development agreement or similar	N/A	
Telecommuting/flexible work schedules	Development agreement or similar	N/A	
Other TDM programs	Development agreement or similar	N/A	

6. Procedure for Small Projects

For developments in an established urban area below a certain size threshold, we recommend allowing them to adjust their trip generation rates based on the mode share in that census tract. This would avoid a disproportionate burden in gathering the data to document their likely trip reduction. (The analyst would need to certify that the project was similar in character to the existing development.) The recommended threshold is 50 average daily baseline vehicle trips, with the baseline being that calculated by URBEMIS before any of the reductions from mitigation measures are applied.

7. Substitute Methodologies

The recommended mitigation levels are, in our judgment, the most appropriate for a model that must apply to an extremely wide range of projects and geographic contexts. However, it must be recognized that there may be "special cases," where these standard reductions may not apply. For this reason, we recommend that any methodology for calculating reductions in VMT and vehicle trips may be substituted, provided that this is mutually agreed between the Air District and project proponent.

8. Measures Reducing VMT

The existing mitigation component allows for reductions in VMT (but not trip generation) for park-and-ride lots and satellite telecommuting centers. We do not recommend any changes to this aspect of the mitigation component.

9. Correction Factors

The existing mitigation component provides for trip type correction factors, based on evidence suggesting that certain trips are more likely to be captured by one mode rather than another. We do not recommend any changes to this aspect of the mitigation component.

A second correction factor in the existing mitigation component relates to trip distance, because, the documentation argues, bicycle and walking trips replace mostly shorter automobile trips. We recommend that this correction factor be eliminated, as there is little evidence to suggest that this phenomenon exists. Indeed, more complex changes in travel behavior are likely, such as mode shift to bicycling and walking trips being accompanied by a shift to closer destinations. For example, rather than drive to a grocery store on a freeway interchange, a household may walk to a smaller store in the neighborhood. Mixed use, compact neighborhoods are characterized by short overall trip lengths (see, for example, Kuzmyak et. al., 2003). Further evidence comes from the elasticities for trip reduction with respect to density, which are the same for both vehicle trips and VMT (Ewing & Cervero, 2001), suggesting that there is no impact on trip length.

Detailed Justification of Recommended Mitigation Levels

Default Values for Residential Land Uses

To develop the default values for residential land uses shown in Figure 4, we had to overcome a significant hurdle: ITE retains no data on the characteristics of the developments used in their trip generation studies. Default values for average density, transit service levels, and other variables had to be estimated using two alternative methods. First, we reviewed representative projects through research of literature and discussions with professionals in the fields of architecture and town planning, to ascertain typical ranges for density and other characteristics of each land use type (for useful summaries, see Calthorpe, 1993, and Local Government Commission,2002).

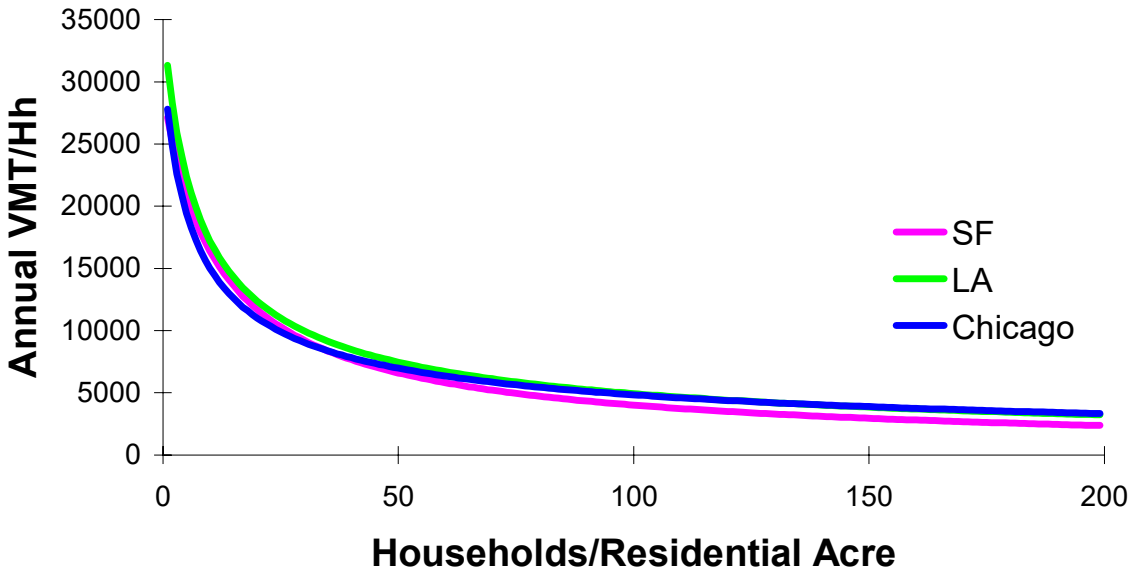
Second, these ranges of values were plugged into the formulas for the mitigation measures, and adjusted until the baseline values for each characteristic equaled the average ITE trip generation rates for each land use. For example, baseline density for Mid-Rise Apartments (64 units per residential acre) falls within the typical range observed from research of 45 to 125 units/acre, and when combined with other baseline characteristics for the land use, results in a 56.1% reduction in trip generation from the average rate for single family homes – the average reduction set forth in the ITE manual.

Finally, since the *Trip Generation* manual provides no daily trip generation rate for the "Mid-Rise Apartment" land use, we estimated a rate by extrapolating from the daily trip rate for the "High-Rise Apartment" land use type. The PM peak hour trip rate of 0.39 trips per unit for mid-rise apartments is 11.4% higher than the PM peak hour rate for high-rise apartments (0.35 trips/unit). Therefore, the daily trip rate for the "Mid-Rise Apartment" land use was estimated to be 4.68 trips per unit, or 11.4% higher than the daily trip for high-rise apartments (4.2 trips/unit).

Density

A considerable volume of research has investigated the links between density, particularly residential density, and travel behavior (for summaries, see Kuzmyak et. al, 2003; Boarnet & Crane, 2001). Overall, the conclusions can be summarized thus: there is a significant, quantifiable relationship between residential density and automobile use (see Figure 6), but there is uncertainty regarding the degree to which this effect is due to the inherent effects of density, as opposed to factors for which density serves as a proxy, such as parking price, local retail, transit service frequency and pedestrian friendliness.

Figure 6 Residential Density Vs. Vehicle Travel



Source: Holtzclaw et. al. (2002).

Fewer studies have attempted to disentangle the effects of density itself. Three of the main exceptions are:

- Typical elasticities for vehicular travel with respect to density are –0.1 to –0.04. These elasticities refer to the effect of density itself, isolated from variables that tend to be correlated with density such as transit frequency, and are additive to elasticities of other built environment factors. When these factors are not isolated, typical elasticities for VMT with respect to density are –0.22 to –0.27 (Kuzmyak et. al, 2003).
- The elasticity of density, when isolated from three other variables (diversity, design and destinations), is –0.043 with respect to vehicle trips, and – 0.035 with respect to VMT (Criterion and Fehr & Peers, 2001). However, this does not control for transit service levels.
- Cervero & Ewing (2001), in an update to this work, suggest a slightly higher elasticity of –0.05 with respect to both vehicle trips and VMT.

Note that density has been shown to have a nonlinear relationship with vehicle travel, with a threshold value of 25-30 units per acre below which the travel impacts of increased density are particularly large (Holtzclaw et. al, 2002). Holtzclaw et. al found that the best single variable equations to predict household vehicle travel (VMT per household, or

VMT/Hh) relied on Households per Residential Acre (Hh/RA). For the Los Angeles region, San Francisco and Chicago regions, these equations varied only slightly, producing the curves shown in Figure 6. For the Los Angeles region, this formula takes the form:

$$\frac{\text{VMT}}{\text{Hh}} = 19749\left(\frac{4.814 + \text{Hh/RA}}{4.814 + 7.140}\right)^{-0.639}$$

Based on this formula, the following elasticity formula is recommended for vehicle trips with respect to density. It is the same as Holtzclaw et. al' work, but reduced by 40% to take account of the fact that much of this impact will be realized through transit service, mix of uses and bicycle and pedestrian levels (which tends to correlate with density). The baseline assumed to correspond to a zero percent trip reduction is three units per acre, at which density the Holtzclaw formula results in 25,914 annual vehicle miles traveled per household. This translates into the following formula:

Trip reduction
= 0.6*(1-(19749*((4.814 + households per residential acre)/(4.814 + 7.14))$^{-0.639}$)/25914)

An apartment development of 16 units per residential acre, for example, would be estimated to generate 27.9% fewer trips than a three unit per acre project. The maximum allowable reduction recommended is 55% (equivalent to a 380 unit per acre development).

With this formula, "negative" reductions also apply, with less dense developments below the baseline level of three units per acre (for example large-lot housing) resulting in higher trip generation rates. (However, as long as the mitigation component is optional for developers or project proponents to complete, they will be unlikely to use it for projects whose overall score, for all components, will result in a finding to their disadvantage. For purposes of more accurately predicting vehicle trips and emissions, however, this negative reduction is useful and reflects the findings of the research literature.

Trip generation at the non-residential end is also influenced by density, but to a much lesser degree (Cervero, 1989, cited in Kuzmyak et. al, 2003). There are also far fewer studies investigating this relationship, and there is no comparable dataset to that for residential density. No reduction is recommended here.

Mix of Uses

Many references point to the impact of "diversity" or mix of uses on travel behavior. This is true both at the macro-scale, e.g. jobs-housing balance, and the micro-scale, e.g. the availability of services within walking distance. Key references, related to both the direction and magnitude of this relationship, include:

- Higher densities are most beneficial to transit ridership when they result in a mix of residential, commercial and office uses (Lund et. al., 2004).
- The elasticity of vehicle trips with respect to "diversity" is –0.051. The elasticity of VMT is –0.032. In this case, "diversity" is a measure of how the project affects regional population/employment balance. (Criterion and Fehr & Peers, 2001)
- Typical elasticities for vehicle trips with respect to local diversity (mix) are –0.03, and those for VMT are –0.05 (Ewing & Cervero, 2001).
- A balance of 1.5 jobs per household is estimated to produce a bus mode share 2 percentage points over the share for a single use area, although the degree of mix is not a useful estimating variable (Messenger & Ewing, 1996, cited in Kuzmyak et. al, 2003).
- Suburban activity centers with some on-site housing had 3-5% more transit, bike and walk commute trips (Cervero, 1989, cited in Kuzmyak et. al, 2003).
- The presence of retail reduces auto mode share by 2-5%, depending on neighborhood density. (Parsons Brinkerhoff, 1996, cited in Kuzmyak et. al, 2003).
- At suburban activity centers, the presence of retail in office buildings lowers vehicle trip rates by 6-8% (NTI, 2000, cited in Kuzmyak et. al, 2003).
- Employment sites with "good" nearby retail and commercial services have a vehicle trip rate 21.5% below the ambient rate. Sites with "fair" services showed an 8.3% reduction, and those with "poor" services a 5.3% reduction. This is attributed not just to the presence of these services, but the fact that they make TDM programs more likely to succeed (Comsis, 1994, cited in Kuzmyak et. al, 2003).

The analysis is complicated by the fact that some of the most beneficial developments from this perspective may be single-use, in an area where another use is predominant (e.g. residential in an employment area). To take this into account, the following procedure is proposed (adapted from Criteron and Fehr & Peers, 2001):

$$\text{Trip reduction} = (1- (\text{ABS} (1.5 * h – e) / (1.5 * h + e)) – 0.25) / 0.25 * 0.03$$

Where: h = study area households (or housing units)
e = study area employment

Negative reductions of up to 3% can result, and should be included.

This formula assumes an "ideal" housing balance of 1.5 jobs per household, based on Messenger & Ewing (1996), and a baseline diversity of 0.25. The maximum possible reduction using this formula is 9%.

This reduction takes into account overall jobs-population balance. The presence of local serving *retail* can be expected to bring further trip reduction benefits, and an additional reduction of 2% is recommended. This is towards the lower end of the values presented in the research discussed above, in order to avoid double counting with the diversity indicator.

Transit

The existing URBEMIS 2002 mitigation model places its primary emphasis on mode, i.e. whether service is provided by high-speed rail, commuter rail or bus. Within this framework, consideration is given to frequency (e.g. bus headways of 15 minutes or less score more highly than headways of 15-30 minutes).

For example, the current mitigation component would award the maximum score of 100 to a development 0.5 miles from a BART station, even if no other transit were available. A part of the city with several bus lines offering 10-minute service, in contrast, would score much lower, even though these transit lines would carry many more passengers.

Current transit planning thinking, however, emphasizes that frequency and speed are two of the most important factors determining mode choice, rather than whether the service is provided by bus, bus rapid transit, or rail. Researchers have found that there is no *inherent* preference for rail over bus, provided that the quality of service is the same (for example, Ben-Akiva & Morikawa, cited in Transportation & Land Use Coalition, 2002).

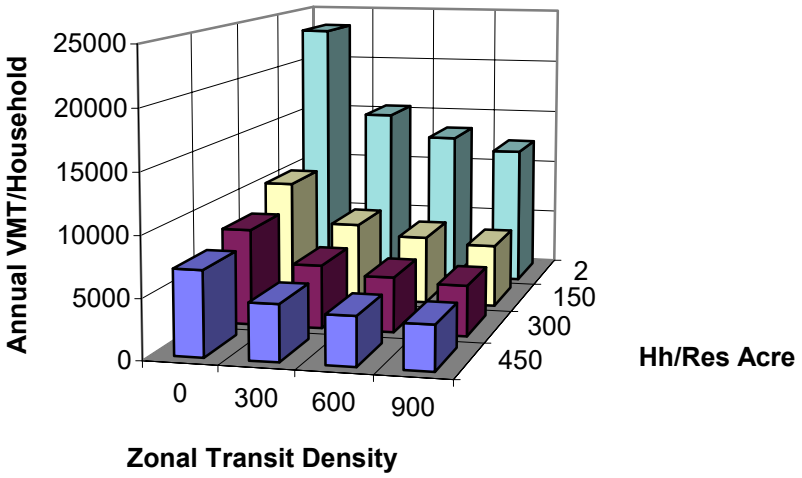
Key references include:

- The average elasticity of ridership with respect to frequency is +0.3 to +0.5. Higher elasticities of +1.0 have been observed in suburban systems, with the +0.3 value more typical of urban systems. (Kittselson & Associates et. al, 2003).
- Pratt et. al. (2003) suggest an elasticity of ridership with respect to service hours (i.e. a combined measure of frequency and service span) of +0.5. Ridership is most sensitive to frequency changes when the past service was infrequent.
- Modeling in Massachusetts suggests that halving transit service headways from 30 to 15 minutes leads to an 8% drop in vehicle trips. A further decrease to 5 minutes leads to a further 4% drop in vehicle trips (Pratt et. al., 2003).
- Holtzclaw et. al. (2002) show that vehicle travel falls as transit service levels increase, even when holding density constant (Figure 7). In the San Francisco Bay Area, a doubling of transit service from 300 to 600 (using the index described below) is associated with a 13% drop in VMT. An increase from 300 to 900 is associated with a 20% drop in VMT. In the Los Angeles region, the decreases in VMT are 12% and 18% respectively. However, the variable was omitted from the

vehicle travel model presented in this paper, since density was used as a proxy for transit service.

- The maximum distance that people are willing to walk to transit tends to be 0.25 miles for bus, and 0.5 miles for rail (and, presumably bus rapid transit). (Kittelson & Associates et. al, 2003). It is unclear whether there is a "distance decay" effect, whereas people are more likely to use transit at closer distances within this range (see Lund et. al, 2004).

Figure 7 VMT vs. Residential Density and Transit Use, San Francisco Bay Area



Source: Holtzclaw et. al. (2002).

Unfortunately, the elasticity of service with respect to transit ridership is difficult to convert to vehicle trip reduction, firstly because the baseline ridership needs to be known, and secondly because only a proportion (18-67% is cited by Pratt et. al., 2003) of new transit trips were formerly made by private auto. While it is clear that there is a direct correlation between transit service and vehicle trips, it is difficult to employ these elasticities directly. For this reason, the approach here is more in line with the existing mitigation component, which assumes a maximum percentage reduction for transit, and then reduces this based on a transit environment factor.

Various frequency-based transit service indices have been developed which have shown strong correlations with ridership. For example:

- In Los Angeles, the quality of four components of transit service (MTA rail, Rapid Bus, local bus and regional services) were rated on a scale of 0-3 for each community area, and then summed to provide the Transit Service Index on a scale of 0-12. (Nelson\Nygaard, 2002b).
- The studies by Holtzclaw et. al. (2002) used Zonal Transit Density, defined as the daily average number of buses or trains per hour times the fraction of the zone within 1/4 mile of the bus stop, or 1/2 mile of the rail station or ferry terminal, summed for all transit routes in or near the zone.

The Transit Service Index recommended here would combine the important features of all these approaches, with emphasis on frequency but with greater weighting given to rail services. Greater weight is also given to dedicated shuttles, in recognition of the fact that these are likely to be more closely targeted to the needs of the development. The Transit Service Index would be determined as follows:

- Number of average daily weekday buses stopping within 1/4 mile of the site; plus
- *Twice* the number of daily rail or bus rapid transit trips stopping within 1/2 mile of the site
- *Twice* the number of dedicated daily shuttle trips
- Divided by 900, the point at which the maximum benefits are assumed. (This equates to a BART station on a single line, plus four bus lines at 15-minute headways.)
- Developments that are larger than 0.5 miles across in any direction must be broken into smaller units for purposes of determining the transit service index. The average of all units would then be used.

Figure 8 shows some examples of how service frequencies translate into Transit Service Index scores (note these are additive, if a location has more than one component).

Figure 8 Example Transit Service Index Scores

Transit Service	Score	Assumptions
BART (single line)	0.33	150 trips per day (15-20 minute headways in each direction from 4 AM-12 AM)
15-minute bus, 5 AM – 12 AM	0.17	
30-minute bus, 5 AM – 7 PM	0.06	
Amtrak San Joaquin	0.03	6 trips per day in each direction
Dedicated commute shuttle	0.02	5 trips per commute period (single direction)

As well as existing service, planned and funded transit service would be included in the calculation. Purely demand responsive service would not be included.

A maximum trip reduction of 15% is recommended. This is the same as the existing URBEMIS 2002 trip reduction for existing and planned transit service.

In order to account for non-motorized access to transit, we also recommend that half the reduction be dependent on the pedestrian/bicycle friendliness score (calculated in the following section), similar to the approach taken in the existing mitigation component. This ensures that places with good pedestrian and bicycle access to transit are rewarded.

Trip reduction = t * 0.075 + t * ped/bike score * 0.075

Where t = transit service index

Bicycle and Pedestrian

Since bicycle mode share and pedestrian mode share depend on similar neighborhood characteristics, such as a fine-grained street grid, we recommend that a single factor be used to account for both modes. The bicycle and pedestrian components of the URBEMIS 2002 mitigation component are already well developed. However, the inputs are largely subjective, and there is still little evidence to justify the precise amount of credits for many of the individual mitigation measures (e.g. street trees).

Many street design factors have, however, been shown to promote walking and cycling. These include:

- Street connectivity, with traditional street networks that are more New Urbanist or grid-like, as opposed to the loops, lollipops and cul-de-sacs of most conventional subdivision. There are various measures of connectivity (summarized in Dill, 2003), such as:
    - Block length, size or density
    - Intersection density
    - Street density
    - Connected node ratio (number of street intersections divided by the number of intersections plus cul-de-sacs)
    - Link-node ratio (links are roadway or pathway segments between two nodes, which are intersections or cul-de-sac ends)
    - Grid pattern (percentage of intersections that are four- or more way).
    - Pedestrian Route Directness (ratio of route distance to straight line distance)
    - Effective Walking Area (% of parcels within 1/4 mile, that are also within 1/4 mile walking distance)

- Human-scale streetscapes with adequate pedestrian amenities, access to shopping and other amenities, and higher densities (Lund et. al., 2004)

Other relevant research includes:

- A composite indicator, the "Pedestrian Environment Factor," provides a statistically significant correlation with trip generation and VMT. It is comprised of four inputs (Parsons Brinkerhoff, 1993):
    - Ease of street crossings
    - Sidewalk continuity
    - Local street characteristics (grid vs. cul de sac)
    - Topography
- In Portland, OR, an increase in the PEF from "pedestrian hostile" to "almost average" reduces daily vehicle trips by 0.4 per household (7%). An increase from "almost average" to "fairly good" provides a daily reduction of 0.2 trips (Parsons Brinkerhoff, 1993, cited in Kuzmyak et. al, 2003).
- Sidewalk completeness, route directness and network density together have a vehicle trip elasticity of –0.05 (Ewing & Cervero, 2001).
- For a high degree of walkability, block lengths of approximately 300 feet are recommended. Short blocks provide more pedestrian crossing opportunities and direct walking routes, and mean that traffic is more likely to be dispersed. Downtown Los Angeles, for comparison, has about 150 intersections per square mile. (Ewing, 1999).

There is a strong tradeoff here between simplicity and low data requirements on the one hand, and robustness and accuracy on the other. Pedestrian and bicycle level of service work for the Florida Department of Transportation and FHWA, for example, has shown that there are numerous statistically significant factors that can be included to assess the quality of the bicycle and pedestrian environment. These include motor vehicle volumes and speeds, truck volumes, roadway widths, urban design, and lateral separation between pedestrians and motor vehicles (for example, FHWA, 1998; Landis et. al, 2001).

However, we recommend that in order to keep data requirements to a minimum, one or two of the street design indicators discussed by Dill (2003) and Ewing and Cervero (2001) be used, together with a single bicycle measure. Since route directness and network density measure similar characteristics, we recommend the use of one of these (network density, which is inversely related to block size) plus sidewalk completeness and bicycle network completeness. The pedestrian/bicycle factor would then be calculated as follows:

Ped/bike factor =
(network density + sidewalk completeness + bike lane completeness) / 3

Where:

Network density = intersections per square mile / 1300 (or 1.0, whichever is less)

Note: In most GIS applications, intersections are counted based on the number of line segment terminations, or each "valence." Intersections have a valence of 3 or higher – a valence of 3 is a "T" intersection, 4 is a four-way intersection, and so on.4 (Georgia Institute of Technology, 2002). Therefore, if intersections are counted manually on a map or project plan, care needs to be taken to distinguish between 3-, 4- and 5-way intersections, and factor them up accordingly. The 1,300 value roughly equates to a dense grid with four-way intersections every 300 feet, per the recommendation of Ewing (1999). Intersections with dedicated routes for pedestrians and/or bicyclists should be included in this calculation.

Sidewalk completeness =

% streets with sidewalks on both sides + 0.5 * % streets with sidewalk on one side

Bike lane completeness =

% arterials and collectors with bicycle lanes, or where suitable, direct parallel routes exist

A maximum reduction of 9% is proposed, based on the existing URBEMIS mitigation component.5 The trip reduction would then be calculated as:

Trip reduction = 9% * ped/bike factor

No reduction should be allowed if the entire area within a half-mile walk of the project center consists of a single use. (Note that this applies to a half-mile walk, rather than straight-line distance, to account for barriers such as freeways.) However, the ped/bike factor can still be used to calculate pedestrian access to transit, as part of the transit mitigation measure.

Affordable and Senior Housing

A significant amount of evidence points to the fact that lower-income households and senior citizens own fewer vehicles and drive less. Research includes:

4 A valence of 1 indicates that a line segment has terminated, e.g. in a cul-de-sac. A valence of 2 means that the street is continuing.

5 Note that this excludes the bicycle reduction in the current mitigation component. However, this compensates for the fact that the reductions recommended for the mixed use and density variables will be realized in practice through pedestrian and bicycle mode share.

- Russo (2001) cites evidence from the San Francisco Bay Area travel survey, which shows that households earning under $25,000 per year make 5.5 vehicle trips per day, compared to a regional average of 7.6. High income households (earning more than $75,000 per year) make an average of 10.5 trips. Note that this data does not control for other factors, such as density and transit access.
- In the San Francisco Bay Area, Los Angeles and Chicago, income was one of four variables with sufficient independent explanatory power to include in the model of VMT and vehicle ownership (Holtzclaw et. al., 2002).

Obviously, it is difficult if not impossible to account for the exact incomes of residents in URBEMIS, most obviously because the occupants are not known at the pre-development stage. However, the percentage of deed-restricted below-market-rate (BMR) housing does offer a way to incorporate this effect.

We recommend a 3% reduction in vehicle trips for each deed-restricted BMR unit.6 Thus, the total reduction is as follows:

Trip reduction = % units that are BMR * 0.04

A development with 20% BMR units would thus gain a 0.8% reduction. A development with 100% BMR units would gain a 4% reduction.

Parking Supply

Significant correlations between parking supply and employee mode split have been observed. For example, a study of the link between parking availability and transit use in eight Canadian downtowns found an extremely high elasticity of –0.77 (Morrall & Bolger, 1996, cited in Kuzmyak et. al., 2003b). In California, the number of parking spaces per worker was found to be one of the main two elements of a binomial logit model predicting transit mode share among TOD office workers (Lund et. al, 2004).

As with residential density, the extent to which parking supply itself is a causal factor is uncertain. In practice, it probably serves as a proxy for variables such as price, high quality public transit, mix of uses, and pedestrian friendliness (Kuzmyak et. al., 2003b). Indeed, in practice there is a two-way relationship between parking supply and mode split. Free parking, for example, can be seen as both a cause of high parking supply (more parking is

6 Calculated from Holtzclaw et. al. (2002), assuming 12,000 average annual VMT per vehicle, median per capita income of $33,000 (2002 figures per California State Department of Finance), and an average income in BMR units 25% below median. Holtzclaw calculate the coefficient of -0.0565. Therefore, expected VMT reduction can be calculated as 0.0565 * 33,000 * 0.25 / 12,000 = 4%

needed to satisfy the greater demand), and a consequence (the market price of parking is zero once an effectively unlimited supply is provided) (see, for example, Shoup, 1999).

Theoretically, it is possible to reduce parking provision to below the level of actual demand, should drivers park in neighboring lots or on-street in surrounding areas. However, planning approval is not likely to be granted for developments that significantly under-provide parking, unless complementary Residential Permit Parking programs or other measures to combat this type of overspill are introduced. Indeed, the main reason for minimum parking requirements levied by local jurisdictions is to address these overspill issues (Shoup, 1999).

Similarly, market realities are likely to prevent a developer from providing too little parking. The challenges in persuading lenders to finance developments that have below-code parking are difficult enough to overcome, even where there is clear, documented evidence to show that parking supply will be enough to meet demand (see for example, Parzen & Sigal, 2004). In contrast, the opposite tendency is likely to be apparent – that developments are prevented from taking full advantage of the opportunities to reduce parking supply by zoning codes (see, for example, Nelson\Nygaard, 2002).

The measure proposed here uses the Institute of Transportation Engineers' *Parking Generation* handbook as the baseline. This is assumed to equate to unconstrained demand. The trip reduction can therefore be calculated as follows:

Trip reduction = Actual parking provision / ITE Parking Generation rate

Since ITE parking generation rates use the same land use codes as the trip generation rates, these could be provided within the URBEMIS model itself. The user would only be required to enter the actual parking provision for each land use.

For land uses with rates for both weekday and weekend, the formula will use whichever rate is higher. The *Parking Generation* handbook covers most common land uses. For some land uses, however, no parking generation rates are available: in these cases, this particular mitigation measure may not be used.7 Those land uses without parking generation rates include:

- Single Family Detached Housing
- Mid-rise Apartments
- High-rise Condominium/Townhouse

7 The next edition of *Parking Generation,* currently under development by an ITE Task Force, is likely to provide date for some of these missing land uses. While it would be ideal to have parking generation data for every single land use before introducing this mitigation measure into URBEMIS, the data does not yet exist. Rather than abandoning this mitigation measure entirely until perfect data exists, we recommend allowing the measure to be used for the many land uses where reasonable data is available.

- Mobile Home Parks
- Residential Planned Unit Development (PUD)
- Day-care center
- Elementary school
- Junior High school
- Library
- City Park
- Discount Superstore
- Discount Club
- Electronic Superstore
- Home Improvement Superstore
- Gas/Service Station
- Pharmacy/Drugstore with and with/out Drive Through
- Medical Office Building
- General Heavy Industry

To avoid double counting with other trip reduction measures, the impacts of parking supply are proposed to be assessed in conjunction with all other non-residential trip reduction measures as follows:

- The total of all other non-residential trip reduction measures should be used if this is greater than or equal to the trip reduction from parking supply measures. For example, if parking supply is reduced 10% from ITE levels, and transit, mixed use and pedestrian/bicycle trip reductions amount to 20%, the 20% figure would be used.
- If the total of all other non-residential trip reduction measures (r_1) is less than the trip reduction from parking supply measures (r_2), the total trip reduction is as follows:

  $$r_1 + 0.5 * (r_2 - r_1)$$

  In effect, the parking supply reduction is only used if it is greater than the impact from other trip reduction measures, and the difference is discounted by 50%. For example, if parking supply is reduced 25% from ITE levels, and transit, mixed use and pedestrian/bicycle credits amount to 15%, the total reduction would be:

  $$15 + 0.5 * (25\text{-}15) = 20\%.$$

This reduction should only be granted if measures to control overspill are in place, such as Residential Permit Parking programs, time limits or meters.

Transportation Demand Management

Transportation Demand Management programs have been shown to have a major impact on travel behavior. Site-level employee vehicle trip reductions of up to 38% have been achieved, particularly for programs that have included parking pricing (Shoup & Willson, 1980; Comsis, 1993; Valk & Wasch, 1998; Pratt, 2000). Parking price elasticities of –0.1 to –0.3 have been reported (Pratt, 2000).

This component of the existing URBEMIS 2002 mitigation component is well developed. However, there is considerable scope to adapt it in two ways:

- Provide greater emphasis for the three elements that have the greatest impact on travel behavior – parking pricing/cash out; free transit passes; and telecommuting.
- Simplify the remaining elements, through offering broader options such as "major program", "minor program", and "no program," for elements that are likely to have a smaller trip reduction potential.

We recommend that none of these reductions be permitted, unless they form part of a legally enforceable agreement specifying, for example, minimum parking prices and other TDM measures. This might form part of a development agreement, be enforced through any TDM ordinance in the local jurisdiction, or consist of another mechanisms mutually agreed by the air district and project proponent. Otherwise, there is little to guarantee that some of the promised measures (e.g. parking pricing) will actually be implemented and maintained.

Parking Pricing and Cash Out

We recommend that a maximum trip reduction of 25% be applied to projects that commit to introducing parking pricing. This is based on the approximate midpoint of observed reductions, which range from 15% to 38% (Shoup & Willson, 1990; Comsis, 1993; Pratt, 2000). Note that most of these studies apply to before-after or with-without comparisons, with no increase in transit service or other measures to reduce vehicle trips. This maximum reduction should apply to prices of $6 per day or greater (in 2004 dollars).

The trip reduction will therefore be as follows:

Trip reduction = daily parking charge / 6 * 0.25

If the parking charge is more than $6, the 25% reduction is taken. If parking charges do not apply to all trips to a site (e.g. customers are exempt), the reduction is pro-rated by the percentage of trips that the charges apply to. If little or no on-site parking is provided, the parking charges should be those of surrounding public facilities.

Parking cash-out programs should be eligible for 50% of the reduction for direct parking charges, in recognition of the fact that their impacts tend to be significantly lower (Pratt, 2000). This is partly due to the fact that cash-out payments are a taxable benefit.

Free Transit Passes

Some California transit agencies, most notably VTA in Santa Clara County, have EcoPass or similar programs, whereby employers or property managers bulk-purchase transit passes for (free) distribution to their employees or tenants. Eco Pass programs have been shown to increase transit ridership by 50-79% (City of Boulder, undated; Caltrans, 2002), and reduce vehicle trips by 19% (Shoup, 1999). (Note that many of these new riders were making new trips, or ones previously made by walking or cycling.)

We therefore recommend that any project committing to providing free transit passes would receive an additional credit equivalent to 25% of the reduction granted for transit service. Thus, the credit is more valuable in places that have good transit service. This reduction would only apply to the portion of trips generated by those granted the free transit passes (e.g. residents and/or employees, but excluding shoppers and other visitors).

Telecommuting

We recommend the retention of the reductions granted for telecommuting and compressed work schedules in the existing mitigation component, with two clarifications:

- As with the reductions for other mitigation measures, there must be an enforceable commitment (e.g. development agreement), which covers both the take-up rate (employees actually telecommuting or using compressed work schedules) as well as the provision of the option.
- The percentage reduction should not be additive (in contrast to most other trip reduction measures). For example, if 20% of employees telecommute, and other trip reduction measures are estimated to reduce vehicle trips from 1,000 to 800 per day, the 20% reduction would apply to the 800 trips, not the original 1,000.

Other TDM Programs

Other TDM program elements, that do not include financial incentives, tend to have a smaller impact on travel behavior. We recommend that reductions be based on the number of the following elements incorporated into the program, per Figure 7:

- Secure bicycle parking (at least one space per 20 vehicle parking spaces)
- Showers/changing facilities
- Guaranteed Ride Home

- Car-sharing services
- Information on transportation alternatives, such as bus schedules and bike maps
- Dedicated employee transportation coordinator
- Carpool matching programs
- Preferential carpool/vanpool parking

The impact of a TDM program will also depend on the travel alternatives available. A program will have more impact if the site is served by frequent transit, for example (although note that a TDM program can do much to promote carpooling even in other locations). For this reason, we recommend that part of the TDM credit be used to adjust the credits granted for transit service and pedestrian/bicycle friendliness (see Figure 9).

Figure 9 Recommended TDM Program Reductions

Level	Number of Elements	Recommended Reduction
Major	At least 5 elements	2%, plus 10% of the credit for transit and pedestrian/bike friendliness
Minor	At least 3 elements	1%, plus 5% of the credit of transit and pedestrian/bike friendliness
No program	None	None

Examples

It is important to recognize that any type of calibration is beyond the scope of this analysis, which relies on existing references to build on the ranges established in the existing mitigation component. Figure 10, however, does provide some examples to indicate the trip reductions that would apply to specific places.

The data are drawn from the database compiled for the Location Efficient Mortgage program (for details, see Holtzclaw et. al., 2002), and from the San Francisco Bay Area Metropolitan Transportation Commission's TAZ files. For these reasons, the examples are limited to the San Francisco Bay Area. Transit service was estimated from schedules and route maps. Sidewalk and bike lane completeness were estimated based on local knowledge. For these reasons of limited data, the examples are intended as illustrations only, rather than to refer to a particular project.

The reductions are calculated for the physical and environmental factors only, for residential uses. They exclude any additional reductions from TDM programs and affordable housing.

The final column compares average vehicle miles traveled (no vehicle trip data were readily available) in these neighborhoods to the Brentwood baseline, as a rough

comparison to the reductions granted through the proposed trip reductions for URBEMIS. As can be seen, while there are significant discrepancies, the overall correspondence is acceptable for this type of sketch planning model.

Figure 10 Example Trip Reductions

								% Reduction in VMT from Brentwood
Example	TAZ	Residential Density	Mix of Uses	Local Retail	Transit	Ped/bike friendliness	Total Reduction	
Brentwood	899	1.4%	-3.0%	0.0%	0.1%	1.7%	0.3%	0.0%
Orinda	831	-9.5%	5.8%	0.0%	3.7%	1.4%	1.4%	5.6%
Pleasant Hill BART	806	14.4%	7.2%	3.0%	8.3%	3.3%	36.3%	40.2%
Emeryville	723	39.0%	1.7%	3.0%	4.4%	4.9%	53.1%	47.8%
Downtown Palo Alto	245	19.8%	4.4%	3.0%	6.1%	7.5%	40.8%	50.6%

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APPENDIX E

Cost Effectiveness Analysis for Proposed Rule 9510 (Indirect Source Review) and Rule 3180 (Administrative Fees for Air Impact Assessment Applications)

November 17, 2005

I. INTRODUCTION

California Health and Safety Code (CH&SC) Section 40920.6(a) requires the San Joaquin Valley Unified Air Pollution Control District (District) to conduct a cost effectiveness analysis of the proposed control options prior to the adoption of the proposed rules. The purpose of conducting a cost effectiveness analysis is the evaluation of the possible economic effect of the pollution control measures (rules). The analysis also serves a guideline in developing the control requirements for the rule.

II. SUMMARY AND CONCLUSION

The CH&SC section cited above requires a cost effectiveness analysis for the most likely compliance scenario, and an incremental cost effectiveness analysis on an alternative compliance scenario. Absolute cost effectiveness of a control option for traditional rules are typically determined by taking the added annual cost (in $/year) of the control technology or technique, divided by the emission reduction achieved (in tons/year). The costs can include capital equipment costs, engineering design costs, installation costs, and any cost savings, such as from decreased energy usage and decreased maintenance costs.

Rule 9510 would require developers to reduce the following project's operational and area source emissions: 33.3% of NOx emissions and 50% of the PM10 emissions, over a ten-year period. Rule 9510 would also require the developers to reduce emissions from equipment used during the construction phase by 20% for NOx and 45% for PM10 emissions compared to the statewide average. The construction emissions may be reduced on-site by using newer fleets than the statewide construction average, using add-on controls, and/or by using clean fuels. The rules are structured to allow flexibility in complying with the rule requirements due to various requirements and limitations imposed by local agencies in the projects' jurisdiction. Methods of compliance include the following: achieving the necessary reductions entirely through on-site emission reduction measures; reducing, in varying degrees, partially on-site and partially off-site through the off-site emission reduction fee; reducing entirely off-site through the payment of an off-site emission reduction fee. The fee for emissions not reduced in the design of the project or with equipment controls would fund off-site emission reduction projects. The fee for these off-site projects would be calculated by multiplying the required emission reductions by a cost effectiveness factor. This rule differs from traditional rules, in that a cost effectiveness value is predetermined and the control costs are based on that cost effectiveness value.

Cost effectiveness is a primary criterion for the District to fund emission reduction projects. Cost effectiveness of a off-site emission reduction project is based on the amount of pollution (per pound or ton of a pollutant) the project eliminates for each

dollar spent. There are different methodologies to determine cost effectiveness for different programs, but in general, cost effectiveness is determined by dividing the cost of the project by the amount of emissions reduced. Several factors are used to determine the emission reductions for a particular mitigation project, including: the age of the vehicle or engine being replaced, project life (how long in terms of time the emission reductions can be expected to be surplus), and activity level, which is usually represented in annual hours of operation or mileage. Project life allows the District to determine how many emission reductions can occur per year. This is important in determining timelines for emission reductions and will assist the District in attaining the ozone and PM10 standards.

To determine the cost effectiveness for the ISR Program, District staff identified NOx emission reduction projects that have previously been funded and the costs associated with each project. Table E–1*, Estimated NOx Emission Reductions from Current and Historical Grant Programs by the District* summarizes the grant programs.

Table E-1
Estimated NOx Emission Reductions from Current and Historical Grant Programs

	Emissions Tons	Emissions Pounds	Grant Funded Dollar Amounts	Cost Effectiveness* $/Pound	Cost Effectiveness* $/Ton
All External Projects					
1992 -1993	400	800,000	$3,665,200	$4.58	$9,163.00
1993 -1994	525	1,050,000	$4,773,814	$4.55	$9,092.98
1994 - 1995	590	1,180,000	$3,594,486	$3.05	$6,092.35
1995 - 1996	650	1,300,000	$3,688,311	$2.84	$5,674.32
1996 - 1998	885	1,770,000	$6,309,952	$3.56	$7,129.89
1998 - 2004	30,419	60,838,805	$60,798,609	$1.00	$1,998.68
Total	***33,469***	***66,938,805***	***$82,830,372***	***$3.26***	***$6,525.20***
REMOVE Program					
1992 - 1993 Phase I	400	800,000	$3,665,200	$4.58	$9,163.00
1993 - 1994 Phase II	525	1,050,000	$4,773,814	$4.55	$9,092.98
1994 - 1995 Phase III	590	1,180,000	$3,594,486	$3.05	$6,092.35
1995 - 1996 Phase IV	325	650,000	$2,688,311	$4.14	$8,271.73
1996 - 1998 Phase V	360	720,000	$5,309,952	$7.37	$14,749.87
1998 - 1999 Phase VI	104	208,247	$2,556,403	$12.28	$24,551.64
1999 - 2000 Phase VII	304	607,640	$2,422,741	$3.99	$7,974.26
2002 - 2003 Phase VIII	156	311,059	$1,210,648	$3.89	$7,784.04
Total	*2,608*	*5,526,946*	*$26,221,555*	*$5.48*	*$10,959.98*
Vehicle Buy-Back					
1995 - 1996	325	650,000	$1,000,000	$1.54	$3,076.92
1997 - 1998	525	1,050,000	$1,000,000	$0.95	$1,904.76
Total	*850*	*1,700,000*	*$2,000,000*	*$1.25*	*$2,490.84*
Heavy-Duty Program					
1997 - Jan 2004	29,811	59,622,859	$53,381,817	$2.28	$4,564.13
Lt. & Med.-Duty Vehicle Program					
2001 - Jan 2003	22	43,000	$750,000	$17.44	$34,883.72
1999 Lawnmower Replacement Program					
2001 - 2002	23	46,000	$477,000	$10.37	$20,739.13

Please note that beginning in 1995-96 vehicle buy-back was no longer included in the REMOVE Program. A separate program for heavy-duty vehicle projects was established beginning in 1997.

III. GRANT PROGRAMS

This section identifies the existing grant programs and different types of projects that are funded under those programs that are possible candidates for any off-site emission reduction fees collected under Rule 9510. In addition, this section identifies additional projects that may be funded through the ISR program. The District will also consider projects and programs for funding in addition to the ones discussed in this section, when other projects and programs are identified.

REMOVE/REMOVE II

The Reduce Motor Vehicle Emissions (REMOVE) Program was the first District grant program implemented in 1992 to fund projects that reduced emissions associated with motor vehicle trips. Due to the lengthy REMOVE evaluation committee process, the District's Governing Board approved the revised REMOVE II Program on March 13, 2005. The REMOVE II Program awards grant funding on a first-come, first-serve basis and consists of a broad range of mobile source incentive projects. The following separate components within the REMOVE II Program have established parameters and funding caps to achieve prudent cost effectiveness levels: E-Mobility (Telecommunications) Incentive Component; Public Transportation and Commuter Vanpool Passenger Subsidy Component Bicycle Infrastructure Component; Light and Medium Duty Incentive Component. The components establish guidelines to maximize the emission reduction potential for individual projects. The criterion for evaluating potential projects is ARB's methodology for calculating cost effectiveness and emission reductions. Additionally, the District has established requirements for applicants to validate the emission reductions generated by REMOVE II incentive program components.

The E-Mobility Component of the REMOVE II Program provides funding for the development or expansion of electronic telecommunications services in municipal government and public education. The electronic technology will serve as direct replacement of vehicle trips to public sites for conferencing, document transactions, general information, work functions, school instruction, and related applications. E-Mobility projects include: distance-learning technology, telecommute center equipment, teleconference systems, E-government technology, E-court technology and related electronic applications.

The Public Transportation and Commuter Vanpool Passenger Subsidy Component of the REMOVE II Program, provides funding to attract new participants to public transportation and commuter vanpools. The passenger subsidies will serve to attract new participants to public transportation and commuter vanpools as an alternative to single occupant vehicle (SOV) commutes. Passenger subsidy projects include: incentives for transit bus agencies, shuttles, commuter vanpools, rail, and park-and-ride lot construction.

The Bicycle Infrastructure Component of the REMOVE II Program will fund the development of a comprehensive bicycle transportation network. The component will

support the expansion and linkage of bicycle transportation facilities that promotes the practice of commuter bicycling as a safe and viable transportation alternative. Bicycle infrastructure projects may include the development of Class I Bicycle Paths (construction) and Class II Bicycle Lanes (striping).

The Light and Medium Duty Incentive Component of the REMOVE II Program will fund a portion of the purchase cost of low-emission light-duty and medium-duty motor vehicles for public agencies. The purpose for the component is to encourage and increase the introduction of reduced emission alternative fuel vehicles. Low-emission vehicles may include Zero Emission Vehicles, Super Ultra Low Emission Vehicles, Ultra Low Emission Vehicles, and Electric Bicycles based on ARB emission standards.

Heavy-Duty Program

The Heavy-Duty Engine Emission Reduction Incentive Program (Heavy-Duty Program) initially evolved from REMOVE in 1997 and the District continues to administer the program. The Heavy-Duty Program replaces older model high polluting engines with newer and cleaner burning engines. The Heavy-Duty Program also encourages the early introduction of on-road and off-road heavy-duty motor vehicles with engines that include reduced-emission technologies. Eligible project types funded under this program include: marine vessels, forklifts, agricultural pump engines, on-road and off road vehicles and equipment, agricultural harvesters, hay bailers, tractors, delivery trucks, sprayers, yard spotters, earthmovers, line haul trucks, back hoes, dump trucks, earth movers and drills, transit and school buses, and forklifts. This program has been expanded to assist in the development of alternative fuel infrastructure, particulate filters on eligible diesel school buses, and idle reduction technologies for heavy-duty vehicles.

Emission reductions are obtained when the project applicant purchases vehicles and engines that are cleaner than required by current emission standards or installs an emission certified retrofit kit on an existing engine. The District pays the differential cost of purchasing the lower emitting technology compared to conventional technology. Emission reduction, calculations, and horsepower categories are used to determine an incentive amount. Project monitoring is conducted to verify eligibility, to ensure proper use of public funds and to validate the emission reductions. Applicants are required to enter into contracts with the District and are required to submit annual usage reports for five years after the technology is purchased.

The Heavy Duty Program is primarily aimed at NOx reductions, but many projects also achieve particulate matter (PM10) reductions. Historically, this incentive program has been exceptionally cost effective, replacing approximately 4,484 engines[1].

[1] *SJVAPCD Heavy-Duty Engine Incentive Program Database*

PM10 Incentive Program

The District currently does not have an incentive program that primarily targets PM10 emissions reductions, however an incentive program will be needed for Rule 9510. Initially, District staff surveyed the PM10 emissions inventory to determine the largest sources of emissions and related factors, the extent of existing or planned control, and types of control options that are available. District staff identified unpaved traffic surfaces and unpaved shoulders as the most viable options for emission reduction projects. Other potential sources include the use of PM10-efficient street sweepers and fireplace retrofits/replacement. The District is proposing to develop an Unpaved Road and Traffic Surface Program that would fund or partially fund the treating or paving of unpaved roads or unpaved shoulders within the San Joaquin Valley Air Basin, in time to implement and achieve the reductions committed to for this rule. Once that program is established, the District will continue to explore and develop other PM10 incentive programs, such as PM10-efficient street sweepers, fireplace retrofits/replacement, and/or leaf blowers.

The duration of the contract will vary depending on the project. Some contracts will be completed upon installation, while others may require reporting for 5 years. For example, a road-paving project would have a contract that is completed upon installation, whereas an engine contract typically contains a 5-year reporting requirement. The staff report will be amended to include this information.

IV. RULE 9510 ESTIMATED COST EFFECTIVENESS

The District's future prospects for funding the most cost effective NOx reduction projects are currently declining. Many of engines that qualify for the Heavy-Duty Program incentive funds have been replaced or retrofitted. Diesel engines greater then 50 horsepower are being regulated by the State and the District resulting in cleaner operating engines with lower emissions. Consequently, the most cost-effective projects (e.g. diesel engines manufactured before 1996) have previously been funded resulting in projects that will cost more in the future to fund.

To determine future cost effectiveness for NOx emission reduction projects, staff reviewed previously funded projects' NOx cost effectiveness, the types of projects, and the future availability of those projects. Attachment 1 compiles the necessary information and determines the resulting cost effectiveness. The general concept for NOx projects in Attachment 1, is that the types of grant applications received will move from the heavy duty projects to lighter duty projects at a rate of 5% per year, and that the cost of heavy duty projects will increase approximately $2000 more per ton. Attachment 1, can be summarized as follows:

NOx Cost-Effectiveness

Year	Cost to Reduce One ton of NOx
2006	$4,650.00
2007	$7,100.00
2008 and beyond	$9,350.00

Presently, most of the Districts incentive funds have been used to fund NOx emission reductions. In order to determine future cost effectiveness for PM10 emission reduction projects, District staff researched PM10 emissions and reductions. Initially, the PM10 emissions inventory was surveyed to determine the largest sources of emission factors, the extent of existing or planned control, and types of control options that are available. District staff identified unpaved traffic surfaces and unpaved shoulders as the most viable options for emission reduction projects. Other potential sources include the use of PM10-efficient street sweepers and fireplace retrofits/replacement.

Once the sources were identified, each source was analyzed in terms of emission factors, thresholds, available control effectiveness, and costs of those controls. Attachment 1 also compiles the necessary information and determines the resulting cost effectiveness for PM10 projects. There are several concepts for PM10 projects that are incorporated in Attachment 1. Initially, the District is anticipating that it will receive a high number of applications to treat or pave unpaved roads, with the most cost effective projects coming in the first few years. The District is also expecting the cost to treat or pave unpaved roads to increase by 75% each year for each ton reduced. The District is anticipating receiving a higher number of applications for unpaved shoulders and street sweepers, each year. Attachment 1, can be summarized as follows for PM10:

PM10 Cost-Effectiveness

Year	Cost to Reduce One ton of PM10
2006	$2,907.00
2007	$5,594.00
2008 and beyond	$9,011.00

V. SOURCES OF COST DATA

District staff used cost effectiveness information derived from actual NOx emissions reduction projects administered by the District. This data is sent to the California Air

Resources Board (ARB) on an annual basis. The following data sources were used for the PM10 analysis:

1. Effectiveness Demonstration of Fugitive Dust Control Methods for Unpaved Roads and Unpaved Shoulders on Paved Roads
   DRI document No. 685-5200.1F1
   Desert Research Institute
   December 31, 1996

2. Methods to find Cost-effectiveness of Funding Air Quality Projects: For Evaluating Motor Vehicle Registration Fee Projects and Congestion Mitigation and Air Quality Improvement (CMAQ) Projects
   California Air Resources Board
   2003 Edition

3. Final BACM Technological and Economic Feasibility Analysis
   Sierra Research, Inc.
   Prepared for the SJVAPCD
   March 2003

4. Entrained Road Dust from Paved Road Travel: Emission Estimation Methodology, Background Document
   Section 7.9
   California Air Resources Board
   Updated July 1997

5. Unpaved Road Dust (non-farm roads, SJV only)
   Section 7.10 SJV
   California Air Resources Board
   Patrick Gaffney
   Updated May 2004

6. Spreadsheet used for San Joaquin Valley Air Pollution Control District PM10 SIP, 2003
   Spreadsheet, “Unpaved1999Mar_13_2003Final.xls”
   California Air Resources Board
   Patrick Gaffney

7. Conversations and E-mail correspondence with Mel Zeldin, consultant

Attachment 1
Anticipated Use of ISR Funds
for Determining Cost Effectiveness

For 2006					
	Projected % of Fund Use	Cost Effectiveness ($/ton reduced)			
		Likely Minimum	Cap[1]	Representative Cost Effectiveness[2]	Weighted Representative Factor
PM10					
Unpaved Roads/Traffic Areas	90%	$1,694	$15,000	$1,819	
Unpaved Shoulders	5%	$11,838	$15,000	$12,907	
Street Sweepers	5%	$10,000	$15,000	$12,500	
Overall PM10		**$1,694**	**$15,000**	**$9,075**	**$ 2,907**
NOx					
Heavy Duty Program	95%	$3,000	$5,000	$4,000	
REMOVE	5%	$14,000	$20,000	$17,000	
Overall NOx		**$3,000**	**$20,000**	**$10,500**	**$ 4,650**

For 2007					
	Projected % of Fund Use	Cost Effectiveness ($/ton reduced)			
		Likely Minimum	Cap[1]	Representative Cost Effectiveness[2]	Weighted Representative Factor
PM10					
Unpaved Roads/Traffic Areas	75%	$1,900	$15,000	$3,183	
Unpaved Shoulders	20%	$11,838	$15,000	$12,907	
Street Sweepers	5%	$10,000	$15,000	$12,500	
Overall PM10		**$1,900**	**$15,000**	**$9,530**	**$ 5,594**
NOx					
Heavy Duty Program	90%	$5,000	$7,000	$6,000	
REMOVE	10%	$14,000	$20,000	$17,000	
Overall NOx		**$5,000**	**$20,000**	**$11,500**	**$ 7,100**

Anticipated Use of ISR Funds for Determining Cost Effectiveness

For 2008					
	Projected % of Fund Use	Cost Effectiveness ($/ton reduced)			
		Likely Minimum	Cap[1]	Representative Cost Effectiveness[2]	Weighted Representative Factor
PM10					
Unpaved Roads/Traffic Areas	55%	$1,900	$15,000	$5,571	
Unpaved Shoulders	35%	$11,838	$15,000	$13,419	
Street Sweepers	10%	$10,000	$15,000	$12,500	
Overall PM10		**$1,900**	**$15,000**	**$10,497**	**$ 9,011**
NOx					
Heavy Duty Program	85%	$7,000	$9,000	$8,000	
REMOVE	15%	$14,000	$20,000	$17,000	
Overall NOx		**$7,000**	**$20,000**	**$12,500**	**$ 9,350**

For 2009					
	Projected % of Fund Use	Cost Effectiveness ($/ton reduced)			
		Likely Minimum	Cap[1]	Representative Cost Effectiveness[2]	Weighted Representative Factor
PM10					
Unpaved Roads/Traffic Areas	55%	$1,900	$15,000	$9,749	
Unpaved Shoulders	35%	$11,838	$15,000	$13,419	
Street Sweepers	10%	$10,000	$15,000	$12,500	
Overall PM10		**$1,900**	**$15,000**	**$11,889**	**$ 11,308**
NOx					
Heavy Duty Program	80%	$9,000	$12,000	$10,500	
REMOVE	20%	$14,000	$20,000	$17,000	
Overall NOx		**$9,000**	**$20,000**	**$13,750**	**$ 11,800**

Anticipated Use of ISR Funds
for Determining Cost Effectiveness

For 2010					
	Projected % of Fund Use	Cost Effectiveness ($/ton reduced)			
		Likely Minimum	Cap[1]	Representative Cost Effectiveness[2]	Weighted Representative Factor
PM10					
Unpaved Roads/Traffic Areas	45%	$1,900	$15,000	$14,682	
Unpaved Shoulders	40%	$11,838	$15,000	$13,419	
Street Sweepers	15%	$10,000	$15,000	$12,500	
Overall PM10		**$1,900**	**$15,000**	**$13,534**	**$ 13,850**
NOx					
Heavy Duty Program	75%	$11,000	$13,000	$12,000	
REMOVE	25%	$14,000	$20,000	$17,000	
Overall NOx		**$11,000**	**$20,000**	**$14,500**	**$ 13,250**

1 The cost effectiveness cap in this column represents the cap that this program would require, not necessarily the historical cap.

2 The representative cost effectiveness is the anticipated cost effectiveness for that year. This is based on district staff forecast.

APPENDIX E
Attachment 1

Project Spending Plan for Proposed Rule 9510 (Indirect Source Review)

November 17, 2005

I. INTRODUCTION

The purpose of this document is to demonstrate that any funds collected by the District will meet their intended purpose of reducing emissions caused by new development in the air basin. It provides a plan for spending any funds generated by the rule in a cost-effective and responsible manner.

Rule 9510 is projected to generate up to $103 million between 2006 and 2008. After 2008 the District will provide a new estimate based on experience with the program and the amount of development occurring in the San Joaquin Valley. The new estimates may be higher or lower than the amounts currently in the rule. To demonstrate the capability to distribute these funds to cost-effective projects, the District has analyzed the potential emission reduction projects available that meet requirements for being surplus, quantifiable, and enforceable. Once the potential projects were identified, staff performed additional research into the cost of individual projects and the potential for owners of the equipment, vehicles, etc. to take advantage of incentive funding.

The District plans on using existing grant programs that are available for immediate funding of projects and to develop new programs for non-traditional sources not eligible for other funding sources such as DMV Surcharge Fees and California Carl Moyer Program funds.

II. Existing Programs

The following existing programs and programs where the District has operated programs in the past are described in Appendix E.

- **Heavy-Duty Engine Incentive Program**
- **REMOVE II Program**
- **Lawnmower Buyback Program**
- **Light and Medium Duty Vehicle Program**
- **Voluntary Accelerated Vehicle Retirement**

The Heavy-Duty Engine Incentive Program and REMOVE II Program are currently in operation and can be used as an outlet for funds from ISR immediately. Other programs where the District has past experience can be implemented quickly.

III. New Programs

Stationary Source Incentive Program

Program concept: Some control options that are in excess of current rule requirements and best available control technology (BACT) thresholds can be implemented with the help of incentive funding. These options typically exceed BACT cost-effectiveness limits or were not required by the rule due to economic impacts; however, relatively cost-effective control options may be available in a variety of industries.

All projects would be required to demonstrate that they are:

- Surplus to all federal, state, and local requirements
- Quantifiable – emission reductions can be determined
- Enforceable – a mechanism is available to ensure that reductions occur
- Permanent – reductions are maintained for the life of the credit

There are several potential ways in which stationary source operators would be attracted to the incentive program:

- Applicant initiated - Applicant proposing expansion or equipment replacement approaches the District with equipment or control technologies in excess of requirements.

- District initiated - District permit engineers identify control technology in excess of BACT requirements and rule requirements during project review and suggest to applicant the potential for going beyond requirements with the help of incentive funding.

- Ongoing program - The District identifies specific equipment or technologies in excess of requirements in a grant program and open application process.

Stationary Source Project Review Process Outline:

1. For projects identified during BACT analysis required under Rule 2201, permit engineers identify potential control technology that exceeds BACT requirements and is surplus of all regulations.
2. The engineer contacts Emission Reduction Incentive Program (ERIP) staff to forward cost effectiveness analysis. *Note: the cost effectiveness performed for ERIP purposes is not the BACT cost effectiveness*.
3. ERIP determines whether project meets ISR funding criteria and contacts PSD and applicant.
4. If not, the project, as initially proposed, is processed by Permit Staff.
5. If yes, 3-parts meeting (ERIP, PSD, Applicant) to review feasible options (technical aspects and funding).

6. Project, as initially proposed, is on hold, waiting for ERIP and applicant final approval/decision.
7. Applicant determines whether the project would be feasible at their facility.
8. If not, the project, as initially proposed, is processed by Permit Staff.
9. If yes, ERIP staff initiates incentive funding application process.
10. For eligible projects, the applicant would complete an application providing contact information and complete project and cost information.
11. Initial project amended to incorporate new proposed control technology.
12. The application would be approved by ERIP and Permit Service Division (PSD).
13. ERIP staff would prepare a contract for the project between the applicant and the District.
14. PSD would incorporate the new controls and emission amounts into the applicant's permit application.
15. PSD issues an Authority to Construct (ATC) allowing the applicant to install the new control.
16. Compliance staff conducts an inspection, that may include a source test for some projects, to verify the emission reductions.
17. Compliance notifies PSD and ERIP that the installation is complete.
18. ERIP approves claim for payment for the contract.
19. Finance issues payment for the project to the applicant.
20. Long term monitoring and reporting is accomplished through the normal process for permitted equipment.
21. ERIP reports emission reductions in periodic reports to the Governing Board.

Projects may also enter the system that are initiated by operators of the permitted sources. In these cases, PSD will conduct an assessment to determine technological feasibility and if the project is surplus and enforceable. PSD would then turn the project over to ERIP for application processing and contracting. Project types that have the potential for large numbers of applications may become an ongoing program component with outreach to recruit applicants.

Example Projects

The following are examples of projects that illustrate the potential to obtain emission reductions through a stationary source incentive program. All projects listed would require additional research and analysis prior to offering incentives.

Example: Replace natural gas fired boilers/burners with cleaner model.

Under District Rule 4306, boilers rated from greater than 5 up to 20 MMBTU per hour are required to achieve a NOx emission rate of 15 ppm. If the applicant currently operated a 30 ppm boiler, when it comes time to replace the boiler, he would be required to install a 15 ppm boiler. Due to advances in technology there are now 9 ppm ultra-low NOx burners available. The cost is in excess of the District's BACT threshold, so the applicant is not required to purchase the 9 ppm boiler. The increment between

the 15 ppm boiler and the 9 ppm boiler are therefore surplus reductions. The incentive amount would be set to cover the extra cost of installing the cleaner boiler. There are approximately 420 units between 5 to 20 MMBTU per hour that are subject to Rule 4306. Complete new burner unit costs are in the range of $28,000 to $57,000 depending on size, based on contact with venders. The differential cost between low emitting and high emitting burners ranges from $5,000 to $7,000

Another possible source of surplus reductions may occur from boilers rated from 2 to 5 MMBTU per hour and subject to proposed Rule 4307, which has a NOx limit of 30 ppm. Some boilers that currently operate above 30 ppm may be exempt from rule retrofit requirements now under development, so the surplus reductions for those units may be calculated from the uncontrolled emissions of 55 ppm down to 9 ppm. The incentive would need to cover 100 percent of the cost of the installation. There are no increased operating costs expected with the 9 ppm burners. There could be more than 300 of these exempt units eligible for an incentive. Unit costs for 2.5 MMBtu/hr 9 ppm burners are about $41,000 based on contact with vendors.

Example: Electrification of stationary non-emergency IC engines.

Stationary engines are required to meet a NOx emission limit specified by Rule 4702. Installing an electric motor in place of the engine would result in a surplus reduction for the increment between the emission limit and the zero emission electric motor. Depending on the current electric rate and price of fuel, there may be a cost increase from changing to electric. The incentive would need to cover the cost of replacing the engine with an electric motor and increased operating costs. There are hundreds of units installed that could take advantage of this program with sufficient incentive amounts. Costs have not been researched.

Example: Install SCR at a flat glass melting furnace.

Glass melting furnaces are required to meet NOx emission limits specified in Rule 4354 when the furnace is next rebuilt. These furnaces are rebuilt approximately every 7 years. The rule requirements can be exceeded with installation of selected catalyst reduction. The surplus reductions can be achieved by using SCR instead of oxy fuel or in addition to oxy fuel in some cases. The cost of control may exceed $10 million per unit, but the large potential emission reductions result in relatively good cost-effectiveness. SCR has high operating costs and would most likely require incentives to cover increased operating costs. There are two potential candidates for this project in the San Joaquin Valley.

Example: Install plenum chambers or additional cyclone separators in cotton gins.

Cotton gins are required to reduce PM10 emissions produced during the ginning process under Rule 4204. Additional controls may be possible for some gins if an

incentive were provided. Installing a plenum chamber before the required cyclone separators may provide reductions if there is room for the equipment in the building. After the cyclone separators there may be potential to add either cyclone separators in or a bag house in series. Feasibility will depend on the gin configuration. There are increased operating costs with adding cyclone separators and bag houses that may impact cost-effectiveness of these options.

PM10 Public Agency Road and Unpaved Surface Program

The District has identified several sources of fugitive PM10 from paved and unpaved roads that provide significant emission reduction potential for the ISR rule. The most promising projects are:

- Paving unpaved roads
- Paving unpaved road shoulders
- Long-term contracts for chemical suppressants on unpaved roads
- Long-term contracts for chemical dust suppressants on unpaved road shoulders
- Purchase of PM10 Efficient Street Sweepers

Program Concept

The District envisions this program as a coordinated effort between the District, Valley Transportation Planning Agencies, city and county road agencies, and public works departments. The funds collected for PM10 will be spent in the county of origin to the extent possible.

The District will develop an application process and evaluation procedure for funding road projects. Some of the key features are outlined below:

General Program Features

1. Each county and the cities within each county will be competing for funds generated in the county
2. The Council of Governments/Transportation Planning Agencies may coordinate the process of identifying funding priorities among the local member jurisdictions.
3. The primary consideration in funding priorities is cost-effectiveness.
4. Projects must not supplant funding from any source.
5. A mix of projects with higher cost-effectiveness may be funded as long as the average cost-effectiveness for the year is consistent with the District's annual target.
6. Once a list of eligible projects is created and ranked, funding would be allocated twice each year as fees are collected by the District.

Unpaved Roads

1. Provide a list of unpaved road segments in descending average daily trip (ADT) sequence (same data used for compliance with Rule 8061).
2. Indicate road segments that will be paved or chemical treated in compliance with Rule 8061.
3. If economic hardship is claimed for Rule 8061, provide justification.
4. As a general rule, the highest ADT road segments should be paved or treated first.
5. Other factors to consider in scoring projects:
   Roads with significant truck traffic should receive added points
   Roads in or near to urban areas should receive added points
6. Payment will be made to the agency after the project is complete.
7. Suppressant projects would be paid annually under a continuing agreement.
8. A single project could be based on total miles of road segments from a jurisdiction so that different roads could be done under one contract.

Paved Road Shoulder Paving Projects

1. Provide a list of unpaved road shoulders in descending average daily trip (ADT) sequence (same list used for compliance with Rule 8061).
2. Indicate road shoulder segments that will be paved or chemical treated in compliance with Rule 8061.
3. Other criteria should be same as unpaved road projects

PM10 Efficient Street Sweepers

1. Provide a description of the existing street sweeping program if any, including sweeping schedule and types of sweepers (PM Efficient or Standard)
2. Demonstrate compliance with Rule 8061 sweeper purchase requirements or provide economic hardship justification.
3. Provide an estimate of the curb miles that will be swept by the new sweeper(s).
4. Projects proposing natural gas vehicles may be eligible for additional funding based on NOx and PM10 exhaust emission reductions.

Agricultural Project Incentive Program

The District has identified several potential projects for agricultural equipment and emission sources not currently eligible for other funding sources. The projects must be surplus to agricultural regulations and be able to demonstrate quantifiable emission reductions.

Program Concept: Although many agricultural sources are now regulated, there are some opportunities for early implementation of controls that are scheduled far enough in the future to result in surplus reductions. In some cases, it is possible to go beyond

current regulations. For example, measures in addition to those required by the Agricultural Conservation Management Program rule.

Agricultural Projects:

- ❖ Lower emitting almond harvester purchase
- ❖ Chippers and shredder purchases as alternative to burning

Project descriptions:

New almond harvesters that emit 35 to 70 percent less PM10 than older units are currently available. Field-testing results completed for the harvesters is currently under analysis by UC Davis. Early introduction of lower emitting almond harvesters will result in significant reductions.

Chipping and shredding wood waste in the orchard instead of burning results in substantial reductions of PM10, NOx, and ROG. Although Rule 4103 phases out most burning by 2010, some will be exempt due to lack of an economic alternative to burning. The District would purchase chippers and shredders for growers that were unable to implement an alternative to burning and had not selected this as a practice for their CMP Plan.

IV. Potential Projects Lists for NOx and PM10

The following tables list potential projects along with estimates of the number of potential projects, costs, emission reductions and cost-effectiveness for each type of project. The purpose of the list is to show that sufficient projects are available at a cost-effectiveness to achieve program goals. The list is not all inclusive. There are many Heavy-Duty Engine Incentive Program and REMOVE II eligible projects that could also be funded. New projects may also become available as retrofit devices are certified and new technologies are released to the market. The conclusion that can be drawn from this information is that projects well in excess of projected funding are available for the ISR program.

Tables are also provided for 2006, 2007, and 2008 containing a demonstration that the cost-effectiveness targets can be met with the types of projects that are available. This is not intended as a funding allocation system. Participation in grant programs is voluntary and on a first come, first served basis. The District may perform targeted outreach and may set up funding pots for the most cost-effective projects if necessary to achieve emission reduction commitments.

NOx Project Availability

	Individual Project Cost	Annual Reduction (t/y)	Project Life	Lifetime Reductions	Project CE $/ton	Projects Available	Total Cost	Cumulative Cost	Category Reductions Life (tons)	Total Reductions t/d	Cumulative Reductions tons	Cumulative CE
Marine Vessels (Harbor Craft) 04 repower	$197,850	7.6	16	121.6	1627.5	1	$197,850	$197,850	121.57	0.02	121.6	$1,627.46
Ag Irrigation Pump Electrification	$21,558	3.0	10	29.9	720.8	142	$3,061,273	$3,259,124	4247.22	0.58	4368.8	$746.00
Marine Vessels (Harbor Craft) 03 repower	$69,288	3.3	16	52.8	1313.3	1	$69,288	$3,328,412	52.8	0.01	4421.6	$752.77
Ag Irrigation Pumps Portable Diesel Repowers	$27,144	2.3	7	15.9	1705.0	50	$1,357,198	$4,685,610	796.0	0.11	5217.6	$898.05
HDD Trucks Idle Reduction	$9,883	0.6	5	3.0	3316.3	320	$3,162,411	$7,848,021	953.6	0.13	6171.2	$1,271.73
Open Burning Chippers Almond	$227,182	5.7	10	57.2	3971.7	1	$227,182	$8,075,203	57.2	0.01	6228.4	$1,296.52
Off-Road Vehicles/Equipment large ag	$48,382	1.7	7	11.8	4100.2	10	$483,820	$8,559,023	118.0	0.02	6346.4	$1,348.65
Auxiliary Power Units (Transportation Refridgeration Units)	$12,518	0.4	5	1.8	6878.1	294	$3,680,348	$12,239,371	535.1	0.07	6881.4	$1,778.61
Ag non self-propelled ICE	$9,200	0.1	7	1.0	8846.2	10	$92,000	$12,331,371	10.4	0.00	6891.8	$1,789.27
On-Road HD Vehicles - Fleet Modernization	$88,756	1.0	10	10.2	8744.4	1000	$88,755,962	$101,087,334	10150.0	1.39	17041.8	$5,931.72
Glass Melting Furnaces - SCR	$22,120,500	239.0	10	2390.0	9255.4	1	$22,120,500	$123,207,834	2390.0	0.33	19431.8	$6,340.52
Off-Road Vehicles/Equipment small ag repowers	$12,677	0.2	7	1.3	9981.9	20	$253,540	$123,461,374	25.4	0.00	19457.2	$6,345.27
Ag non self-propelled ICE - repowers	$15,500	0.2	7	1.5	10402.7	12	$186,000	$123,647,374	17.9	0.00	19475.1	$6,348.99
Small Boilers, Steam Generators, and Process Heaters - replacement	$13,000	0.1	10	1.2	10743.8	1207	$15,691,000	$139,338,374	1460.5	0.20	20935.6	$6,655.58
School Bus Replacement	$110,000	0.3	10	3.1	35483.9	1000	$110,000,000	$249,338,374	3100.0	0.42	24035.6	$10,373.72
Locomotives	$1,414,286	6.0	18.6	111.7	12664.7	10	$14,142,857	$263,481,231	1116.7	0.15	25152.3	$10,475.44
Small Boilers, Steam Generators, and Process Heaters - replacement	$6,000	0.0	10	0.3	18181.8	552	$3,312,000	$266,793,231	182.2	0.02	25334.5	$10,530.85
Forklifts (Electric, ICE, SI)	$44,457	0.4	5	2.0	22798.7	50	$2,222,873	$269,016,104	97.5	0.01	25432.0	$10,577.88
Airport Ground Support Equipment - Electric replacements	$27,889	0.2	5.0	1.1	24753.5	73	$2,035,889	$271,051,993	82.2	0.01	25514.2	$10,623.57
Open Burning Chippers Figs	$185,212	0.6	10	5.7	32379.7	12	$2,222,544	$273,274,537	68.6	0.01	25582.8	$10,681.95
Gross Polluter - VAVR	$3,000	0.1	1	0.08	37500.0	100	$300,000	$273,574,537	8.0	0.00	25590.8	$10,690.33
Old Vehicle - VAVR	$3,000	0.02	3	0.06	50000.0	5000	$15,000,000	$288,574,537	300.0	0.04	25890.8	$11,145.82
									25890.8	3.55		

PM10 Project Availability

	Individual Project Cost	Annual PM10 Reduction (t/y)	Project Life	Lifetime Reductions	Project CE $/ton	Projects Available	Total Cost	Cumulative Cost	Category Reductions Life (tons)	Total Reductions t/d	Cumulative Reductions tons	Cumulative CE
Unpaved Roads - City and County												
Paving 75 ADT roads	$290,000	27.1	20	542.0	535.1	10	$2,900,000	$2,900,000	5420	0.7	5420	$535.06
Paving 25 ADT roads	$290,000	9.0	20	180.7	1605.2	90	$26,100,000	$29,000,000	16260	2.2	21680	$1,337.64
Paving 10 ADT roads	$290,000	3.6	20	72.0	4027.8	100	$29,000,000	$58,000,000	7200	1.0	28880	$2,008.31
Suppressants 10 year contract	$140,080	3.5	10	35.0	4002.3	100	$14,008,000	$72,008,000	3500	1.0	32380	$2,223.84
Paved Roads											32380	
Paving Shoulders	$100,000	0.2	20	3.8	26315.8	500	$50,000,000	$122,008,000	1900	0.5	34280	$3,559.16
Suppresants on Shoulder 10 yr	$48,370	0.2	10	1.6	30231.3	500	$24,185,000	$146,193,000	800	0.2	35080	$4,167.42
PM Efficient Street Sweepers	$152,000	0.9	8	7.3	20821.9	15	$2,280,000	$148,473,000	109.5	0.0	35189.5	$4,219.24
Stationary Source Projects												
Cotton Gin - Install barrel cyclone before master trash 1D3D cyclone	$7,500	1.6	10	16.3	460.1	12	$90,000	$148,563,000	195.6	0.0	35275.6	$4,211.49
Cotton Gin - Install barrel cyclone or 1D2D cyclone before mote system 1D3D cyclone	$60,000	2.8	10	27.6	2173.9	12	$720,000	$149,283,000	331.2	0.0	35606.8	$4,192.54
Cotton Gin - Install plenum chamber before the unloading system and the drying/cleaning systems	$70,000	2.8	10	27.6	2536.2	12	$840,000	$150,123,000	331.2	0.1	35938	$4,177.28
Charbroiler Replacement	$6,600	0.2	10	2.4	2750.0	135.0	$891,000	$151,014,000	324	0.1	36262	$4,164.52
Other Ag Projects												
Almond Harvester Purchase	$145,000	3.6	10	35.7	4061.6	260	$37,700,000	$188,714,000	9282	2.5	45220	$4,173.24
										8.5		

NOx Cost-Effectiveness Demonstration

NOx Project Mix in 2006 to achieve an average cost effectiveness of $4650/ton with $6,006,379 available

	Project Cost	Annual Reduction (t/y)	Project Life	Life Reductions	Total No. Projects Available	Number of Projects in 2006	Total cost	Total tons	Project CE $/ton
Ag Projects									
Ag Irrigation Pump Electrification	$21,558	3.0	10	29.9	142	20	$431,165	598.2	721
Ag Irrigation Pumps Portable Diesel Repowers	$27,144	2.3	7	15.9	50	10	$271,440	159.2	1,705
Off-Road Vehicles/Equipment large ag repowers	$48,382	1.7	7	11.8	10	4	$193,528	47.2	4,100
Ag non self-propelled ICE repowers hay bayler	$9,200	0.1	7	1.0	10	1	$9,200	1.0	8,846
Ag non self-propelled ICE repowers spray rig	$15,500	0.2	7	1.5	12	2	$31,000	3.0	10,403
Off-Road Vehicles/Equipment small ag repowers	$12,677	0.2	7	1.3	20	3	$38,031	3.8	9,982
Open Burning - Chipping Almonds	$227,182	5.7	4	22.9	1	1	$227,182	22.9	9,921
Open Burning - Chipping Figs	$185,212	0.6	4	2.28	12	1	$185,212	2.3	81,233
Marine Projects									
Marine Vessels (Harbor Craft) 03 repower	$69,288	3.3	16	52.8	1	1	$69,288	52.8	1,313
Marine Vessels (Harbor Craft) 04 repower	$197,850	7.6	16	121.6	1	1	$197,850	121.6	1,627
HD Truck/Bus Projects									
HDD Trucks Idle Reduction	$9,883	0.6	5	3.0	320	0	$0	0.0	#DIV/0!

NOx Cost-Effectiveness Demonstration

NOx Project Mix in 2006 to achieve an average cost effectiveness of $4650/ton with $6,006,379 available

HD Truck/Bus Projects *Cont*									
Auxiliary Power Units (Transportation Refridgeration Units) repowers	$12,518	0.4	5	1.8	294	20	$250,364	36.4	6,878
On-Road HD Vehicles Fleet Modernization	$88,756	1.0	10	10.2	1000	10	$887,560	101.5	8,744
School Bus Replacement	$110,000	0.3	10	3.1	1000	9	$990,000	27.9	35,484
Locomotives Tier 0 to Tier 2 or hybrid	$1,414,286	6.0	18.6	111.7	10	1	$1,414,286	111.7	12,665
Stationary Source Projects									
Glass Melting Furnaces	$22,120,500	239.0	10	2390.0	1	0	$0	0.0	#DIV/0!
Small Boilers, Steam Generators, and Process Heaters Replace Existing units with new	$13,000	0.1	10	1.2	1207	1	$13,000	1.2	10,744
Small Boilers, Steam Generators, and Process Heaters Replace Existing units with new	$6,000	0.0	10	0.33	552	12	$72,000	4.0	18,182
Off-Road Mobile									
Forklifts (Electric, ICE, SI)	$44,457	0.4	5	1.95	50	5	$222,287	9.8	22,799
Airport Ground Support Equipment - Electric	$27,889	0.2	5	1.13	73	3	$83,667	3.4	24,753
Other Mobile									
Gross Polluter - VAVR	$3,000	0.1	1	0.08	100	0	$0	0.0	#DIV/0!
Old Vehicle - VAVR	$3,000	0.02	3	0.06	5000	150	$450,000	9.0	50,000
				Overall cost and average CE for 2006			**$6,037,059**	**1316.7**	**4,585**

NOx Project Mix in 2007 to achieve an average cost effectiveness of $7100/ton with $14,407,974 available

	Project Cost	Annual Reduction (t/y)	Project Life	Life Reductions	Total No. Projects Available	Number of Projects in 2007	Total cost	Total tons	Project CE $/ton
Ag Projects									
Ag Irrigation Pump Electrification	21,558	3.0	10	29.9	122	20	$431,165	598.2	721
Ag Irrigation Pumps Portable Diesel Repowers	27,144	2.3	7	15.9	40	20	$542,879	318.4	1,705
Off-Road Vehicles/Equipment large ag repowers	48,382	1.7	7	11.8	6	4	$193,528	47.2	4,100
Ag non self-propelled ICE repowers hay bayler	9,200	0.1	7	1.0	9	4	$36,800	4.2	8,846
Ag non self-propelled ICE repowers spray rig	15,500	0.2	7	1.5	10	4	$62,000	6.0	10,403
Off-Road Vehicles/Equipment small ag repowers	12,677	0.2	7	1.3	17	4	$50,708	5.1	9,982
Open Burning - Chipping Almonds	227,182	5.7	3	17.2	0	0	$0	0.0	#DIV/0!
Open Burning - Chipping Figs	185,212	0.6	3	1.71	11	0	$0	0.0	#DIV/0!
Marine Projects									
Marine Vessels (Harbor Craft) 03 repower	69,288	3.3	16	52.8	0	0	$0	0.0	#DIV/0!
Marine Vessels (Harbor Craft) 04 repower	197,850	7.6	16	121.6	0	0	$0	0.0	#DIV/0!
HD Truck/Bus Projects					0				
HDD Trucks Idle Reduction	9,883	0.6	5	3.0	320	0	$0	0.0	#DIV/0!
Auxiliary Power Units	12,518	0.4	5	1.8	274	40	$500,728	72.8	6,878

NOx Project Mix in 2007 to achieve an average cost effectiveness of $7100/ton with $14,407,974 available

HD Truck/Bus Projects *Cont.*									
On-Road HD Vehicles - Fleet Modernization	88,756	1.0	10	10.2	990	45	$3,994,018	456.8	8,744
School Bus Replacement	110,000	0.3	10	3.1	991	40	$4,400,000	124.0	35,484
Locomotives	1,414,286	6.0	18.6	111.7	9	2	$2,828,571	223.3	12,665
Stationary Source Projects					0				
Glass Melting Furnaces	22,120,500	239.0	10	2390.0	1	0	$0	0.0	#DIV/0!
Small Boilers, Steam Generators, and Process Heaters Replace Existing units with new	13,000	0.1	10	1.2	1206	2	$26,000	2.4	10,744
Small Boilers, Steam Generators, and Process Heaters Replace Existing units with new	6,000	0.0	10	0.33	540	6	$36,000	2.0	18,182
Off-Road Mobile									
Forklifts (Electric, ICE, SI)	44,457	0.4	5	1.95	45	3	$133,372	5.9	22,799
Airport Ground Support Equipment - Electric	27889	0.2	5.0	1.13	70	4	$111,556	4.5	24,753
Other Mobile									
Gross Polluter - VAVR	$3,000	0.1	1	0.08	100	5	$15,000	0.4	37,500
Old Vehicle - VAVR	$3,000	0.02	3	0.06	4850	350	$1,050,000	21.0	50,000
				Overall cost and average CE for 2007			**$14,412,326**	**1892.0**	**7,617**

NOx Project Mix in 2008 to achieve an average cost effectiveness of $9350/ton with $22,373,287 available

	Project Cost	Annual Reduction (t/y)	Project Life	Life Reductions	Total No. Projects Available	Number of Projects in 2008	Total cost	Total tons	Project CE $/ton	Comments
Ag Projects										
Ag Irrigation Pump Electrification	21,558	3.0	10	29.9	102	18	$388,049	538.4	721	
Ag Irrigation Pumps Portable Diesel Repowers	27,144	2.3	7	15.9	20	10	$271,440	159.2	1,705	
Off-Road Vehicles/Equipment large ag repowers	48,382	1.7	7	11.8	2	2	$96,764	23.6	4,100	
Ag non self-propelled ICE repowers hay bayler	9,200	0.1	7	1.0	5	5	$46,000	5.2	8,846	
Ag non self-propelled ICE repowers spray rig	15,500	0.2	7	1.5	6	6	$93,000	8.9	10,403	
Off-Road Vehicles/Equipment small ag repowers	12,677	0.2	7	1.3	13	8	$101,416	10.2	9,982	
Open Burning - Chipping Almonds	227,182	5.6	2	11.1	1	1	$227,182	11.1	20,467	Rule 4103 2010 Implementation
Open Burning - Chipping Figs	185,212	0.6	2	1.14	11	0	$0	0.0	#DIV/0!	Rule 4103 2010 Implementation
Marine Projects										
Marine Vessels (Harbor Craft) 03 repower	69,288	3.3	16	52.8	0	0	$0	0.0	#DIV/0!	
Marine Vessels (Harbor Craft) 04 repower	197,850	7.6	16	121.6	0	0	$0	0.0	#DIV/0!	
HD Truck/Bus Projects					0					
HDD Trucks Idle Reduction	9,883	0.6	5	3.0	320	50	$494,127	149.0	3,316	Idle Aire req. min order of 50 units

NOx Project Mix in 2008 to achieve an average cost effectiveness of $9350/ton with $22,373,287 available

HD Truck/Bus Projects *Cont.*										
Auxiliary Power Units - Repower	12,518	0.4	5	1.8	234	40	$500,728	72.8	6,878	
On-Road HD Vehicles - Fleet Modernization	88,756	1.0	10	10.2	945	66	$5,857,894	669.9	8,744	
School Bus Replacement	110,000	0.3	10	3.1	951	50	$5,500,000	155.0	35,484	
Locomotives	1,414,286	6.0	18.6	111.7	7	4	$5,657,143	446.7	12,665	
Stationary Source Projects					0					
Glass Melting Furnaces	22,120,500	239.0	10	2390.0	1	0	$0	0.0	#DIV/0!	
Small Boilers, Steam Generators, and Process Heaters Replace Existing units with new	13,000	0.1	10	1.2	1204	60	$780,000	72.6	10,744	
Small Boilers, Steam Generators, and Process Heaters Replace Existing units with new	6,000	0.0	10	0.33	534	60	$360,000	19.8	18,182	
Off-Road Mobile					0					
Forklifts (Electric, ICE, SI)	44,457	0.4	5	1.95	42	5	$222,287	9.8	22,799	
Airport Ground Support Equipment - Electric	27889	0.2	5.0	1.13	10	5	$139,444	5.6	24,753	
Other Mobile					0					
Gross Polluter ID & Replace - VAVR	$3,000	0.1	1	0.08	95	50	$150,000	4.0	37,500	
Old Vehicle - VAVR	$3,000	0.02	3	0.06	4500	500	$1,500,000	30.0	50,000	
				Overall cost and average CE for 2008			**$22,385,473**	**2391.7**	**9,359**	

NOx Cost Effectiveness Demonstration

Year	Nox Projected Revenue	NOx CE $/ton
2006	$6,006,379	4,650
2007	$14,407,974	7,100
2008	$22,373,287	9,350
Total	$42,787,640	

PM10 Cost-Effectiveness Demonstration

Project Mix in 2006 to achieve an average cost effectiveness of $2907/ton with $5,941,908 available

	Project Cost	Annual Reduction (t/y)	Project Life	Life Reductions	Total No. Projects Available	Number of Projects in 2006	Total cost	Total tons	Project CE $/ton
Unpaved Roads									
Paving 75 ADT roads	$290,000	27.1	20	542	10	2	$580,000	1084.0	535
Paving 25 ADT roads	$290,000	9.0	20	180.7	90	2	$580,000	361.3	1,605
Paving 10 ADT roads	$290,000	3.6	20	72.0	100	4	$1,160,000	288.0	4,028
Suppressants 10 year contract	$140,080	3.5	10	35.0	100	6	$840,480	210.0	4,002
Paved Roads									
Paving Shoulders	$100,000	0.2	20	3.8	500	14	$1,400,000	53.2	26,316
Suppresants on Shoulder 10 yr	$48,370	0.2	10	1.6	500	16	$773,920	25.6	30,231
PM Efficient Sweeper Purchase	$152,000	0.9	8	7.3	25	2	$304,000	14.6	20,879
Cotton Gins									
Install barrel cyclone before master trash 1D3D cyclone	$7,500	1.6	10	16.3	12	2	$15,000	32.6	460
Install barrel cyclone or 1D2D cyclone before mote system 1D3D cyclone	$60,000	2.8	10	27.6	12	2	$120,000	55.2	2,174
Install plenum chamber before the unloading system and the drying/cleaning systems	$70,000	2.8	10	27.6	12	2	$140,000	55.2	2,536
Other Ag Equipment									
Almond Harvester Purchase	$145,000	3.6	10	35.7	260	0	$0	0.0	#DIV/0!
Average CE in 2006						**Overall cost and CE for 2006**	**$5,913,400**	**2179.7**	**2,713**

Project Mix in 2007 to achieve an average cost effectiveness of $5594/ton with $20,861,575 available

	Project Cost	Annual Reduction (t/y)	Project Life	Life Reductions	Total No. Projects Available	Number of Projects in 2007	Total cost	Total tons	Project CE $/ton
Unpaved Roads									
Paving 75 ADT roads	$290,000	27.1	20	542	8	0	$0	0.0	#DIV/0!
Paving 25 ADT roads	$290,000	9.0	20	180.7	88	5	$1,450,000	903.3	1,605
Paving 10 ADT roads	$290,000	3.6	20	72.0	96	22	$6,380,000	1584.0	4,028
Suppressants 10 year contract	$140,080	3.5	10	35.0	94	16	$2,241,280	560.0	4,002
Paved Roads					0				
Paving Shoulders	$100,000	0.2	20	3.8	486	55	$5,500,000	209.0	26,316
Suppresants on Shoulder 10 yr	$48,370	0.2	10	1.6	484	50	$2,418,500	80.0	30,231
PM Efficient Sweeper Purchase	$152,000	0.9	8	7.3	23	12	$1,824,000	87.4	20,879
Cotton Gins									
Install barrel cyclone before master trash 1D3D cyclone	$7,500	1.6	10	16.3	10	2	$15,000	32.6	460
Install barrel cyclone or 1D2D cyclone before mote system 1D3D cyclone	$60,000	2.8	10	27.6	10	2	$120,000	55.2	2,174
Install plenum chamber before the unloading system and the drying/cleaning systems	$70,000	2.8	10	27.6	10	2	$140,000	55.2	2,536
Other Ag Equipment									
Almond Harvester Purchase	$145,000	3.6	10	35.7	260	2	$290,000	71.4	4,062
Average CE in 2007						**Overall cost and CE for 2007**	**$20,378,780**	**3638.1**	**5,602**

Project Mix in 2008 to achieve an average cost effectiveness of $9011/ton with $33,883,309 available

	Project Cost	Annual Reduction (t/y)	Project Life	Life Reductions	Total No. Projects Available	Number of Projects in 2008	Total cost	Total tons	Project CE $/ton
Unpaved Roads									
Paving 75 ADT roads	$290,000	27.1	20	542	8	1	$290,000	542.0	535
Paving 25 ADT roads	$290,000	9.0	20	180.7	83	5	$1,450,000	903.3	1,605
Paving 10 ADT roads	$290,000	3.6	20	72.0	74	10	$2,900,000	720.0	4,028
Suppressants 10 year contract	$140,080	3.5	10	35.0	78	5	$700,400	175.0	4,002
Paved Roads					0				
Paving Shoulders	$100,000	0.2	20	3.8	431	175	$17,500,000	665.0	26,316
Suppresants on Shoulder 10 yr	$48,370	0.2	10	1.6	434	160	$7,739,200	256.0	30,231
PM Efficient Sweeper Purchase	$152,000	0.9	8	7.3	11	11	$1,672,000	80.1	20,879
Cotton Gins					0				
Install barrel cyclone before master trash 1D3D cyclone	$7,500	1.6	10	16.3	8	2	$15,000	32.6	460
Install barrel cyclone or 1D2D cyclone before mote system 1D3D cyclone	$60,000	2.8	10	27.6	8	2	$120,000	55.2	2,174
Install plenum chamber before the unloading system and the drying/cleaning systems	$70,000	2.8	10	27.6	8	2	$140,000	55.2	2,536
Other Ag Equipment									
Almond Harvester Purchase	$145,000	3.6	10	35.7	258	6	$870,000	214.2	4,062
Average CE in 2008						**Overall cost and CE for 2008**	**$33,396,600**	**3698.6**	**9,029**

PM10 Cost-Effectiveness Demonstration

Year	PM10 Projected Revenue	PM10 CE $/ton
2006	$5,941,908	2,907
2007	$20,306,433	5,594
2008	$33,883,309	9,011
Total	$60,131,650	

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APPENDIX F

Socioeconomic Analysis for Proposed Rule 9510 (Indirect Source Review) and Rule 3180 (Administrative Fees for Air Impact Assessment Applications)

November 17, 2005

SOCIOECONOMIC ANALYSIS PROPOSED INDIRECT SOURCE RULE: DRAFT RULES 9510 AND 3180

4 November 2005

Prepared for

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1. EXECUTIVE SUMMARY

The San Joaquin Valley Unified Air Pollution Control District ("District") seeks to adopt New Rule 9510 and 3180 to meet certain United States Environmental Protection Agency (US EPA) mandates and timelines with regards to improved air quality in the region. This section of the report summarizes the findings of the socioeconomic analysis of Rules 9510 and 3180.

The analysis indicates that while the worst-case residential fee that a typical residential development would pay under Draft Rule 9510 and 3180 can increase the amount of household income required to finance the purchase of a new home, the estimated increase represents a small fraction of the original household income required to finance a new home in the event no air quality fees were in place. The affect of the fees on rents is similarly small.

The analysis also examines the question of housing affordability from the vantage point of low- and moderate-income households. The analysis demonstrates that, even before the imposition of an air quality fees, most low-income and households in the Central Valley are priced out of newly constructed multifamily unit market, the rents for which need to be at levels that account for price of land, development costs, developer fees, and an adequate level of profit, among other things. The analysis discusses how public subsidies can assist in enhancing the financial feasibility of a real estate project in which a certain portion of units are set-aside as below-market rental units.

The analysis also examines the impacts of proposed worst-case off-site emission reduction fees on commercial, industrial and institutional projects. While a typical non-residential development can absorb the 2006 and 2008 fees, projects will have to recover the cost of the fee over a period of time.

It is important to note that any fee identified in the report is the estimated maximum fee in the worst-case scenario for a typical development project, with the understanding that the

actual fee will vary with the particulars of any project. Any fee in the report is presented for the purposes of analyzing potential impacts given costs associated with reducing quantifiable emissions resulting from what constitutes typical residential, commercial and industrial developments. It is also important to note that the developer may reduce fees by incorporating on-site emission reduction measures into the projects. There may or may not be costs associated with on-site measures. In any event, it is anticipated that the developer will choose the least costly option.

2. INTRODUCTION

This report describes the socioeconomic impacts of Rule 9510 (Indirect Source Review – ISR) and 3180 (Administrative Fees for Indirect Source Review). Following this introduction, the report summarizes the proposed amendments and describes the methodology for the socioeconomic analysis. In Section 5, the report describes the economic characteristics of sources affected by Rule 9510 and 3180. The sixth section analyzes the socioeconomic impacts of compliance costs on the regional economy.

The report is prepared pursuant to the provisions of AB2051 (Section 40728.5 of the California Health and Safety Code), which requires an assessment of socioeconomic impacts of proposed air quality rules. The findings in this report can assist District staff in understanding the socioeconomic impacts of Rules 9510 and 3180, and can assist staff in preparing a refined version of the rule. A final report will be presented at the Governing Board hearing by District staff in December 2005. Figure 1 is a map of the eight-county region that comprises the San Joaquin Valley Air Basin. As indicated in the map, Kern County is not completely in the District.

FIGURE 1
San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD) Air Basin

3. DESCRIPTION OF NEW RULES 9510 & 3180

The San Joaquin Valley Air Basin (SJVAB) is classified as a nonattainment area for the state and federal health based ambient ozone and PM 10 standards by the California Air Resources Board (ARB) and the U.S. Environmental Protection Agency (EPA). The SJVAB is currently classified as serious nonattainment for the 24-hour and annual National Ambient Air Quality Standards (NAAQS) for particulate matter 10 microns in size and smaller (PM10), extreme nonattainment for the federal 1-hour ozone standard, serious nonattainment for the new federal 8-hour ozone standard, and severe nonattainment for the 1-hour state ozone standard.

The San Joaquin Valley Unified Air Pollution Control District's (District) adopted 2003 PM10 Plan projects attainment of NAAQS for PM10 at the earliest practicable date of December 31, 2010. The Indirect Source Rule[1] (ISR) is one of the commitments contained in the 2003 PM10 Plan to achieve these emissions reductions. The ISR commitment will be implemented through Rules 9510 and 3180. The purpose of Draft Rule 9510 is to reduce emissions of NOx and PM10 from new development projects. The purpose of Draft Rule 3180 is to recover the costs of administering Draft Rule 9510. Implementation of these draft rules is expected to reduce NOx and PM10 emissions by 5.4 and 5.8 tons per day respectively.

The District identified several examples of air pollution agencies in California that are currently reviewing land use projects for indirect source impacts and/or collecting mitigation fees in their districts. District staff reviewed programs being implemented by the Mendocino County and Shasta County Air Quality Management Districts and the Great Basin, Colusa County, and Placer County Air Pollution Control Districts. District staff also considered a number of

[1] Indirect Sources are land uses that attract or generate motor vehicle trips.

program types including District permitting, city/county review, District review, and simple fee.

Despite significant air pollution reductions from both mobile and stationary sources, the District exceeds state and federal air quality standards for ozone and PM10. Although today's new cars pollute about 90 percent less than models produced 25 years ago (due to California's strict vehicle emissions standards), large increases in population and driving partially offset the benefits these cleaner-burning vehicles provide. The District's total population increased by 22 percent between 1990 and 2000; and, California's Department of Finance projects that the SJVAB's population will increase by 24 percent between 2000 and 2010. With increased population, there is an increase in emissions from area sources, such as consumer products, fuel combustion, landscape maintenance equipment, etc.

The total number of vehicle miles traveled (VMT) in the District has increased at a rate faster than population growth. The district witnessed a nine percent increase between 1999 and 2002, and is expecting a 27 percent increase from 2002 to 2010. Entrained and re-entrained paved road dust and corresponding PM10 emissions increase as VMT increases.

To reduce emissions of NOx and PM10, Draft Rule 9510 would apply to development projects that will seek to gain a discretionary approval for projects that, upon full build-out will include any one of the following: 50 residential units, 2,000 square feet of commercial space, 25,000 square feet of industrial space, 20,000 square feet of medical office space, 39,000 square feet of general office space, 9,000 square feet of educational space, 10,000 square feet of government space, 20,000 square feet of recreational space, or 9,000 square feet of unidentified space. Certain transportation projects, transit projects, reconstruction projects that result from a natural disaster, and development projects whose primary source of emissions are subject to District Rule 2201 or 2010 would be exempt from this Draft Rule. Also, development projects that have a mitigated baseline below two tons per year for each pollutant would be exempt from the emission reduction requirements of the rule.

Draft Rule 9510 would require new development project applicants to submit an Air Impact Assessment application to the District prior to or at application for a project's final discretionary approval with a public agency. The application would include an assessment, project location and description, an on-site emission reduction checklist, a proposed Monitoring and Reporting Schedule (MRS), and a fee deferral agreement if necessary. The District would have 10 days to determine whether or not the application is complete. After deeming an application complete, the district would have 30 days to approve the application and notify the applicant of the fee amounts.

Draft Rule 9510 would require developers to reduce cumulative NOx emissions in excess of 50 percent of the project's first-year operational baseline emissions until the emissions reach 50 percent of the first-year baseline emissions (approximately 10 years). Developers would be required to reduce PM10 emissions equal to half of the first-year emissions after build-out for the same time period required for NOx reductions. Developers would also be required to reduce emissions from construction equipment NOx by 20%, and PM10 by 45% compared to the statewide fleet average. Emissions could be reduced through on-site emission reduction measures, by paying the District a fee to fund emission reduction projects off-site, or through a combination of the two.

To recover the costs of administering Draft Rule 9510, Draft Rule 3180 would include a non-refundable application filing fee to be paid when an application is submitted to the District. Once an application and application fee are received, District staff would log the total staff hours spent on the project. So that only the cost of the actual hours spent on the project is recovered, the cost of the hours spent on the project (hours multiplied by a weighted average labor rate) would be subtracted from the application fee. Draft Rule 3180 would also contain a fee, payable when the off-site emission reduction fees are collected, equal to four percent of the off-site fees to recover the cost of administering off-site emission reduction projects.

4. METHODOLOGY

The socioeconomic analysis involves the use of information provided directly by affected sources, as well as secondary data used to describe the industries affected by the proposed provisions of Rule 9510 and 3180. The approach is briefly described below.

This report relies heavily on the most current data available from a variety of sources. For commercial-industrial prices, this report relies on Dataquick, Loopnet.com and Realtor.com. For construction trends, this report relied on the Construction Industry Research Board. When estimating cost of construction, we used "Commercial Square Foot Building Costs: 2004", by Deloitte Saylor Publication, as well as per square foot cost of construction estimates used by many cities when estimating the value of a project. For purposes of estimating profits, ADE relied on Dun and Bradstreet, as well as corporate reports of major home builders and developers of commercial-industrial space operating in California and the Central Valley.

With the above information, ADE was able to estimate profit ratios for sources affected by the draft rule. ADE calculated ratios of profit per dollar of revenue for affected industries. The result of the socioeconomic analysis shows what proportion of profits the compliance costs represent. Based on assumed thresholds of significance, ADE discusses in the report whether the affected sources are likely to pass on costs to consumers or to reduce jobs as a means of recouping the cost of rule compliance or as a result of reducing business operations. To the extent that such job losses appear likely, the indirect multiplier effects of the jobs losses are estimated using a regional IMPLAN input-output model.

When analyzing the socioeconomic impacts of proposed new rules and amendments, ADE works closely within the parameters of accepted methodologies discussed in a 1995 California Air Resources Board report called "Development of a Methodology to Assess the Economic Impact Required by SB513/AB969" (by Peter Berck, PhD, UC Berkeley

Department of Agricultural and Resources Economics, Contract No. 93-314, August, 1995). The author of this report reviewed a methodology to assess the impact that California Environmental Protection Agency proposed regulations would have on the ability of California businesses to compete. The California Air Resources Board (ARB) has incorporated the methodologies described in this report in its own assessment of socioeconomic impacts of rules generated by ARB. One methodology relates to determining a level above or below which a rule and its associated costs is deemed to have significant impacts. When analyzing the degree to which its rules are significant or insignificant, ARB employs a threshold of significance that ADE follows. Berck reviewed the threshold in his analysis and wrote, "The Air Resources Board's (ARB) use of a 10 percent change in [Return on Equity] ROE (i.e. a change in ROE from 10 percent to a ROE of 9 percent) as a threshold for a finding of no significant, adverse impact on either competitiveness or jobs seems reasonable or even conservative."

5. IMPACT INDUSTRIES SUBJECT TO NEW RULES 9510 & 3180 (INDIRECT SOURCE RULE)

This section of the socioeconomic analysis describes demographic and economic trends in the San Joaquin Valley region. The first part of this section compares the San Joaquin Valley region against California as a whole, and provides a context for understanding demographic and economic changes that occurred within the San Joaquin Valley region between 1998 and 2003. Starting with sub-section 5.2, the second part of this section narrows the focus of the socioeconomic analysis to industries affected by New Rules 9510 and 3180. The second part of this section describes the economic characteristics of potentially impacted industries that might be subject to Rules 9510 and 3180.

In this report, the San Joaquin Valley region is defined as Fresno, Kern, Kings, Madera, Merced, San Joaquin, Stanislaus and Tulare counties. Data for Kern County in Tables 1 and 2 are for all of Kern County, although Kern County is only partially in the San Joaquin Valley Air Basin. Starting with Table 3, data for Kern County are for the part of Kern County that is in the San Joaquin Valley Air Basin.

5.1 REGIONAL DEMOGRAPHIC AND ECONOMIC TRENDS

REGIONAL DEMOGRAPHIC TRENDS

The San Joaquin Valley region experienced tremendous population growth during the 1990s. Many came to this area because of affordable housing. As a result, population increased significantly. The eight-county region's population increased by 22 percent (or approximately 2.0 percent annually), from 2.9 million in 1993 to 3.6 million in 2003. While the State of California's population increased by 15 percent (or approximately 1 percent annually), all the counties in the region experienced faster rates of growth, and two counties grew at rates that were triple the State's growth rate, as Table 1 shows. While by many standards Madera County continues to be a small county– at 135,262 residents

according to the Department of Finance–it still experienced a 35 percent growth in population during the last decade (or three percent annually). Kings County also grew by three percent per year. As demonstrated in the following section on regional economic trends, the demographic changes that occurred in the San Joaquin Valley region during the 1990s significantly influenced the economy of this eight-county region.

TABLE 1
Population Growth: San Joaquin Valley Region, 1993 - 2003

	1993	1998	2003	Distribution, 2003	Annual Per. Chng 93-98	Annual Per. Chng 98-03	Annual Per. Chng 93-03
California	31,303,452	32,670,019	36,144,267		1%	2%	1%
SJV Region	2,959,911	3,192,439	3,615,696	10%	2%	3%	2%
Fresno	722,608	781,936	862,642	24%	2%	2%	2%
Kern	593,087	637,227	724,883	20%	1%	3%	2%
Kings	109,648	120,957	141,434	4%	2%	3%	3%
Madera	100,297	114,137	135,262	4%	3%	3%	3%
Merced	191,883	203,181	232,141	6%	1%	3%	2%
San Joaquin	507,170	546,852	630,577	17%	2%	3%	2%
Stanislaus	400,417	428,272	491,929	14%	1%	3%	2%
Tulare	334,801	359,877	396,828	11%	1%	2%	2%

Source: Applied Development Economics, based on California Department of Finance

Housing construction in the San Joaquin Valley Air Basin has paralleled this increase in population. Low interest and the availability of land at prices lower than in coastal areas of California has fueled construction activity in the Central Valley. Tables 2 and 3 track building permits for single-family and multi-family homes. According to the California Construction Industry Research Board, home-builders typically take out building permits only when they are ready to construct housing. Thus, building permits is a good indicator of housing production. As Table 2 shows, the amount of single-family building permits increased by 14 percent annually between 1998 and 2003 in the Central Valley, easily surpassing the statewide annual rate of eight percent. Almost forty percent of all single family building permits was for projects in San Joaquin and Stanislaus County in 2003. As the tables below show, the amount of new construction for single-family homes greatly exceeds new

construction for multi-family housing, for reasons related to market demand, availability of land, and historically low-interest rates, among other reasons.

TABLE 2
Single-Family Residential Building Permit Trends:
San Joaquin Valley, 1993-2003

	---------- SFU Building permits ----------						
	1993	1998	2003	Distribution, 2003	Annual Per. Chng 93-98	Annual Per. Chng 98-03	Annual Per. Chng 93-03
California	69,901	94,298	138,762		6%	8%	7%
SJV Region	15,055	14,280	27,080	20%	-1%	14%	6%
Fresno	3,743	2,742	4,479	17%	-6%	10%	2%
Kern	3,082	3,025	5,529	20%	0%	13%	6%
Kings	530	526	835	3%	0%	10%	5%
Madera	694	473	1,144	4%	-7%	19%	5%
Merced	1,087	960	2,489	9%	-2%	21%	9%
San Joaquin	2,545	3,170	6,727	25%	4%	16%	10%
Stanislaus	1,835	1,997	3,884	14%	2%	14%	8%
Tulare	1,539	1,387	1,993	7%	-2%	8%	3%

Source: Applied Development Economics, based on Construction Industry Research Board

TABLE 3
Multi-Family Residential Building Permit Trends: San Joaquin Valley, 1993-2003

	---------- MFU Building permits ----------						
	1993	1998	2003	Distribution, 2003	Annual Per. Chng 93-98	Annual Per. Chng 98-03	Annual Per. Chng 93-03
California	14,755	31,409	56,920		16%	13%	14%
SJV Region	1,309	1,403	3,699	6%	1%	21%	11%
Fresno	404	292	1,520	41%	-6%	39%	14%
Kern	314	428	583	16%	6%	6%	6%
Kings	13	231	143	4%	78%	-9%	27%
Madera	105	160	90	2%	9%	-11%	-2%
Merced	20	72	457	12%	29%	45%	37%
San Joaquin	83	59	225	6%	-7%	31%	10%
Stanislaus	148	93	284	8%	-9%	25%	7%
Tulare	222	68	397	11%	-21%	42%	6%

Source: Applied Development Economics, based on Construction Industry Research Board

While the value of single-family unit building permits in the Central Valley is lower by almost $40,000 than the value of single family building permits for the state as a whole, it is worth noting that between 1998 and 2003 average values rose

faster in the region as compared to the state (see Table 4). Using average construction cost figures adjusted for regional and historical variations, local officials estimate the value of single-family, multi-family and commercial and industrial building permits for reasons related to calculating fees and maintaining departmental budgets. The actual price of housing on the market is typically higher than the estimated value of the building permit, though changes in the value of building permits are a good indication as to the trajectory of change in the actual housing market.

TABLE 4
Average Value of Single-Family Unit Building Permit, San Joaquin Valley

	---------- Average Value ----------					
	1993	1998	2003	Annual Per. Chng 93-98	Annual Per. Chng 98-03	Annual Per. Chng 93-03
California	$183,559	$218,055	$217,271	4%	0%	2%
SJV Region	$130,879	$141,956	$170,604	2%	4%	3%
Fresno	$135,736	$150,044	$183,122	2%	4%	3%
Kern	$130,191	$130,167	$149,816	0%	3%	1%
Kings	$141,740	$136,190	$119,485	-1%	-3%	-2%
Madera	$100,791	$102,214	$150,562	0%	8%	4%
Merced	$135,439	$140,674	$153,139	1%	2%	1%
San Joaquin	$143,809	$161,303	$197,209	2%	4%	3%
Stanislaus	$119,981	$143,309	$176,566	4%	4%	4%
Tulare	$118,658	$122,141	$153,456	1%	5%	3%

Source: Applied Development Economics, based on Construction Industry Research Board

Table 5 below identifies the median price for for-sale owner-occupied housing in the Central Valley. The data comes from Dataquick. In the last two years, the median selling price of homes sold on the market has increased substantially. Dataquick's median housing price data cover transactions involving newly built homes, reselling of older homes, and condominiums and townhouses. At almost $300,000 the median price of a home in Madera County is almost twice what is was in July 2003.

TABLE 5
Median Home Sale Prices: San Joaquin Valley, 2003-2005 ($2005)

	July 2003	July 2004	July 2005	03-04	04-05
Fresno County	$171,220	$220,955	$265,000	29%	20%
Kern County	$136,353	$176,041	$236,500	29%	34%
Madera County	$151,811	$242,638	$299,500	60%	23%
Merced County	$207,151	$242,638	$335,000	17%	38%
San Joaquin County	$247,295	$320,075	$403,000	29%	26%
Stanislaus County	$245,165	$278,775	$360,000	14%	29%
Tulare County	$131,494	$159,005	$215,500	21%	36%
	$184,356	$234,304	$302,071	27%	29%

Source: Applied Development Economics, based on Dataquick

REGIONAL ECONOMIC TRENDS

The influx of people moving into the region in search of homes that are more affordable than homes in the San Francisco Bay Area affects more than the housing market. The affect of more people in the San Joaquin Valley region can also be seen in the changing economic profile of the region.

Economic development practitioners and planners have traditionally divided economies into two broad industrial categories—the economic base and local support industries. Economic base industries are the drivers of local and regional economies in that these industries draw income into a local economy by selling products outside of the local economy, much like the export industries of a national economy. Accrued earnings then circulate throughout the local area in the form of wages and salaries, investments, purchases of fixed assets, and goods and services, generating more jobs and wealth.

The economic base is typically comprised of industries within the manufacturing, minerals-resource extraction, and agricultural sectors. There are also the "local support industries" such as retail or service sectors, the progress of which is a function of the economic base and demographic changes, and more so the latter than the former. As population increases in a given area, demand for services–such as realtors, teachers, and healthcare–increases, as does

demand for basic retail items like groceries, gas for commuting, or clothing at the local apparel shops.

Agriculture is the economic base of the San Joaquin Valley region by virtue of the amount of goods this sector produces and exports throughout the nation and the globe. Fourteen percent of all workers in the region are employed by industries within agriculture, as Table 2 shows. However, in 1998 the proportion of workers in agriculture was 18 percent. In fact, over the five-year period between 1998 and 2003, employment in agriculture declined by three percent per year, or by 15 percent over five years.

Between 1998 and 2003, local support industries gained in prominence within the San Joaquin Valley region. Service-rendering industries employed the most workers as a proportion of total employment in the region. As Table 2 shows, excluding wholesale, retail and transportation, service-rendering industries comprise the largest employment sector in the region, at 647,100 or 53 percent of all jobs. With retail, transportation and wholesale, services accounts for slightly over 70 percent of all jobs. In 1998, service-rendering industries represented 50 percent of all jobs, and when including retail, wholesale and transportation in the mix, 67 percent.

Increases in employment in service-rendering industries are consistent with regional population growth. In the region, local support industries of construction, education and health, financial activities, and government increased annually by six percent, four percent, three percent and three percent respectively between 1998 and 2003.

TABLE 6
Employment Profile Of The San Joaquin Valley Region 1998 – 2003

MAJOR SECTORS	San Joaquin Valley Region Employment 1998	San Joaquin Valley Region Employment 2003	San Joaquin Valley Region Employment Distribution, 2003	Annual Percent Change 1998 to 2003	California Employment Distribution, 2003	Annual Percent Change 1998 to 2003
Agriculture	204,200	174,900	14%	-3%	3%	-2%
Resources, Mining and Construction	57,400	78,100	6%	6%	5%	5%
Manufacturing	114,300	110,300	9%	-1%	10%	-4%
Wholesale	34,400	39,000	3%	3%	4%	1%
Retail	121,400	133,200	11%	2%	11%	2%
Transportation/Warehousing/Utilities	37,600	45,700	4%	4%	3%	-1%
Information	15,000	14,200	1%	-1%	3%	-0.5%
Financial Activities	40,400	46,600	4%	3%	6%	3%
Professional and Business Services	88,000	95,100	8%	2%	14%	1%
Educational and Health Services	101,500	122,200	10%	4%	10%	3%
Leisure, Hospitality and Other Srvcs	112,500	116,400	9%	1%	13%	2%
Government	221,200	252,600	21%	3%	16%	2%
Total Employment	**1,147,900**	**1,228,300**	**100%**	**1%**	**100%**	**1%**

Source: Applied Development Economics, based on data from California Employment Development Department LMID

The emergence of local support industries in the San Joaquin Valley region mirrors and leads statewide trends, as Table 6 shows. In the region, construction, health-education, and government increased annually by six percent, four percent and three percent, whereas, statewide, these industries grew by five percent, three percent and two percent per year between 1998 and 2003. In short, while agriculture remains the leading edge of the economy, the San Joaquin Valley region's economy has become more diverse, with the growth occurring within population-driven local support industries rather than the export-focused economic base industries of manufacturing and agriculture.

5.2 *DESCRIPTION OF AFFECTED INDUSTRIES*

The analysis below examines trends of industries that will be likely affected by Draft Rules 9510 and 3180. According to the rule, developers of applicable development projects will have to pay a fee to reduce emissions related to the project that are not reduced on-site. The analysis below seeks to understand the possible impact of the fee on the economics of a development project, particularly with respect to project profitability and with respect to impacts on the final user,

which, in the case of housing, is the homebuyer or renter. The report takes into consideration existing fees that are already in place, meaning that the analysis is on the incremental impact of the new fee on top of existing fees.

The following section reviews residential and commercial-industrial trends in certain number of cities in the eight-county region. The report focuses on 27 cities in the region. Table 7 below organizes the 27 cities into different typologies. The consultant obtained information regarding existing fees on residential and commercial development from many of these jurisdictions. In addition, the report references a report issued by State of California's Housing and Community Development Department, called "Pay to Play." This report also tracks residential development fees for many cities in the Central Valley.

TABLE 7
Select Central Valley Cities By Type

Type	Cities
Large Urban	Fresno, Bakersfield
Bay Area Commuter Shed	Stockton, Modesto, Manteca, Lodi, Tracy
Medium	Visalia, Clovis, Merced, Turlock, Hanford, Porterville, Tulare
Small/Med Bedroom Community	Ceres, Sanger, Atwater, Selma, Linden
Small Rural/Farming	Mendota, Wasco, Firebaugh, Avenal, Taft, Orange Cove, Oakhurst, Shafter

Source: San Joaquin Valley Unified Air Pollution Control District

HOUSING TRENDS IN SELECT CITIES

Table 8 below identifies the population for the 27 cities that are the focus of this analysis. These cities consist of over 2 million residents, or 55 percent of all people in the eight-county San Joaquin Valley region. Between 1998 and 2003, population in these cities grew by three percent annually, which is consistent with annual population growth rates for the region as a whole (see Table 1).

TABLE 8
Population Trends of Select Cities in the San Joaquin Valley Region, 1993-2003

			------ Population ------				
	City	County	1993	1998	2003	1993-1998	1998-2003
Large Urban	Bakersfield	Kern	192,351	220,771	268,914	3%	4%
	Fresno	Fresno	385,914	409,070	450,614	1%	2%
			578,265	**629,841**	**719,528**	**2%**	**3%**
Bay Area Commuter Shed	Lodi	San Joaquin	52,936	55,844	60,317	1%	2%
	Manteca	San Joaquin	42,833	47,256	57,485	2%	4%
	Modesto	Stanislaus	176,241	182,929	203,498	1%	2%
	Stockton	San Joaquin	222,992	241,777	262,553	2%	2%
	Tracy	San Joaquin	39,913	47,687	69,987	4%	8%
			534,915	**575,493**	**653,840**	**1%**	**3%**
Medium	Clovis	Fresno	57,036	67,291	76,545	3%	3%
	Hanford	Kings	33,892	39,012	44,833	3%	3%
	Merced	Merced	59,270	61,705	68,155	1%	2%
	Porterville	Tulare	32,310	36,286	42,181	2%	3%
	Tulare	Tulare	37,342	40,848	46,538	2%	3%
	Turlock	Stanislaus	46,481	50,958	62,256	2%	4%
	Visalia	Tulare	84,725	93,856	99,460	2%	1%
			351,056	**389,956**	**439,968**	**2%**	**2%**
Small/Med Bedroom Community	Atwater	Merced	22,528	22,944	26,216	0.4%	3%
	Ceres	Stanislaus	29,331	32,289	36,449	2%	2%
	Linden	San Joaquin	1,090	1,068	1,046	-0.4%	-0.4%
	Mendota	Fresno	7,287	7,521	8,203	1%	2%
	Sanger	Fresno	17,927	18,557	19,993	0.7%	2%
	Selma	Fresno	16,462	17,937	21,003	2%	3%
			94,625	**100,316**	**112,910**	**1%**	**2%**
Small Rural/Farming	Avenal	Kings	11,459	12,178	15,428	1%	5%
	Firebaugh	Fresno	5,031	5,565	6,201	2%	2%
	Oakhurst	Madera	2,570	2,519	2,833	0%	2%
	Orange Cove	Fresno	5,709	7,095	8,782	4%	4%
	Shafter	Kern	10,771	11,182	13,443	0.8%	4%
	Taft	Kern	6,508	7,375	9,027	3%	4%
	Wasco	Kern	17,212	20,083	22,400	3%	2%
			59,260	**65,996**	**78,114**	**2%**	**3%**
San Joaquin Valley Air Basin			**1,618,121**	**1,761,601**	**2,004,360**	**2%**	**3%**

Source: Applied Development Economics, based on California Department of Finance and US Census

Table 9 identifies the number of single-family dwelling unit building permits issued by the 27 cities. As the table shows, the cities issued 17,641 single-family building permits in 2003, which represents almost two-thirds of all single-family building permits issued in the eight-county region as a whole. Table 10 identifies the number of multi-family dwelling units issued by the 27 cities. The amount of these permits represents almost 80 percent of all multi-family building permits issued in the region as a whole in 2003. For these reasons, the cities are representative of the larger region.

TABLE 9 Single-Family Dwelling Units Building Construction Permits, San Joaquin Valley Region 2000-2003

	2000		2001		2002		2003		2000 - 2003	
	Nos. of Permits	Avg. Value	Nos. of Permits	Avg. Value	Nos. of Permits	Avg. Value	Nos. of Permits	Avg. Value	Annual Change in Permits	Annual Change in Avg. Value
01 Large Urban	3,381	$132,038	4019	$132,089	4083	$137,988	5162	$152,257	15%	5%
02 Bay Area Commuter Shed	6,223	$161,757	4699	$172,165	6084	$172,996	6208	$176,852	-0.1%	3%
03 Medium	2,705	$125,488	3585	$141,040	4178	$153,806	5218	$156,243	24%	8%
04 Small/Med Bedroom Community	365	$105,702	542	$112,427	651	$118,285	801	$128,044	30%	7%
05 Small Rural/Farming	190	$83,956	262	$87,732	314	$85,667	252	$98,046	10%	5%
	12,864	$143,580	13107	$147,205	15310	$154,305	17641	$160,217	11%	4%

TABLE 10 Multi-Family Dwelling Units Building Construction Permits, San Joaquin Valley Region 2000-2003

	2000		2001		2002		2003		2000 - 2003	
	Nos. of Permits	Avg. Value	Nos. of Permits	Avg. Value	Nos. of Permits	Avg. Value	Nos. of Permits	Avg. Value	Annual Change in Permits	Annual Change in Avg. Value
01 Large Urban	177	$67,079	182	$73,639	454	$61,259	1150	$67,333	87%	0%
02 Bay Area Commuter Shed	84	$56,183	368	$59,905	514	$65,380	275	$69,075	48.5%	7%
03 Medium	206	$63,512	27	$64,680	155	$76,627	1119	$77,362	76%	7%
04 Small/Med Bedroom Community	51	$48,135	7	$38,617	71	0	162	$22,627	47%	-22%
05 Small Rural/Farming	83	$40,584	135	$36,997	4	$48,978	194	$56,369	33%	12%
	601	$59,067	719	$59,052	1,198	$61,344	2900	$68,137	69%	5%

Source: Applied Development Economics, based on Construction Industry Research Board

Table 11 identifies the average selling price of a new 3 to 4 bedroom home in the select cities. As expected, housing prices in the Bay Area Commuter Shed tend to be higher, in large part because of the close proximity to the San Francisco Bay Area housing market. Prices there are on average $402,644 per 3-4 bedroom unit, versus almost $250,000 for new units in Small/rural farming communities such as Avenal (Kings County) or Orange Cove (Fresno County).

TABLE 11 Average Selling Price of New Single-Family and Multi-Family Housing San Joaquin Valley Region 2005

	------ Single-Family Units ------				------ Multi-Family Units ------		
	Avg 3-4 BR SFU Values	Avg 3-4 BR SFU Size	Lot Size 3-4 BR SFU	Value Per SQFT	Average MFU Values	Average MFU Size	Value Per SQFT
01 Large Urban	$338,047	1,893	5,407	$179	$146,914	1,071	$137
02 Bay Area Commuter Shed	$402,664	2,112	6,034	$191	$180,603	1,071	$169
03 Medium	$296,428	1,779	5,083	$167	$137,357	1,071	$128
04 Small/Med Bedroom Community	$314,030	1,883	5,379	$167	$136,062	1,071	$127
05 Small Rural/Farming	$247,836	1,644	4,697	$151	$125,482	1,071	$117
	$323,966	1,862	5,320	$171	$145,283	1,071	$136

Source: Applied Development Economics, based on Realtor.com, Dataquick, and California Housing and Community Development, "Pay to Play"

Table 12 identifies existing fees on residential development in the 27 cities. As the table shows, fees amount to approximately five to six percent of values for single- and multi-family units. Data for fees comes from a variety of sources, including local jurisdictions and the California Department of Housing and Community Development (HCD), which issued a detailed report on residential developer fees of many cities throughout California. In using the HCD figures, this report adjusted the amount for general inflation and housing price inflation.

TABLE 12 Existing Fees On A Per Unit Basis

	Existing Fees On 3-4 BR SFU Unit	All Fees As Percent of Value	Existing Fees On MFU Unit	All Fees As Percent of Value
01 Large Urban	$17,796	5%	$6,149	4%
02 Bay Area Commuter Shed	$24,576	6%	$8,093	4%
03 Medium	$19,266	6%	$7,355	5%
04 Small/Med Bedroom Community	$21,162	7%	$11,883	9%
05 Small Rural/Farming	$12,689	5%	$5,969	5%
	$18,552	6%	$7,890	5%

Source: Applied Development Economics, based on Realtor.com, Dataquick, and California Housing and Community Development, "Pay to Play"

Tables 13 and 14 compare existing fees against other development costs, including the price of land, to estimate profit and a profit rate. The profit rates calculated below are similar to what would be found in corporate reports of national homebuilders, particularly Centex Homes, Kaufman and Broad, Lennar, and Pulte Homes, whose combined average profit rate is approximately eight percent.[2]

TABLE 13 Home Prices, Construction Costs, Fees and Profit: Single Family Housing

Community Types	Avg 3-4 BR SFU Values	Land Value Per 3-4 BR SFU Unit	All Fees Per 3-4 BR SFU Unit	Site Development Cost Per 3-4 BR Unit	Building Construction Costs Per 3-4 BR Unit	TOTAL COSTS	Profit per Unit	Profit as % Value
Large Urban	$338,047	$77,124	$21,759	$40,233	$167,600	**$306,716**	$31,330	9%
Bay Area Commuter Shed	$402,664	$93,015	$26,957	$46,410	$200,828	**$367,210**	$35,454	9%
Medium-Sized Cities	$296,428	$50,069	$19,266	$37,346	$159,484	**$266,165**	$30,263	10%
Small\Medium Bedroom Communities	$314,030	$74,468	$21,162	$34,570	$157,136	**$287,336**	$26,694	9%
Small Rural\Farming Communities	$247,836	$47,847	$12,689	$28,825	$131,024	**$220,386**	$27,450	11%
	$323,966	$68,505	$20,367	$38,373	$166,739	**$293,983**	$29,982	9%

[2] www.sec.gov see Form 10-K

TABLE 14 Home Prices, Construction Costs, Fees and Profit: Multi-Family Housing

Community Types	Avg MFU Values	Land Value Per MFU Unit	All Fees Per MFU Unit	Site Development Cost Per MFU Unit	Building Construction Costs Per MFU Unit	TOTAL COSTS	Profit per Unit	Profit as % Value
Large Urban	$146,914	$12,999	$6,149	$20,324	$81,295	**$120,767**	$26,147	18%
Bay Area Commuter Shed	$180,603	$14,794	$8,093	$23,116	$92,464	**$138,467**	$42,136	23%
Medium-Sized Cities	$137,357	$10,831	$7,355	$19,519	$80,260	**$117,964**	$19,393	14%
Small\Medium Bedroom Communities	$136,062	$12,868	$11,883	$19,435	$80,926	**$125,113**	$10,949	8%
Small Rural\Farming Communities	$125,482	$10,955	$5,969	$17,085	$77,658	**$111,666**	$13,815	11%
	$145,283	$12,489	$7,890	$20,140	$83,179	**$123,698**	$21,585	15%

Commercial-Industrial Trends

Table 15 below estimates the value, costs and profit associated with developing one acre of commercial, industrial and office development. Information for the table comes from a variety of sources, including Realtor.com and Loopnet.com for current price of new industrial and commercial projects in the Central Valley. When estimating cost of construction, we used "Commercial Square Foot Building Costs: 2004", by Deloitte Saylor Publication, as well as per square foot cost of construction estimates used by many cities when estimating the value of a project. In determining the amount of fees on a commercial-industrial development, we asked building officials in five cities to calculate the amount of fees that would be generated by a 10,000 square feet light industrial development on a 2.5-acre parcel and by a 10,000 square feet retail project on a similarly-sized piece of land. We converted the fees into a per acre amount. The per acre values in the table below were calculated after having calculated the development costs, based on a profit of ten percent, and these values were checked against what we found on Loopnet.com and Realtor.com. The 10 percent profit is based on a review of Deloitte-Saylor's "Commercial Square Foot Building Costs: 2004." It is also based on a review of corporate reports of Catellus (industrial developer) and ProLogis (warehouse

distribution developer). It should be noted that while data in the residential section above represents trends in 27 cities in the Central Valley, information in this section is for five cities that fit the different city types.

As Table 15 shows, existing fees on commercial and office developments are significantly higher than on industrial projects. This is so because of the traffic generated by retail and office is much higher than traffic generated by industrial users, which then requires a corresponding amount of reduction via fees.

TABLE 15 Commercial-Industrial Trends: San Joaquin Valley Region, 2005

		Avg. Value Per Acre (Land and Building)	Unimproved Land Value Per Acre	Fees Per Acre	Site Development Cost Per Acre	Building Construction Costs Per Acre	TOTAL Costs per Acre	Est. Profit Per Acre	Profit As percent of Value
Large Urban									
	Industrial	$1,594,742	$157,518	$14,726	$60,768	$1,202,256	$1,435,268	$159,474	10%
	Commercial	$1,910,201	$546,032	$35,306	$45,576	$1,092,267	$1,719,181	$191,020	10%
	Office	$2,828,107	$546,032	$35,306	$45,576	$1,918,382	$2,545,296	$282,811	10%
Bay Area Commuter Shed									
	Industrial	$1,679,815	$200,905	$47,904	$60,768	$1,202,256	$1,511,833	$167,981	10%
	Commercial	$2,011,879	$522,536	$150,312	$45,576	$1,092,267	$1,810,692	$201,188	10%
	Office	$2,929,785	$522,536	$150,312	$45,576	$1,918,382	$2,636,807	$292,979	10%
Medium-sized Cities									
	Industrial	$1,546,952	$100,000	$29,233	$60,768	$1,202,256	$1,392,257	$154,695	10%
	Commercial	$1,748,583	$303,178	$132,704	$45,576	$1,092,267	$1,573,724	$174,858	10%
	Office	$2,666,489	$303,178	$132,704	$45,576	$1,918,382	$2,399,840	$266,649	10%
Small/Medium Bedroom Community									
	Industrial	$1,631,301	$130,700	$74,447	$60,768	$1,202,256	$1,468,171	$163,130	10%
	Commercial	$1,668,338	$280,576	$83,085	$45,576	$1,092,267	$1,501,504	$166,834	10%
	Office	$2,586,244	$280,576	$83,085	$45,576	$1,918,382	$2,327,619	$258,624	10%
Small Rural\Farming Communities									
	Industrial	$1,877,846	$350,642	$76,395	$60,768	$1,202,256	$1,690,061	$187,785	10%
	Commercial	$1,653,475	$217,800	$136,292	$41,769	$1,092,267	$1,488,127	$165,347	10%
	Office	$2,567,106	$217,800	$132,444	$41,769	$1,918,382	$2,310,395	$256,711	10%

6. SOCIOECONOMIC IMPACTS

This section of the report compares the economic characteristics of affected industries against the possible Rule 9150 and 3180 air quality fees. The first part of this section discusses annual compliance cost. Section 6.2 discusses general business responses to compliance costs. Section 6.3 analyzes the socioeconomic impacts of Draft Rules 9510 and 3180.

6.1 NEW RULE 9510 AND 3180 FEE

Tables 16 through 18 identify the worst-case fees associated with New Rules 9510 and 3180. To reduce emissions of NOx and PM10, Draft Rule 9510 would apply to development projects that will seek to gain a final discretionary approval for projects that, upon full build-out will include any one of the following: 50 residential units, 2,000 square feet of commercial space, 25,000 square feet of industrial space, 20,000 square feet of medical office space, 39,000 square feet of general office space, 9,000 square feet of educational space, 10,000 square feet of government space, 20,000 square feet of recreational space, or 9,000 square feet of unidentified space. Certain transportation projects, transit projects, reconstruction projects that result from a natural disaster, and development projects whose primary source of emissions are subject to District Rule 2201 or 2010 would be exempt from this Draft Rule. Also, development projects that have a mitigated baseline below two tons per year for each pollutant would be exempt from the emission reduction requirements of the rule.

It is important to note that any fee identified below are the estimated maximum fee in the worst case scenario for a typical residential, commercial and or industrial development, with the understanding that the actual fee will vary with the particulars of any project. Any fee below is presented for the purposes of analyzing potential impacts given costs associated with reducing quantifiable emissions resulting from what constitutes typical applicable developments. The fee amounts

identified include all off-site emission reduction fees and all administrative fees.

In the worst case, the fee that a typical residential development will pay is estimated at $784 per unit starting in 2006, climb to $1,268 the following year, and above $1,772 in the years starting in 2008. The fee could be lower depending on the strategies that a developer employs to reduce emissions.

TABLE 16
Worst Case Estimate: Fee That Corresponds to A Typical Residential Development

Year	Per Unit
2006	$784.12
2007	$1,268.09
2008	$1,772

TABLE 17
Worst Case Estimate: Fee That Corresponds To The Typical Industrial Development

Use	Average Acres	Corresponding Fee Total
2006		
Heavy Industrial	300.0	$357,394.75
Light Industrial	75.0	$240,508.75
Warehouses	25.0	$83,645.68
Misc. Industrial (industrial park)	39.0	$143.797.05
2008		
Heavy Industrial	300.0	$747,626
Light Industrial	75.0	$518,237
Warehouses	25.0	$179,956
Misc. Industrial	39.0	$309,965

TABLE 18
Worst Case Estimate: Fee That Corresponds To a Typical Commercial Development

TYPE OF SHOPPING CENTERS	SIZE RANGE	TYPICAL SIZE (sq ft)	Corresponding Fee Total
	2006		
convenience shopping center	up to 30,000	20,000	$24,524.94
neighborhood shopping center	30,000 to 100,000	50,000	$61,599.54
community shopping center	100,000 to 450,000	150,000	$184,647.45
super community shopping center	200,000 to 300,000	250,000	$403,546.91
regional shopping center	300,000 to 700,000	450,000	$626,791.07
superregional shopping center	500,000 to 2 million	900,000	$1,253,582.15
	2008		
convenience shopping center	up to 30,000	20,000	$52,971.24
neighborhood shopping center	30,000 to 100,000	50,000	$131,689.99
community shopping center	100,000 to 450,000	150,000	$397,483.34
super community shopping center	200,000 to 300,000	250,000	$872,322.57
regional shopping center	300,000 to 700,000	450,000	$1,353,824.12
superregional shopping center	500,000 to 2 million	900,000	$2,708,116.82

6.2 BUSINESS RESPONSES TO PROPOSED FEES

Industries impacted by the proposed new rule may respond in a variety of ways when faced with new regulatory costs. These responses may range from simply absorbing the costs and accepting a lower rate of return, to shutting down the affected business operation altogether and, where practical, shift from lower-value to higher-value product. Affected sources may also seek to renew efforts to increase productivity and reduce costs elsewhere in their operation in order to recoup the regulatory costs and maintain profit levels. Based on the discussion during a focus group meeting held in July, 2005, industries impacted by the new rules will in all likelihood seek to pass the costs on to homebuyers and renters in the case of residential fees, to the extent that the market allows.

6.3 IMPACTS ON AFFECTED INDUSTRIES

This section of the report analyzes revenues and profits of affected industries against anticipated costs associated with

implementation of the draft rule. The analysis first examines impacts on builders of single-family homes. Then, it analyzes impacts on builders of multi-family units. In addition to impacts on homebuilders, the section analyzes how changes in price affect prospective homebuyers and renters. Finally, the section below examines impacts on non-residential developments, particularly commercial retail, industrial, and office projects.

Single-Family Dwelling Units

Tables 19 through 21 compare the fee that a typical residential development would pay in the year 2006, 2007 and 2008, or $784, $1,268 and $1,772, against estimated profits. In calculating the impacts of the fee, we have included the additional $400 administrative cost associated with Rule 3180. As Tables 19, 20 and 21 show, the fees do not significantly impact affected builders of single-family homes in a negative manner. The fee amounts to approximately three, four and six percent of estimated net profits, meaning that affected stakeholders would still garner between 94 sand 97 percent of their original profit. Moreover, the impact is below the ten percent significance threshold employed in this analysis.

TABLE 19 Impact Analysis of 2006 Air Quality Fee on Typical Single-Family Development: $784 per unit

Community Types	(1) Profit as % Value	(2) Air Quality Fee on New Res. Cons. @ $.421/sqft	(3) Impact on Profit	(4) Impact Significance	(5) Modified Profit as Percent of Value	(6) Initial Home Value @ 5.85%, 30 yrs and 20% down	(7) Home Value @ 5.85%, 30 yrs and 20% down: With Air Fee	(8) Initial Home Value @ 6.85%, 30 yrs and 20% down	(9) Home Value @ 6.85%, 30 yrs and 20% down: With Air Fee	(10) Affect of Fee	(11) Affect of 1% Change in Interest Rate
Large Urban	11.5%	$797	-2.1%	<significant	11.3%	$93,624	$93,846	$101,737	$101,979	$223	$8,113
Bay Area Commuter Shed	10.8%	$889	-2.1%	<significant	10.6%	$111,520	$111,768	$121,184	$121,454	$248	$9,664
Medium-Sized Cities	8.3%	$749	-3.1%	<significant	8.0%	$82,097	$82,307	$89,212	$89,439	$209	$7,114
Small\Medium Bedroom Communities	8.5%	$793	-3.0%	<significant	8.2%	$86,972	$87,194	$94,509	$94,750	$221	$7,537
Small Rural\Farming Communities	10.6%	$692	-2.7%	<significant	10.3%	$68,639	$68,833	$74,587	$74,798	$193	$5,948
All Select Cities Average	9.3%	$784	-2.6%	<significant	9.0%	$89,724	$89,943	$97,499	$97,737	$219	$7,775

TABLE 20 Impact Analysis of 2007 Air Quality Fee on Typical Single-Family Development: $1,268 per unit

Community Types	(1) Profit as % Value	(2) Air Quality Fee on New Res. Cons. @ $.681/sqft	(3) Profit as % Value	(4) Impact Significance	(5) Modified Profit as Percent of Value	(6) Initial Home Value @ 5.85%, 30 yrs and 20% down	(7) Home Value @ 5.85%, 30 yrs and 20% down: With Air Fee	(8) Initial Home Value @ 6.85%, 30 yrs and 20% down	(9) Home Value @ 6.85%, 30 yrs and 20% down: With Air Fee	(10) Affect of Fee	(11) Affect of 1% Change in Interest Rate
Large Urban	11.5%	$1,289	-3.3%	<significant	11.2%	$93,624	$93,983	$101,737	$102,127	$359	$8,113
Bay Area Commuter Shed	10.8%	$1,438	-3.3%	<significant	10.5%	$111,520	$111,920	$121,184	$121,619	$400	$9,664
Medium-Sized Cities	8.3%	$1,212	-5.0%	<significant	7.9%	$82,097	$82,435	$89,212	$89,578	$337	$7,114
Small\Medium Bedroom Communities	8.5%	$1,282	-4.8%	<significant	8.1%	$86,972	$87,329	$94,509	$94,897	$357	$7,537
Small Rural\Farming Communities	10.6%	$1,120	-4,3%	<significant	10.2%	$68,639	$68,951	$74,587	$74,925	$312	$5,948
All Select Cities Average	9.3%	$1,268	-4.3%	<significant	8.9%	$89,724	$90,007	$97,499	$97,883	$353	$7,775

TABLE 21 Impact Analysis of 2008 Air Quality Fee on Typical Single-Family Development: $1,772 per unit

Community Types	(1) Profit as % Value	(2) Air Quality Fee on New Res. Cons. @ $.952/sqft	(3) Profit as % Value	(4) Impact Significance	(5) Modified Profit as Percent of Value	(6) Initial Home Value @ 5.85%, 30 yrs and 20% down	(7) Home Value @ 5.85%, 30 yrs and 20% down: With Air Fee	(8) Initial Home Value @ 6.85%, 30 yrs and 20% down	(9) Home Value @ 6.85%, 30 yrs and 20% down: With Air Fee	(10) Affect of Fee	(11) Affect of 1% Change in Interest Rate
Large Urban	11.5%	1,802	-4.6	<significant	11.0%	$93,624	$94,125	$101,737	$102,281	$501	$8,113
Bay Area Commuter Shed	10.8%	2,011	-4.6	<significant	10.3%	$111,520	$112,079	$121,184	$121,791	$559	$9,664
Medium-Sized Cities	8.3%	1,694	-6.9	<significant	7.7%	$82,097	$82,568	$89,212	$89,723	$471	$7,114
Small\Medium Bedroom Communities	8.5%	1,792	-6.7	<significant	7.9%	$86,972	$87,471	$94,509	$95,050	$498	$7,537
Small Rural\Farming Communities	10.6%	1,565	-6.0	<significant	10.0%	$68,639	$69,074	$74,587	$75,060	$435	$5,948
All Select Cities Average	9.3%	1,773	-5.9	<significant	8.7%	$89,724	$90,217	$97,499	$98,035	$493	$7,775

TABLE 22 Median Home Sale Prices in Small to Medium Communities, 2003-2005

		July 2003	July 2004	July 2005	03-04 Change	04-05 Change	03-04 Per Chg	04-05 Per Chg
Medium	Merced (Merced)	$204,341	$226,741	$322,500	$22,400	$95,759	11%	42%
	Tulare (Tulare)	$125,379	$161,146	$204,000	$35,767	$42,854	29%	27%
	Turlock (Stanislaus)	$240,088	$284,330	$369,500	$44,242	$85,170	18%	30%
	Visalia (Tulare)	$154,723	$185,938	$270,000	$31,215	$84,062	20%	45%
Small/Medium Bedroom Community	Atwater (Merced)	$207,009	$232,422	$324,250	$25,413	$91,828	12%	40%
	Mendota (Fresno)		$77,438	$120,000		$42,563		55%
	Sanger (Fresno)	$161,659	$171,734	$276,500	$10,075	$104,766	6%	61%
	Selma (Fresno)	$123,245	$177,158	$249,250	$53,912	$72,092	44%	41%
Small Rural/Farming	Oakhurst (Madera)	$209,143	$273,742	$306,000	$64,599	$32,258	31%	12%
	Taft (Kern)	$82,697	$77,474	$110,000	-$5,223	$32,526	-6%	42%
	Wasco (Kern)	$93,101	$103,299	$132,000	$10,198	$28,701	11%	28%
		$160,139	$179,220	$244,000	$19,082	$64,780	12%	36%

Source: Applied Development Economics, based on Dataquick

A close review of Tables 19 through 21 reveals that the fees under consideration could potentially impacts different community types in different ways. For Medium-sized communities, Small\medium bedroom communities, and Small rural\farming communities, the impact of the possible fee on profits is slightly higher than impact to home builders operating in the large urban and Bay Area Commuter Shed markets. This is so because prices of new homes are higher in the latter markets. To understand the influence of the $784, 1,268 or $1,772 fee on home prices in the Medium-sized cities, Small\medium bedroom communities, and Small rural\farming communities, it is worthwhile to compare the fees against recent changes in home prices in cities in these three community types.

Table 22 above includes recent data from Dataquick. Among other things, it shows that between July 2003 and July 2004 and July 2004 and July 2005, median prices of homes increased by $19,000 and $65,000 in specific cities in Medium-sized cities, Small\medium bedroom communities, and Small rural\farming communities. Table 22 includes all homes sold, not just newly constructed three-to-four bedroom homes. While the fee could raise home prices by $784 to $1,772, it is apparent that larger market forces are the primary culprit behind the increase in housing prices in these three community types. The fee associated with Draft Rules 9510 and 3180 would amount to, at most, three percent of recent change in housing prices in these three community types (or $1,772 divided by $65,000).

Tables 19 through 21 above also include an analysis on how the $784, $1,268 or $1,772 fee would impact potential homebuyers. In other words, we assume that the homebuilder will pass this cost on to homebuyers to the fullest extent possible allowed by the market. As Table 11 above previously showed, the price of a new three-to-four bedroom home in the San Joaquin Valley region is approximately $324,000. In large urban areas of Bakersfield and Fresno, the average price of a new three-to-four bedroom home is $338,000, while in the Bay Area Commuter Shed, it is even higher at $402,700. Housing is more affordable in rural communities such as Avenal, where the

average price of a new home is $247,800 (see Table 11 above).

In Column Six of Tables 19 though 21, we estimate the minimum household income required to qualify for conventional financing for new three-to-four bedroom homes in the different market types. We assume that the potential homebuyer is a first-time homebuyer, meaning that there are no proceeds from the sale of a previous home to put towards the purchase of the new home. We assume that the potential homebuyer will have a downpayment equal to 20 percent of the market value of the unit. We also factor in a 5.85 interest rate, monthly bills, homeowners insurance, and property taxes when calculating the minimum household income needed to qualify for a new three-to-four bedroom home in the San Joaquin Valley.

To qualify for financing for a $324,000 home in the Central Valley, a prospective first-time home buying household would need to earn approximately $89,724 annually. Columns Seven and Ten to the tables above show the extent to which the different fees raise the minimum qualifying household income. As a result of the $784, $1,268 and $1,772 fees, minimum qualifying incomes for the region as a whole would rise, on average, by $219, $353, and $493 respectively. The $219 to $493 amount is less than one percent of the original income needed to qualify for a new three-to-four bedroom home in the Central Valley.

For comparative purposes, Tables 19 through 21 include Columns Eight and Eleven, which show what would happen if interest rates rose from 5.85 percent to 6.85 percent. If this occurred, the minimum qualifying income would rise from $89,724 to $97,499, or by $7,775. In other words, while the fees have the potential to increase the amount of income required to qualify for financing, larger market forces such as interest rates and market-driven price fluctuations play a significantly greater role in determining the income level needed to qualify for a new three-to-four bedroom home.

Multi-Family Dwelling Units

Tables 23 through 25 show the affects of the fees on construction of multi-family dwelling units. Small\medium

bedroom communities and Small rural\farming communities are affected negatively more so than the other communities, because the price of multi-family dwelling units elsewhere are higher than in these community types. Columns Six and Seven in each of the tables below estimate the minimum income required to purchase a multi-family unit such as a condominium or townhouse, and the extent to which the impact fee could raise this amount, in the event developers of multi-family units pass costs onto the consumers. The fee could raise the minimum income needed to qualify for financing for the purchase of a condominium or townhouse valued at $145,300 (see Table 14 above), from $40,237 to $40,455 ($784 fee), $40,589 ($1,268 fee) or at most $40,696 ($1,772 fee), which represent at most a one percent change. Tables 23 through 25 below show that the fee would only slightly affect rents, in the event units were rented out as opposed to sold.

TABLE 23 Impact Analysis of 2006 Fee on Typical Multi-Family Housing Development: $784 per unit

Community Types	(1) Profit as % Value	(2) Air Quality Fee on New Res. Cons. @ .732/sqft	(3) Impact on Profit	(4) Impact Significance	(5) Modified Profit as Percent of Value	(6) Initial Condo-Townhouse Value @ 5.85%, 30 yrs and 20% down	(7) Condo-Townhouse Value @ 5.85%, 30 yrs and 20% down: With Air Fee	(8) Minimum Rent without Air Fee	(9) Minimum Rent with Air Fee	(10) Qualifying Rental Household without Air Fee	(11) Qualifying Rental Household with Air Fee
Large Urban	17.7%	$788	-3.0%	<significant	17.3%	$40,689	$40,907	$1,150	$1,157	$41,453	$41,675
Bay Area Commuter Shed	23.3%	$788	-1.9%	<significant	22.9%	$50,019	$50,237	$1,414	$1,420	$50,958	$51,180
Medium	14.1%	$788	-4.1%	<significant	13.5%	$38,042	$38,260	$1,076	$1,082	$38,756	$38,978
Small/Med Bedroom Community	8.0%	$788	-7.2%	<significant	7.5%	$37,683	$37,901	$1,065	$1,072	$38,391	$38,613
Small Rural/Farming	11.0%	$788	-5.7%	<significant	10.4%	$34,753	$34,971	$983	$989	$35,405	$35,628
All Select Cities Average	14.9%	$788	-3.6%	<significant	14.3%	$40,237	$40,455	$1,138	$1,144	$40,992	$41,215

TABLE 24 Impact Analysis of 2007 Fee on Typical Multi-Family Housing Development: $1,268 per unit

Community Types	(1) Profit as % Value	(2) Air Quality Fee on New Res. Cons. @ $1.184/sqft	(3) Impact on Profit	(4) Impact Significance	(5) Modified Profit as Percent of Value	(6) Initial Condo-Townhouse Value @ 5.85%, 30 yrs and 20% down	(7) Condo-Townhouse Value @ 5.85%, 30 yrs and 20% down: With Air Fee	(8) Minimum Rent without Air Fee	(9) Minimum Rent with Air Fee	(10) Qualifying Rental Household without Air Fee	(11) Qualifying Rental Household with Air Fee
Large Urban	17.7%	$1,268	-4.9%	<significant	16.9%	$40,689	$41,041	$1,150	$1,160	$41,453	$41,812
Bay Area Commuter Shed	23.3%	$1,268	-3.0%	<significant	22.6%	$50,019	$50,371	$1,414	$1,424	$50,958	$51,317
Medium	14.1%	$1,268	-6.6%	<significant	13.2%	$38,042	$38,394	$1,076	$1,086	$38,756	$39,115
Small/Med Bedroom Community	8.0%	$1,268	-11.6%	significant	7.1%	$37,683	$38,035	$1,065	$1,075	$38,391	$38,749
Small Rural/Farming	11.0%	$1,268	-9.2%	<significant	10.0%	$34,753	$35,105	$983	$993	$35,405	$35,764
All Select Cities Average	14.9%	$1,268	-5.9%	<significant	14.0%	$40,237	$40,589	$1,138	$1,148	$40,992	$41,351

TABLE 25 Impact Analysis of 2008Fee on Typical Multi-Family Housing Development: $1,772 per unit

Community Types	(1) Profit as % Value	(2) Air Quality Fee on New Res. Cons. @ 1.655/sqft	(3) Impact on Profit	(4) Impact Significance	(5) Modified Profit as Percent of Value	(6) Initial Condo-Townhouse Value @ 5.85%, 30 yrs and 20% down	(7) Condo-Townhouse Value @ 5.*5%, 30 yrs and 20% down: With Air Fee	(8) Minimum Rent without Air Fee	(9) Minimum Rent with Air Fee	(10) Qualifying Rental Household without Air Fee	(11) Qualifying Rental Household with Air Fee
Large Urban	17.7%	$1,657	-6.3%	<significant	16.7%	$40,689	$41,148	$1,150	$1,150	$41,453	$41,920
Bay Area Commuter Shed	23.3%	$1,657	-3.9%	<significant	22.4%	$50,019	$50,478	$1,414	$1,427	$50,958	$51,426
Medium	14.1%	$1,657	-8.5%	<significant	12.9%	$38,042	$38,501	$1,076	$1,089	$38,756	$39,224
Small/Med Bedroom Community	8.0%	$1,657	-15.1%	significant	6.8%	$37,683	$38,142	$1,065	$1,078	$38,391	$38,858
Small Rural/Farming	11.0%	$1,657	-12.0%	significant	9.7%	$34,753	$35,212	$983	$996	$35,405	$35,873
All Select Cities Average	14.9%	$1,657	-7.7%	<significant	13.7%	$40,237	$40,696	$1,138	$1,151	$40,992	$41,460

Affordable Housing For Low-and Moderate Income Households

The discussion above focused on how fees would affect first-time homebuyers of single-family and multi-family units, as well as potential renters. In that context, housing affordability refers to the minimum income required to qualify for either a mortgage or the minimum income needed to pay a certain rent, with the understanding that the annual housing payment must not exceed one-third of annual household income. The federal agency called the Department of Housing and Urban Development (HUD) and private lenders use the one-third threshold as a way to gauge housing affordability. Anyone paying more than one-third of his or her income on housing is living in an unaffordable situation.

Affordable housing also refers to the extent to which low-income and moderate-income households can access housing at affordable rents. Every year, the federal government issues guidelines as to what constitutes low-income and moderate-income households, particularly for the purposes of qualifying households for federal housing programs such as Section 8 or the Low-Income Housing Tax Credit program. In turn, state and local agencies adopt these guidelines when carrying out their respective housing programs.

Table 26 below identifies the federal Housing and Urban Development's (HUD) 2005 income guideline for most of the Central Valley, and this guideline adjusts for number of people in a household. A single individual earning no more than $27,500 is a low-income individual, while a single individual make $27,502 would be a moderate-income person.

TABLE 26 HUD Income Guidelines, 2005

	Low Income		Moderate	
	Minimum	Maximum	Minimum	Maximum
1 person	$0	$27,500	$27,501	$41,250
2 persons	$0	$31,400	$31,401	$47,100
3 persons	$0	$35,350	$35,351	$53,025
4 persons	$0	$39,300	$39,301	$58,950
5 persons	$0	$42,400	$42,401	$63,600
6 persons	$0	$45,550	$45,551	$68,325
7 persons	$0	$48,700	$48,701	$73,050
8 or more persons	$0	$51,850	$51,851	$77,775

Source: Applied Development Economics, based on Department of Housing and Urban Development

More importantly for the purposes of this analysis, a single person making no more than $27,500 a year and who, at the same time, pays a rent that does not exceed one-third of her or his income lives in an affordable situation. Conversely, a single individual making no more than $27,500 who is paying a rent that exceeds one-third of his or her income is living in an unaffordable situation. Table 27 below calculates the rents that would be affordable to low- and moderate-income households. For the most part, rents that low-income households should pay are substantially below the rents that typical new multi-family units constructed in the region should command, even before the imposition of the air fee. For example, 2-person low-income households should pay no more than $785 on rent. As Tables 23 through 25 showed, rent for a newly constructed apartment unit should be $1,138, which is unaffordable to 2-person low-income households by standards established by HUD. On the other hand, a two-person moderate-income household that paid the $1,138 would be living in an affordable situation, since the maximum rent for purposes of calculating affordability is $1,178. A one-person moderate-income household should pay no more than $1,031 toward rent; thus the $1,138 rent calculated in Table 23 through 25 would constitute unaffordable housing.

TABLE 27 Affordable Monthly Rents

	Affordable Rent: Low Income		Affordable Rent: Moderate Income	
	Minimum	Maximum	Minimum	Maximum
1 person	$0	$688	$689	$1,031
2 persons	$0	$785	$786	$1,178
3 persons	$0	$884	$885	$1,326
4 persons	$0	$983	$984	$1,474
5 persons	$0	$1,060	$1,061	$1,590
6 persons	$0	$1,139	$1,140	$1,708
7 persons	$0	$1,218	$1,219	$1,826
8 or more persons	$0	$1,296	$1,297	$1,944

Without public subsidies to either the renting households or to housing developers, most low-income households in the Central Valley are priced out of newly constructed multifamily units, the rents for which need to be at a level to take into account price of land, development costs, developer fees, and an adequate level of profit, among other things. For the region as a whole, the market rate rent for a typical multi-family unit is calculated at $1,138, though rents are higher or lower depending on the community type, with Large Urban communities and the Bay Area Commuter Shed requiring higher rents (see Tables 23 through 25 Column Eight). Moderate-income households consisting of no more than three persons should be able to afford newly constructed multi-family units with monthly rents at or about $1,138, although the same cannot be said for moderate-income households consisting of four or more persons, who will need higher-priced living quarter with additional rooms.

There are a number of housing programs and policies that can assist low- and moderate-income households to live in market rate housing. Federal housing programs such as Section 8 provide the difference between the amount[3] that a low-income household can pay and the actual rent for an apartment in the private sector that is willing to accept Section 8. However, local governments receive only a limited number of Section 8 vouchers from the federal government,

[3] The amount that a Section 8 tenant contributes toward rent on an out of pocket basis must not exceed one-third of the tenant's annual income.

resulting in waiting lists consisting of many households waiting a relatively long time. Other public subsidies are aimed at encouraging the private sector to set-aside some, if not all, newly constructed housing as affordable to low- and moderate-income households. The federal Low-Income Housing Tax Credit (LIHTC) or, at the local level, the twenty percent housing redevelopment tax increment set-aside are just two revenue sources that can increase the feasibility of setting aside units at below market rents for low- and moderate-income households. Like the Section 8 program, there are some inherent limitations to the LIHTC and the tax increment set-aside programs. The financing via the federal LIHTC program is not readily available as it is accessed on a competitive basis. Not all cities have redevelopment agencies, and, of those with such agencies, it takes some time to generate the necessary amount of revenues (also known as tax increment) for a successful housing set-aside program.

Some cities have what are called "inclusionary housing" policies, meaning that in order to obtain approval for this or that housing project, the developer must guarantee that a certain portion (typically 15 percent) is reserved for low- and moderate-income households. Some cities sweeten their inclusionary policies with public financing, and some do not. It is argued that "inclusionary housing" policies without public subsidies result in overall higher rents or home prices, as developers required to set-aside housing at below-market levels for some units make up the difference by driving up the price of rest of the bulk of the units in a project.[4]

Non-Residential Development

Table 28 below analyzes the impacts of the Draft Rule 9510 and 3180 commercial and industrial fees on a per acre basis. In 2006, the fee on a typical retail and office development will amount to $15,286 and $7,914 per acre respectively. In the year 2008, fees on a per acre basis are expected to increase to $33,008 (retail) and $17,099 (office). As the table shows, in

4 Home Builders Association of Northern California - HBA News, (www.hbanc.org/ news2000/ JulAug2001/ JulAug01feat2.html) / "The Inclusionary Housing Debate - Who Really Pays for Affordable ..." (www.realtor.org/sg3.nsf/Pages/housingdebatepays?OpenDocument)

the year 2006 possible off-site emission reduction fees on new typically-sized commercial and office developments will not exceed the threshold of significance. The possible off-site fee amounts to an estimated 21 percent of profits in the year 2006. In 2008, the possible air off-site fees on new typically-sized commercial retail developments will exceed the threshold of significance by six to ten percent, depending on the community in which development occurs. The dollar amount in excess of the threshold in the year 2008 ranges from $12,889 to $16,324 per acre for commercial developments.

TABLE 28 Impact Analysis of 2006 and 2008 Fee on Typical Commercial-Industrial Project

	Avg. Value Per Acre	Est. Profit Per Acre	Profit as percent of Value	Est. Fees Per Acre		Est. Fees As % of Profit		Percent Above Significance Threshold		Dollar Amount Above Significance Threshold	
				2006	2008	2006	2008	2006	2008	2006	2008
Large Urban											
Industrial	$1,594,742	$159,474	10%	$1,880	$4,000	1%	3%	< sig.	< sig.		
Commercial	$1,910,201	$191,020	10%	$15,286	$33,008	8%	17%	< sig.	7%		$13,906
Office	$2,828,107	$282,811	10%	$7,914	$17,099	3%	6%	< sig.	< sig.		
Bay Area Commuter Shed											
Industrial	$1,679,815	$167,981	10%	$1,880	$4,000	1%	2%	< sig.	< sig.		
Commercial	$2,011,879	$201,188	10%	$15,286	$33,008	8%	16%	< sig.	6%		$12,889
Office	$2,929,785	$292,979	10%	$7,914	$17,099	3%	6%	< sig.	< sig.		
Medium-sized Cities											
Industrial	$1,546,952	$154,695	10%	$1,880	$4,000	1%	3%	< sig.	< sig.		
Commercial	$1,748,583	$174,858	10%	$15,286	$33,008	9%	19%	< sig.	9%		$15,522
Office	$2,666,489	$266,649	10%	$7,914	$17,099	3%	6%	< sig.	< sig.		
Small/Medium Bedroom Community											
Industrial	$1,631,301	$163,130	10%	$1,880	$4,000	1%	2%	< sig.	< sig.		
Commercial	$1,668,338	$166,834	10%	$15,286	$33,008	9%	20%	< sig.	10%		$16,324
Office	$2,586,244	$258,624	10%	$7,914	$17,099	3%	7%	< sig.	< sig.		
Small Rural\Farming Communities											
Industrial	$1,877,846	$187,785	10%	$1,880	$4,000	1%	2%	not sig.	not sig.		
Commercial	$1,653,475	$165,347	10%	$15,286	$33,008	9%	20%	not sig.	10%		
Office	$2,567,106	$256,711	10%	$7,914	$17,099	3%	7%	not sig.	not sig.		

It is not clear how the development community will adjust to the additional costs. Rather than absorb the costs, the developer (or a subsequent owner of an affected project site) might seek to pass costs onto commercial tenants in the form of rent increases. Table 29 translates the amount of the total fee into a per square foot rent for significantly impacted commercial uses. While the 2006 fee does not significantly impact developers of commercial uses, the 2008 fee significantly impacts these developers to the tune of $13,905. This amounts to almost one cent per square foot, which developers will pass onto future commercial tenant.

It is worth noting that the 2006 and 2008 fee, in effect, sets the bar slightly higher with respect to lease rates on all new commercial developments in the region. Comparable office developments that have been in place prior to the new fees could conceivably raise monthly rents by one cent. In addition, comparable retail sites in place prior to the new fees could conceivably raise rents by two cents in 2008.

TABLE 29
2006 and 2008 Fee on Typical Commercial-Industrial Project: Affect of Fee on Monthly Rent

	2006 Dollar Amount Significance Threshold	Fee as a Percent of Profit	Amount Above Significance Threshold	2006 Fee Per SqFt	2006 Per Sqft Fee As Monthly Rent Increase Over Typical Amortization Period (15 years)	2008 Dollar Amount Significance Threshold	Fee as a Percent of Profit	Amount Above Significance Threshold	2008 Fee Per SqFt	2008 Per Sqft Fee As Monthly Rent Increase Over Typical Amortization Period (15 years)
Large Urban										
Industrial	< sig.	1%	< sig.			< sig.	3%	< sig.		
Commercial	< sig.	8%	< sig.			$13,906	17%	7%	$1.28	$0.007
Office	< sig.	3%	< sig.			< sig.	6%	< sig.		
Bay Area Commuter Shed										
Industrial	< sig.	1%	< sig.			< sig.	2%	< sig.		
Commercial	< sig.	8%	< sig.			$12,889	16%	6%	$1.18	$0.007
Office	< sig.	3%	< sig.			< sig.	6%	< sig.		
Medium-sized Cities										
Industrial	< sig.	1%	< sig.			< sig.	3%	< sig.		
Commercial	< sig.	9%	< sig.			$15,522	19%	9%	$1.43	$0.008
Office	< sig.	3%	< sig.			< sig.	6%	< sig.		
Small/Medium Bedroom Community										
Industrial	< sig.	1%	< sig.			< sig.	2%	< sig.		
Commercial	< sig.	9%	< sig.			$16,324	20%	10%	$1.50	$0.008
Office	< sig.	3%	< sig.			< sig.	7%	< sig.		
Small Rural\Farming Communities										
Industrial	< sig.	1%	< sig.			< sig.	2%	< sig.		
Commercial	< sig.	9%	< sig.			$16,473	20%	10%	$1.51	$0.008
Office	< sig.	3%	< sig.			< sig.	7%	< sig.		

6.4 IMPACT ON SMALL BUSINESSES

In addition to analyzing the various impacts of the Proposed Indirect Source Rule (Draft Rules 9510 and 3180) that are discussed above, state legislation requires that the socioeconomic analysis assess whether small businesses are disproportionately affected by air quality rules. This section discusses how fees that are assessed on developers of residential and commercial projects are typically passed onto the consumer. Because of the additional costs associated with the proposed off-site emission reduction fee, prospective buyers must either increase their respective household incomes or produce a downpayment that is larger than the typical 20 percent. Thus, prospective homebuyers may have to delay purchasing goods and services as a result of the need to raise additional downpayment, resulting in impacts to local stores, particularly small businesses. This section discusses potential small business impacts resulting from Draft Rule 9510 and 3180.

Off-Site Emission Reduction Fees, Minimum Household Income, and the Downpayment

As the analysis above demonstrated, the 2006, 2007 and 2008 off-site emission reduction fee under consideration could slightly raise the minimum qualifying incomes for obtaining a conventional loan by, on average, $219, $353, and $493. In other words, to finance a new three to four bedroom home valued at $323,966 in the region, a first-time homeowner would need an income of at least $89,724.[5] The 2006 fee could raise this minimum by a slight $219, to $90,217

What if a lender is inflexible and will not extend a loan to household that is $219 to $493 short of the minimum income needed to qualify for financing? In cases such as this, the prospective homeowner will have to produce a larger downpayment or pay a higher interest rate. The table below identifies the amount of additional downpayment above the

[5] This minimum will change depending on the housing market, with households in Large Urban and Bay Area Commuter Shed communities needing more income than households in other part of the region.

amount generated by the typical 20 percent downpayment rate.

As Table 30 shows, in the region in general, a household with at least $89,724 in income can afford to purchase a newly constructed three to four bedroom unit priced at $323,966 so long it has a downpayment in the amount of $64,793, or 20 percent of the value of the home. In general, the 2006 through 2008 off-site emission reduction fees will require prospective homeowners to produce an additional $970 to $2,147 that will go towards the downpayment, in the event a lender is unwilling to exercise flexibility with respect to minimum income needed to qualify for a loan. The amount of additional downpayment differs between housing markets, with households in the Large Urban communities and the Bay Area Commuter Shed having to pay more.

Table 30 Potential Per Household Impact of Off-Site Emission Reduction Fees On Downpayment: Single Family Unit

	Initial Qualifying Household Income Prior to Fee: SFU	Initial Downpayment	Additional Downpayment (2006 fee: $784)	Additional Downpayment (2007 fee: $1,268)	Additional Downpayment (2008 fee: $1,772)
Large Urban	$93,624	$67,609	$1,008	$1,616	$2,231
Bay Area Commuter Shed	$111,520	$80,533	$1,188	$1,906	$2,629
Medium-Sized Cities	$82,097	$59,286	$894	$1,434	$1,980
Small\Medium Bedroom Communities	$86,972	$62,806	$947	$1,519	$2,097
Small Rural\Farming Communities	$68,639	$49,567	$761	$1,221	$1,686
All Select Cities Average	$89,724	$64,793	$970	$1,556	$2,147

Table 31 is similar to Table 30, although it focuses on the additional amount of downpayment required of prospective buyers of townhouses and condominiums. In general, the 2006 through 2008 off-site emission reduction fees will require prospective homeowners to produce an additional downpayment ranging from $932 to $1,948.

Table 31 Potential Per Household Impact of Off-Site Emission Reduction Fees On Downpayment: Multi-Family Unit

	Initial Qualifying Household Income Prior to Fee: MFU	Initial Downpayment	Additional Downpayment (2006 fee: $784)	Additional Downpayment (2007 fee: $1,268)	Additional Downpayment (2008 fee: $1,772)
Large Urban	$40,907	$29,383	$940	$1,529	$1,966
Bay Area Commuter Shed	$50,237	$36,121	$1,119	$1,818	$2,336
Medium-Sized Cities	$38,260	$27,471	$890	$1,447	$1,860
Small\Medium Bedroom Communities	$37,901	$27,212	$883	$1,435	$1,846
Small Rural\Farming Communities	$34,971	$25,096	$827	$1,344	$1,730
All Select Cities Average	$40,455	$29,057	$932	$1,515	$1,948

Prospective Homebuyers and Small Business Disproportionate Impact Analysis

Faced with the need to increase the amount of downpayment, a household will have to save by cutting back on expenditures, which could result in a decline in purchases of discretionary items from local retail and services establishments. Consumers may stop spending altogether, or shift their spending toward lower-priced goods and services. As we shall see, there is ample reason to believe that impacts associated with the decline in spending that corresponds to the 2006, 2007 and 2008 fees will be temporary. Before engaging in that discussion, below is a brief summary of what constitutes a small business for the purposes of analysis.

For purposes of qualifying small businesses for bid preferences on state contracts and other benefits, the State of California defines small businesses in the following manner[6]. To be eligible for small business certification, a business:

- Must be independently owned and operated;
- Cannot be dominant in its field of operation;
- Must have its principal office located in California

[6] State of California. Department of General Services. "California Small Business Certification" (http: www.pd.dgs.ca.gov/smbus/sbcert.htm)

- Must have its owners (or officers in the case of a corporation) domiciled in California; and
- Together with its affiliates, be either:
    - A business with 100 or fewer employees, and an average gross receipts of $10 million or less over the previous tax years, or
    - A manufacturer with 100 or fewer employees

Data is available as to the number of retail and services establishments in the eight-county region, and with this data we can estimate sales by stores with 100 or fewer employees. Table 32 below provides an estimate on the number of retail, accommodations-food services, and arts-entertainment-recreation establishments in the region, including estimates on their respective sales. Data comes from the County Business Patterns and the US Economics Census.

TABLE 32
Number of Commercial Establishments That Sell Goods and Select Discretionary Services: San Joaquin Valley Air Basin, 2002

	Total Establishments	Sales	Total Nos. Small Businesses	Sales By Small Businesses
Commercial				
Retail*	8,792	$21,790,159,759	8,601	$14,971,588,578
Accommodations and Food Services	627	$532,590,300	615	$365,953,623
Arts, Entertainment and Recreations	5,139	$3,048,315,000	5,108	$2,809,025,816
Gasoline stations	1,044	$2,909,895,000	1,044	$2,909,895,000
	15,602	$28,280,960,059	15,368	$21,056,463,017

* Apparel, groceries, home improvement, specialty retail, auto (except gas stations)

As Table 32 shows, in 2002 there were 15,602 stores that sold consumer goods and select number of discretionary services (such as entertainment venues and restaurants) and, of these, 15,368 employed less than 100 workers. These small stores generated approximately $21.1 billion in sales. Based on a review of ten-year's worth of data from Dun and Bradstreet, we estimate that retail generates after tax net profits that amount to 2.2 percent of sales, while both accommodations-

food services and arts-entertainment-recreations generate returns of 5.1 percent of sales. Combined, these industries generated an estimated $548.6 million in net profits.

Table 33 estimates the aggregate amount of additional dollars that households will have to set aside as a result of the 2006, 2007 and 2008 off-site emission reduction fees. The additional downpayment per household is multiplied against the number of new single-family units that are built in the region. According to the California Department of Finance, the eight-county region grew by an average of 15,000 single-family units per year between 1995 and 2005. This amount is somewhat consistent with data in Table 2, which shows that between 1993 and 2003, homebuilders took out building permits to construct 15,000 and 27,000 single-family homes in those years, for an annual average of 18,800 single-family homes. In calculating the aggregate amount of additional dollars that all households will need to set aside because of the air quality fees, we adjusted for the fact that not all are first-time homebuyers.[7]

TABLE 33
Aggregate Amount of Dollars All Households Will Need to Set Aside As A Result of Off-Site Emission Reduction Fees

		Additional Downpayment (2006 fee)	Additional Downpayment (2007 fee)	Additional Downpayment (2008 fee)
		$970	$1,556	$2,147
Scenario 1: Low	15,000 units	$5,820,000	$9,336,000	$12,882,000
Scenario 2: Mid	19,000 units	$7,760,000	$12,448,000	$17,176,000
Scenario 3: High	30,000 units	$11,640,000	$18,672,000	$25,764,000

If 15,000 newly constructed single-family units are sold in 2006, then the aggregate additional downpayment amount attributable to first-time homebuyers will equal $5.8 million, as Table 33 shows. If the number of units goes as high as 30,000, then the additional downpayment will equal $11.6 million. In the highest scenario in year 2008, the aggregate

[7] Scenario 1 2006 fee = (15,000 x 40% rate of rentership) x $970 = $5,820,000

amount of additional downpayment could equal $25.8 million. Thus, local retail and services establishments, particularly small businesses, could lose anywhere between $5.8 million to $25.8 million.

Table 34 below compares the amounts in Table 33 against the estimated net profits of retail and services establishments that employ less than 100 workers. As the table shows, the aggregate amount of additional dollars that households will need to set aside as a result of the off-site emission reduction fee amounts to one to five percent of net profits of small retail and select services establishments. These impacts are below the ten percent threshold of significance employed in this and other socioeconomic analyses for the purposes of evaluating proposed air quality rules.[8] It is worth noting that the analysis assumes that all of the dollars in Table 33 are spent at small business establishments, which, in reality, would not be the case. As a result, the table below overstates impacts on small businesses. Thus, the proposed rule does not disproportionately impact small businesses.

TABLE 34
Impact on Net Profits of Small Business Retail and Select Services Establishments

		Additional Downpayment (2006 fee)	Additional Downpayment (2007 fee)	Additional Downpayment (2008 fee)
		$970	**$1,556**	**$2,147**
Scenario 1: Low	15,000 units	1%	2%	2%
Scenario 2: Mid	19,000 units	1%	2%	3%
Scenario 3: High	30,000 units	2%	3%	5%

In all likelihood, the impacts identified in Table 34 are temporary. More than likely, the purchase of a new home will spur additional spending at retail and services establishments in excess of what is shown in Table 33. A

[8] It should be noted that the report does not include a corresponding analysis for multi-family units because the impacts on net profits were significantly less than one percent, in large part because the number of newly constructed and sold new townhouses in the eight-county region is so low, ranging from 50 to 100 units per year.

recent Pittsburgh Post-Gazette newspaper article on spending habits of new homeowners quotes the web-site of a marketing data company, which indicated that "New homeowners are golden opportunities for the enterprising businessman. These prospects are full of hope and ready to spend money."[9] Clickdata.com reports that many new homeowners purchase a new car within the first year at their new address.[10]

New homeowners are in a spending mood not simply because of the number of new credit cards and or other financing instruments that lenders eagerly extend to households that have demonstrated the financial wherewithal to purchase something as significant as a new home. For some, a new home represents a new phase in the life cycle of a household, including the addition of new family members such as children or a spouse. Others simply need bigger and better space. Inevitably, the new stage in the life cycle involves corresponding needs for goods and services from retail and service establishments, including small businesses.

Small Business Disproportionate Impact Analysis and Non-Residential Developments

The section directly above examined potential impacts on small businesses that sell retail items to consumers, particularly as the impacts relate to how households shift from funds from spending to saving. The section concludes that impacts will be temporary and more than compensated for when a household purchases a home. New Rule 9510 and 3180 could potentially impact small businesses in other ways as well. In particular, small business may not be able to absorb rent increases contemplated in Section 6.3 above.

This section evaluates the impacts of rent increases discussed in Section 6.3 on small businesses, particularly those that occupy commercial developments. As Section 6.3 demonstrated, new commercial development and are potentially significantly impacted by the proposed new rule.

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[9]Caitlin Cleary, "New homeowners welcomes with onslaught of new mail" (Pittsburgh Post-Gazette), 10-15-05

[10]www.clickdata.com/consumer/newequity.asp

For purposes of analysis, commercial development refers to retailers, restaurants, and entertainment and recreation venues.

The analysis below examines how all commercial small businesses are impacted, not just new ones. As Section 6.3 noted, comparable commercial developments that have been in place prior to the new fees could conceivably have their monthly rents raised by one cent per square foot starting in 2008.

If small businesses cannot pass costs onto consumers, and if they are unable to increase sales, then these businesses will have to absorb the additional rent, resulting in a decline in net profits. Lease rates for new and older but well-maintained commercial space is approximately $1.50 per square foot in the San Joaquin Valley region. Scant data on arts and entertainment space suggest these areas go for $1.25 per square foot a month.[11] Older buildings away from busy commercial corridors will in all likelihood command less than the $1.50 that new buildings in busy areas command. Thus, in using the $1.50 (retail and restaurants), $1.10 (gas stations) and $1.25 (arts and entertainment), we will overstate the cost in relation to net profits.

Table 35 shows that the 2008 fee will impact net profits of commercial small businesses by 1.5 percent. The bulk of impacts are borne by small businesses because these entities comprise almost 98 percent of commercial businesses and gas stations in the region.[12] However, the impacts are less than significant. Thus, small businesses are not disproportionately impacted by the rule.

[11] For the purposes of analysis, we assume that all commercial spaces pay these rents. Similar to the analysis directly above, commercial space refers to retail and select services such as restaurants and arts and entertainment venues. Select services exclude office space for industries such as accounting, medical, legal assistance, etc., because office uses are significantly impacted by the rule, as shows in Section 6.3.

[12] 15,368dividedby15,602 = 98%

TABLE 35
Small Business Impact of Additional Rent Resulting From Proposed Air Quality Mitigation Fee

Total Number of Retail and Select Services Establishments	15,602
Total Number of Small Business Retail and Select Services Establishments	14,324
Total Number of Small Business Retail and Select Services: Sales	$18,146,568,017
Total Number of Small Business Retail and Select Services: Net Profits	$485,376,512
Dollar Amount of One Cent Rent Increase (2008 fee: commercial)	$7,230,586
Impact of One Cent Rent Increase on Net Profit of commercial uses (2008 fee)	1.5%
Impact of One Cent Rent Increase on Net Profit of commercial uses (2008 fee)	Less than significant

APPENDIX A: ECONOMIC BENEFITS ASSOCIATED WITH DRAFT RULE 9510 AND 3180

The San Joaquin Valley Air Pollution Control District (SJVUAPCD) will use the Off-Site Emission Reduction Fees will be used to fund off-site emission reduction projects located within the San Joaquin Valley. Besides providing a health benefit to all Valley residents by reducing overall emissions in the air basin, the funding projects would benefit the Valley's economy. Potential projects for funding through this program are numerous and varied ranging from public works construction project such as road paving, procuring cleaner vehicles and equipment for businesses and local government agencies, to school bus upgrades. If all projects that go through the ISR program only reduce emissions through the off-site fee, the District may receive approximately $11 million dollars in 2006 and approximately $56 million in 2008 (allowing for fee deferrals) for use in the off-site emission reduction program. All of the money received as an off-site fee will be spent on projects within the region that make the air cleaner. The program would benefit the economy through three beneficial impacts:

LOCAL PURCHASES

Projects that require a purchase of equipment, materials, or services will result in money being re-circulated into the regional economy. The District cannot guarantee that the manufacturer or provider would be located within the Valley, but it can be expected that the majority will be Valley businesses that benefit. For example, road-paving projects would require asphalt and similar materials that would be provided by Valley businesses. A project that buys a cleaner engine would benefit the Valley engine dealer that sells the engine.

LOCAL PROJECTS

It has already been stated that the program would fund local projects. This means that the school, city, industry or private group that receives the funding for an emission reduction

project would benefit economically from the program. For example, a school district may receive a new, cleaner school bus. A manufacturing facility may receive assistance in procuring a new, cleaner piece of equipment or pollution control device not required by District rules and regulations. A city or county would receive money that makes a road-paving project possible or enables their fleets to operate cleaner new vehicles.

JOB CREATION

The off-site funding program made possible by the ISR Program may also lead to short-term and perhaps long-term job creation. For a financially strapped company or public agency, the funding allows for the purchase and installation or construction of the item (be it a school bus or road project). The installation and construction aspects of the program may benefit the local economy through short-term job creation. Since the ISR program will provide ongoing funding as development occurs over time, it is expected to continue to provide this type of benefit while the rule is in effect. In addition, more efficient equipment may reduce costs and may allow for later expansion that can create long-term jobs.

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APPENDIX G

Rule Consistency Analysis for Proposed Rule 9510 (Indirect Source Review) and Rule 3180 (Administrative Fees for Air Impact Assessment Applications)

November 17, 2005

RULE CONSISTENCY ANALYSIS FOR DRAFT RULE 9510 (INDIRECT SOURCE REVIEW) AND RULE 3180 (ADMINISTRATIVE FEES FOR AIR IMPACT ASSESSMENT APPLICATIONS)

I. REQUIREMENTS OF ANALYSIS

Pursuant to Section 40727.2 of the California Health and Safety Code, prior to adopting, amending, or repealing a rule or regulation, the District is required to perform a written analysis that identifies and compares the air pollution control elements of draft Rules 3180 and 9510 with the corresponding elements of existing or proposed District and United States Environmental Protection Agency (US EPA) rules, regulations, and guidelines that apply to the same source category.

For this analysis, the comparison with other District and US EPA rules and guidelines mainly cover the rules' purpose and applicability. Unlike other District prohibitory rules, Rule 9510 reduces emissions from area sources, not from distinct units considered as point sources that are amenable to analysis in terms of emissions limits, source testing, or recordkeeping requirements. This approach analyzes whether Rule 9510 is in conflict or is redundant with the purpose of other District or federal rules and guidelines already in place, and it also clarifies the applicability of other rules relevant to the development projects covered by Rule 9510.

II. RESULTS OF ANALYSIS

A. District Rules

Consistency with District Fee Rules

The stated purpose of Rule 3180 is to recover District cost for administering the requirements of Rule 9510 and the applicability of Rule 3180 is specific to developments projects subject to the requirements of Rule 9510. There are no other District fee rules with a similar purpose and applicability. The fee requirements stated in District Rule 3100 (California Environmental Quality Act Fee) is specifically for permitted sources subject to District rules and regulations and does not apply to development projects subject to Rule 9510. The process for Rule 9510 is different from the District Permit Program---development projects are required to submit an Air Impact Assessment application, which the District evaluates and approves, and assesses a off-site emission reduction fee if emissions are not reduced on-site. The exact role Rule 9510 in the CEQA process will be determined when the District revises its Guidelines for Assessing and Mitigating the Air Quality Impacts (GAMAQI) document.

Consistency with Rule 2010 (Permits Required)

The applicability of Rule 9510 concerns development projects that have not been traditionally under the purview of District Permit Requirements. In lieu of permitting requirements, development projects covered by Rule 9510 are required to submit an Air Impact Assessment application, which the District evaluates and approves, and assesses a off-site emission reduction fee if emissions are not reduced on-site. There may be some new developments that could be subject to Rule 2010 for particular piece(s) of equipment, however, Rule 9510 will only apply to the area and operational (motor vehicle) emissions, and will not apply to the stationary sources of emissions from a particular development. Therefore, Rule 9510 requirements will not duplicate the requirements in Rule 2010.

Consistency with Rule 9110 (General Conformity)

Proposed Rule 9510 is designed to reduce emissions of PM10 and PM10 precursors and fulfills commitments in the 2003 PM10 Plan, which has been SIP-approved. After Rule 9510 is adopted, it will be submitted for SIP approval. With the approval of Rule 9510 into the SIP, District Rule 9110 (General Conformity) is triggered. The District's Rule 9110 adopted by reference the federal conformity rule which states that (40 CFR 51.850): "No department, agency or instrumentality of the Federal Government shall engage in, support in any way or provide financial assistance for, license or permit, or approve any activity which does not conform to an applicable implementation plan." Therefore any development project subject to Rule 9110 (General Conformity) must make a determination of conformity with the District's SIP-approved rules and regulations, including Rule 9510. A federal actions that result in direct and indirect emissions equal to or exceeding 10 tons of ozone precursors (VOCs or NOx) in extreme nonattainment areas or 70 tons of PM10 in serious nonattainment areas is required to perform conformity determination (40 CFR 51.853).

There is no provision in Rule 9510 exempting federal actions in total. Federally sanctioned actions subject to Rule 9110 are exempt from the requirements of Rule 9510 if they fall under any of the following categories: (1) transportation projects that meet specific conditions, (2) transit projects, (3) reconstruction of any development project that is damaged or destroyed and is rebuilt to essentially the same use, or (4) a development project whose primary emission source are from stationary sources subject to Rule 2201 (New and Modified Stationary Source Review) and Rule 2010 (Permits Required). In the event that a project that is subject to Rule 9110 and 9510, any action or emissions used to demonstrate general conformity, can also be used as credit towards the required emission reductions, as long as they meet the requirements in Rule 9510. In the event that there is a shortfall in meeting the emission reduction requirements, the project will need to reduce the remaining emissions either with additional on-site measures or with off-site measures to be in full compliance with the requirements of Rule 9510.

Consistency with Regulation VIII Rules

The baseline emissions for construction, as used in this rule's emission reduction analysis, do not include emissions from fugitive dust, as required by Regulation VIII. However, any control technique performed for purposes of complying with Regulation VIII that reduces the project's construction equipment exhaust emissions will reduce the required reduction and the corresponding fee amount required under Rule 9510.

Consistency with Other District Rules

The baseline emissions attributed to sources subject to Rule 9510 include emissions from area sources that are assumed to be already in compliance with the requirements of other District rules (for residential sources) such as: Rule 4601 (Architectural Coatings), Rule 4901 (Wood Burning Fireplaces and Wood Burning Heaters), Rule 4902 (Residential Water Heaters), and Proposed Rule 4905 (Residential Central-Heating Furnaces). These rules don't require permits for affected units, and the enforcement mechanism is through certification by manufacturers or distributors prior to the sale and installation of these units within the San Joaquin Valley. Other District rules, which regulate non-residential sources and apply to and control specific stationary or area source emissions that are assumed to be already in compliance with other District rules requirements, are not included in the emissions baseline for Rule 9510. These include but may not be limited to: Rule 4351, 4305, 4306 (Boilers, Steam Generators, and Process Heaters), Rule 4622 (Gasoline Transfer into Motor Vehicle Fuel Tanks), Rule 4672 (Petroleum Solvent Dry Cleaning Operations), Rule 4692 (Commercial Charbroiling), and other process-specific District rules.

Consistency with Rule 1070

Rule 1070 provides the basis of authority for the District enforcement activities such as site inspections to verify compliance with mitigation measures.

B. US EPA RULES AND GUIDELINES

There are no specific federal guidelines applying to development projects as a source of NOx, PM10, or PM10 precursors in terms of New Source Performance Standards (NSPS), Control Technique Guidelines (CTG), Maximum Achievable Control Technology (MACT) and National Emission Standards for Hazardous Pollutants (NESHAP).

As previously mentioned, District's Rule 9110 adopted by reference the federal conformity rule which states that (40 CFR 51.850): "No department, agency or instrumentality of the Federal Government shall engage in, support in any way or provide financial assistance for, license or permit, or approve any activity which does not conform to an applicable implementation plan." Its relationship to Rule 9501 is discussed above.

BEFORE THE GOVERNING BOARD OF THE
SAN JOAQUIN VALLEY UNIFIED
AIR POLLUTION CONTROL DISTRICT

IN THE MATTER OF: PROPOSED RULE 9510 (Indirect Source Review) and PROPOSED RULE 3180 (Administrative Fees for Indirect Source Review)) **RESOLUTION NO.** 05-12-16

WHEREAS, the San Joaquin Valley Unified Air Pollution Control District (District) is a duly constituted unified district, as provided in California Health and Safety Code (CH&SC) Sections 41050 to 40161; and

WHEREAS, said District is authorized by CH&SC Section 40702 to make and enforce all necessary and proper orders, rules, and regulations to accomplish the purpose of Division 26 of the CH&SC; and

WHEREAS, Section 40716 of the CH&SC authorizes the District to adopt and implement regulations to reduce or mitigate emissions from indirect and areawide sources of pollution; and

WHEREAS, Section 42311(g) of the CH&SC authorizes districts to adopt a schedule of fees on areawide or indirect sources which are regulated, but for which permits are not issued, to cover the costs of District programs related to this source; and

WHEREAS, Section 40604 of the CH&SC (SB 709), directs the San Joaquin Valley Unified Air Pollution Control District to adopt a schedule of fees to be assessed on areawide or indirect sources of emission; and

WHEREAS, pursuant to Section 107 of the Clean Air Act and pursuant to Section 39608 of the CH&SC, the San Joaquin Valley Air Basin has been classified as a nonattainment area for the national and state health based ambient ozone and particulate matter 10 microns in size and smaller (PM10); and

WHEREAS, the District's 2004 Extreme Ozone Attainment Demonstration Plan as amended by the Governing Board on October 20, 2005 and the District's 2003 PM10 Plan as amended by the Governing Board on December 18, 2003 and May 19, 2005 commits the District to adopt and implement control measures to reach attainment; and

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WHEREAS, the Indirect Source Program is a control strategy contained in both the District's 2004 Extreme Ozone Attainment Demonstration Plan and 2003 PM10 Plan to be implemented through Rule 9510 (Indirect Source Review), and Rule 3180 (Administrative Fees for Indirect Source Review); and

WHEREAS, a public hearing for adopting Rule 9510 and Rule 3180 was duly noticed for public hearing on November 3, 2005 in accordance with CH&SC Sections 40725 and 40727.2.

NOW, THEREFORE, BE IT RESOLVED AS FOLLOWS:

1. The Governing Board hereby adopts Rule 9510 (Indirect Source Review), and Rule 3180 (Administrative Fees for Indirect Source Review) as set forth in the attached hereto and incorporated herein by this reference. Said rules shall become effective on December 15, 2005.

2. The Governing Board hereby finds, based on the evidence and information presented at the hearing upon which its decision is based, all notices required to be given by law have been duly given in accordance with CH&SC Section 40725, Section 42311(e) and Section 40727.2, and the Board has allowed public testimony in accordance with CH&SC Section 40726.

3. In connection with the proposed requirements of said rules, the Board makes the following findings as required by CH&SC Section 40727:

a. **NECESSITY.** The Governing Board finds, based on the staff report, public and industry testimony on the record for this rulemaking proceeding, that a need exists for the adoption of Rule 9510 (Indirect Source Review) and Rule 3180 (Administrative Fees for Indirect Source Review). Said action is necessary to meet the commitments of the submitted State Implementation Plan and requirements of the federal Clean Air Act.

b. **AUTHORITY.** The Governing Board finds that it has the legal authority to adopt said rules under the California Health & Safety Code Sections 40000 and 40001.

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c. **CLARITY.** The Governing Board finds that said rules are written or displayed so that their meaning can be easily understood by those persons or industries directly affected by them.

d. **CONSISTENCY.** The Governing Board finds that said rules are in harmony with, and not in conflict with or contradictory to, existing statutes, court decisions, or state or federal regulations.

e. **NONDUPLICATION.** The Governing Board finds that said rules do not impose the same requirements as any existing state or federal regulation.

f. **REFERENCE.** The Governing Board finds that said rulemakings implement Section 40604 of the California Health and Safety Code.

4. The Governing Board hereby finds that the requirements of the California Health and Safety Code Section 40728.5 have been satisfied to the greatest extent possible, and that the Governing Board has actively considered and made a good faith effort to minimize any adverse socioeconomic impacts associated with the proposed rulemakings.

5. The District has completed an Initial Study for said rules that indicate that the project will not result in any significant adverse effects to the environment, and a Proposed Negative Declaration has been prepared and properly noticed pursuant to the California Environmental Quality Act Guidelines (CEQA). The Governing Board of the District has duly considered said Initial Study and Proposed Negative Declaration. Accordingly, the Governing Board of the District (a) certifies that the Initial Study and Negative Declaration reflect the independent judgment of the District; (b) finds that the above-described project will have a de minimis impact on fish and wildlife resources; and (c) approves and adopts a Negative Declaration for said rulemaking effort pursuant to CEQA requirements. In accordance with the provisions of Section 15075 of the *California Environmental Quality Act Guidelines*, the Executive Director/Air Pollution Control Officer is hereby directed to cause to be

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filed a Notice Determination with the County Clerks of each of the counties in the District.

6. To the maximum extent feasible, the offsite emission reduction fees collected by the District shall be expended in a manner that provides for localized air quality benefits commensurate with the emissions from the new development projects.

7. The District shall explore support of legislative initiatives that provide appropriate litigation relief on air quality issues in conjunction with the California Environmental Quality Act (CEQA) process for new development projects that satisfy the District emission reduction requirements of Rule 9510 or more stringent standards set by local communities and land use agencies.

8. No later than December 31, 2010, and after holding at least one series of public workshops, the Air Pollution Control Officer shall submit Rules 9510 and 3180 to the District Governing Board for reevaluation and reauthorization.

9. The District shall prepare an annual report that will be available to the public regarding the expenditure of offsite fee funds, and shall include the following: total amount of offsite fees received; total monies spent; total monies remaining; any refunds distributed; a list of all projects funded; total emissions reductions realized, and; the overall cost-effectiveness factor for the projects funded.

10. The Executive Director/Air Pollution Control Officer is directed to file with all appropriate agencies certified copies of this resolution and the rules adopted herein and is directed to maintain a record of this rulemaking proceeding in accordance with CH&SC Section 40728.

11. The Air Pollution Control Officer is directed to transit Rule 9510 (Indirect Source Review) to the California Air Resources Board for incorporation in the State Implementation Plan.

12. The Governing Board authorizes the Air Pollution Control Officer to

///

include in the submittal or subsequent documentation any technical corrections, clarifications, or additions that may be needed to secure EPA approval, provided such changes do not alter the substantive requirements of the approved rule.

THE FOREGOING was passed by the following vote of the Governing Board of the San Joaquin Valley Unified Air Pollution Control District this 15th day of December 2005, to wit:

AYES: Patrick, Anderson, Worthley, Barba, Nelson, Dominici, Sieglock, Prince, Maggard and Mayfield.

NOES: None.

ABSENT: Armentrout.

SAN JOAQUIN VALLEY UNIFIED
AIR POLLUTION CONTROL DISTRICT

By: _____
Thomas W. Mayfield, Chair
Governing Board

ATTEST:

By: _____
Sissy Smith

Appendix C:
Biological Resources Assessment

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Biological Resources Assessment
Westside Industrial Project
Kern County, California
APN: 184-391-08

Project Applicant:
Seefried Industrial Properties, Inc.
2321 Rosecrans Avenue, Suite 2220
El Segundo, CA 90245

Contact: Sean Sheppard, Vice President–Western Region

Lead Agency:
Kern County Planning Department
2700 M Street #100
Bakersfield, CA 93301
661.862.8600

Prepared by:
FirstCarbon Solutions
7726 N. First Street, #413
Fresno, CA 93720
714.508.4100

Contact: Angela Wolfe, Senior Project Manager
Michael W. Tuma, PhD, Principal Biologist

Date: May 23, 2023
Revised Date: December 19, 2023

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SECTION 1: INTRODUCTION

This Biological Resources Assessment (BRA) was prepared by FirstCarbon Solutions (FCS) to support the proposed Westside Industrial Project (proposed project) in unincorporated Kern County, California. The purpose of the BRA was to (1) document existing and potentially occurring biological resources on the project site and adjacent areas; (2) summarize relevant local, State, and federal regulations pertaining to biological resources; (3) analyze potential project-related impacts on regulated biological resources; and (4) recommend appropriate measures to mitigate potential impacts on biological resources to less than significant levels.

1.1 - Project Location and Setting

The approximately 93.74-acre project site is located in the southern San Joaquin Valley in unincorporated Kern County, California (Exhibit 1). This site is part of a larger 629.24-acre parcel known on Assessor's Parcel Number (APN) 184-391-08. The site is bounded by Wible Road (west), Houghton Road (north), and agricultural land (south and east) (Exhibit 2). The project site is located on the *Conner, California* United States Geological Survey (USGS) 7.5-minute Topographic Quadrangle Map, Township 31 South, Range 27 East, Section 13.

The project site is surrounded primarily by agricultural lands and by limited commercial developments and associated infrastructure. These include Martin Feed, warehouses, Houghton Road, and an almond orchard to the north; carrot fields, Kern Island Canal, and State Route (SR) 99 to the east; cultivated agricultural rows to the south; and Wible Road and an almond orchard to the west. The project site is currently used for agricultural production.

1.2 - Project Description

The project applicant, Seefried Industrial Properties, Inc., proposes to develop a 653,442-square-foot single warehouse and distribution facility and related improvements. The proposed facility has a footprint of approximately 629,186 square feet (including approximately 44,424 square feet of office space) that would primarily facilitate material handling equipment and warehouse uses (Exhibit 3). The remaining square footage is made up of a 24,256-square-foot mezzanine, which would contain material handling equipment conveyors with occasional maintenance and no storage. The proposed project would also include two guardhouses and one pumphouse. The project plan is depicted in Exhibit 3.

1.2.1 - Vehicular Access and Circulation

The proposed project would include approximately 5.45 acres of off-site improvements. The project frontage along Houghton Road and Wible Road would be improved to meet applicable Kern County (County) standards as follows. The frontage roads, classified as major arterials, would be improved with new pavement, raised median, curb and gutter, and sidewalk. Additionally, signing and marking would be constructed for the new pavement delineations.

1.2.2 - Site Access and Circulation

New roads would be constructed along the eastern and southern perimeter of the project site to link Houghton Road and Wible Road. Each road would be two lanes and designed to accommodate heavy trucks. The new intersection of Houghton Road and the new eastern perimeter road would be signalized. In addition, the intersection of Wible Road and Houghton Road would be signalized. Once operational, ingress to the proposed project would be taken from the new southern perimeter road via the existing Wible Road. The southern perimeter road driveways would serve the employee parking lot as well as the truck entrance and exit. The eastern entrance would feature a primary guardhouse. Truck egress would occur at the western entrance of the southern perimeter road, which would also feature a secondary guardhouse.

1.2.3 - Landscaping

The proposed project would include approximately 217,529 square feet (4.99 acres) of landscaping and irrigation, which would consist primarily of drought-tolerant and low-maintenance plants. Islands with canopy trees would be provided to reduce heat island effect. Native hydroseed mix and rock cobble will be applied to large areas where landscaping and irrigation is not practical due to non-employee use. Landscaping would exceed the 5 percent landscaping requirement according to the County Code. There are no existing trees on the project site, and therefore no trees would be required to be removed.

1.2.4 - Utilities and Infrastructure

The proposed project would be served with potable water provided by Cal Water. Service laterals would be extended from an existing water line located within Wible Road. The project proposes a single water tank for fire suppression volume.

The proposed project would be served by a private wastewater collection and treatment package system located on-site to accommodate the wastewater needs. Electricity and natural gas service would be provided by Pacific Gas and Electric Company (PG&E). Service laterals would be extended to the project site from existing utility facilities along Houghton Road and Wible Road. A substation would be located at the northeast corner of the project site and would provide power generation for the on-site building.

The proposed project would install an on-site storm drainage system consisting of inlets, underground piping, and surface and underground basins. Runoff would drain to one of three underground detention basins located at the southwest and southeast corners of the project site as well as near the northern frontage of the project site along Houghton Road. The basins would be designed to accommodate a 100-year storm event and would detain runoff and release it at a rate no greater than the pre-development condition of the project site. The proposed project would be required to retain the stormwater per Kern County's drainage requirements and all other applicable standards.

1.2.5 - Phasing and Construction

For the purposes of this environmental analysis, the following construction schedule is assumed. Grading of the proposed project would start in July 2024 and would last approximately 20 days. Construction would be completed in a single phase beginning in September 2024 and concluding in September 2025. It is anticipated that the proposed project would be operational in 2025. Should commencement of construction be delayed, the utilization of July 2024 represents a conservative analysis for the purposes of this BRA.

During construction, a temporary on-site batch plant would be necessary and assembled to manufacture and construct the facility and related improvements. This on-site batch plant will be de-assembled after construction is complete.

1.2.6 - Operation

The proposed facility would operate 24 hours a day, 365 days a year and typically consist of both day and night shifts. The facility would employ approximately 915 employees per shift (two shifts, for a total of 1,830 employees) in peak season and approximately 732 employees per shift (two shifts for a total of 1,464 employees) in non-peak season.

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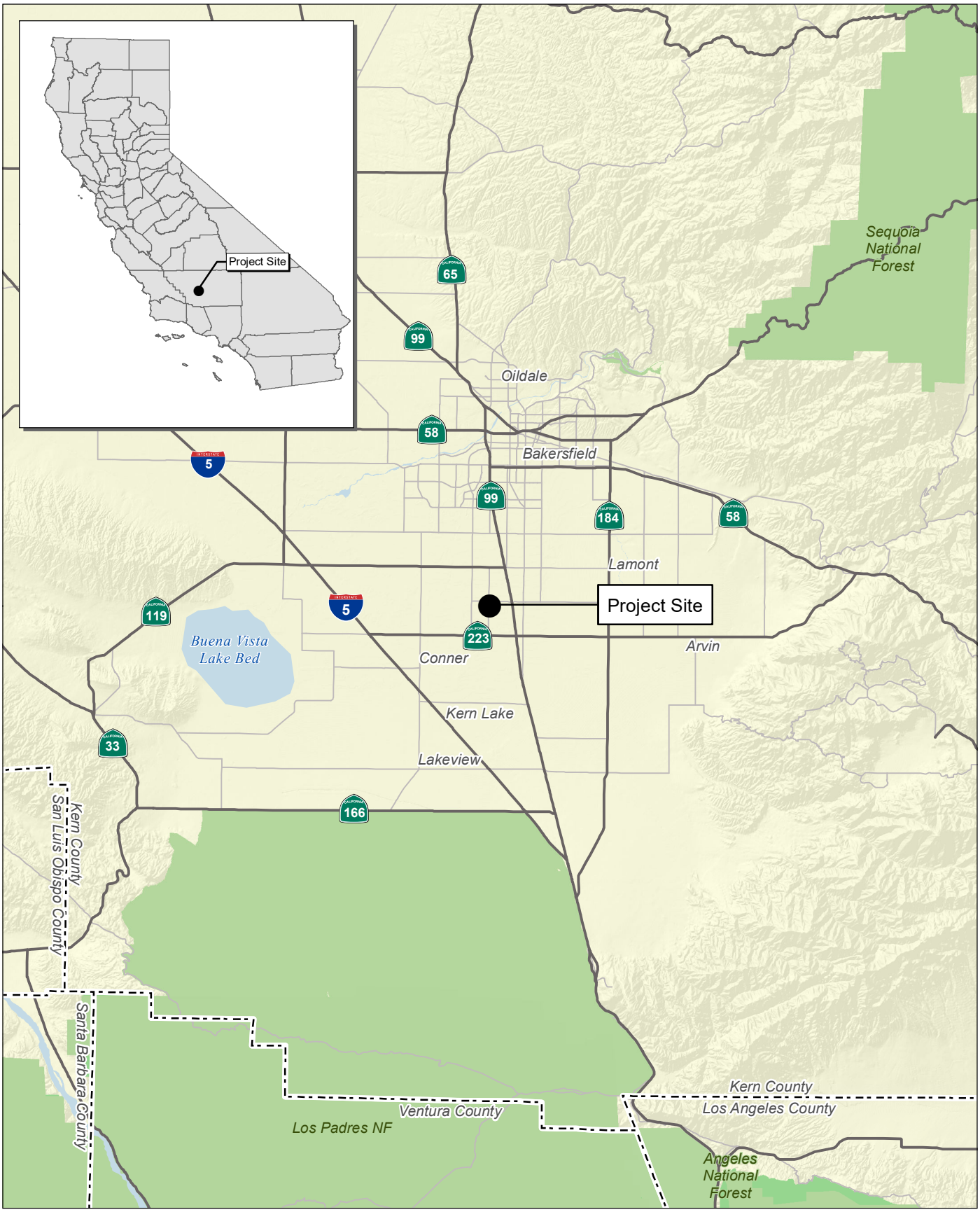

Source: Census 2000 Data, The California Spatial Information Library (CaSIL).

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8.5 4.25 0 8.5 Miles

Exhibit 1
Regional Location Map

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WESTSIDE INDUSTRIAL PROJECT
BIOLOGICAL RESOURCES ASSESSMENT

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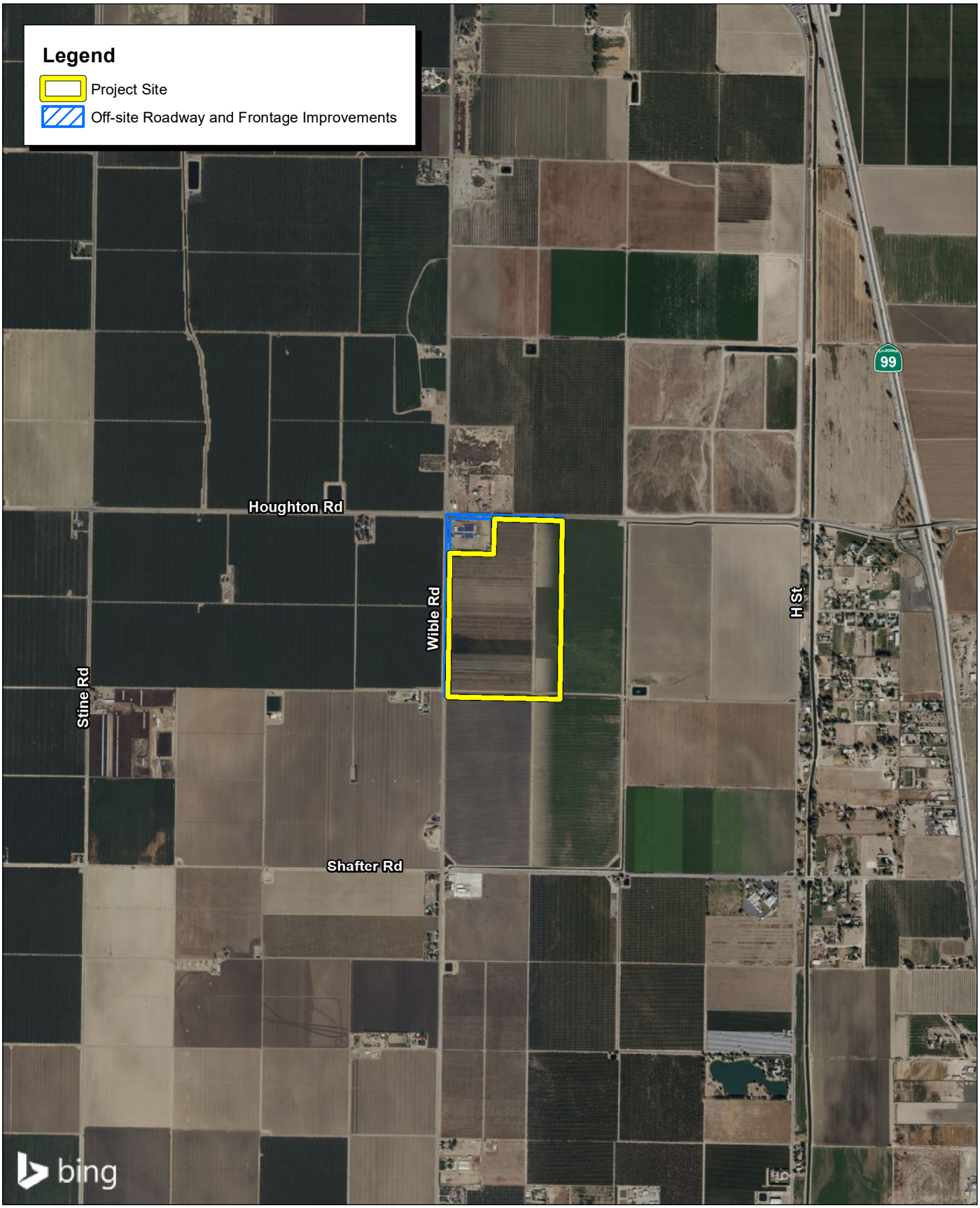

Source: Bing Aerial Imagery.

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2,000 1,000 0 2,000 Feet

Exhibit 2
Local Vicinity Map

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WESTSIDE INDUSTRIAL PROJECT
BIOLOGICAL RESOURCES ASSESSMENT

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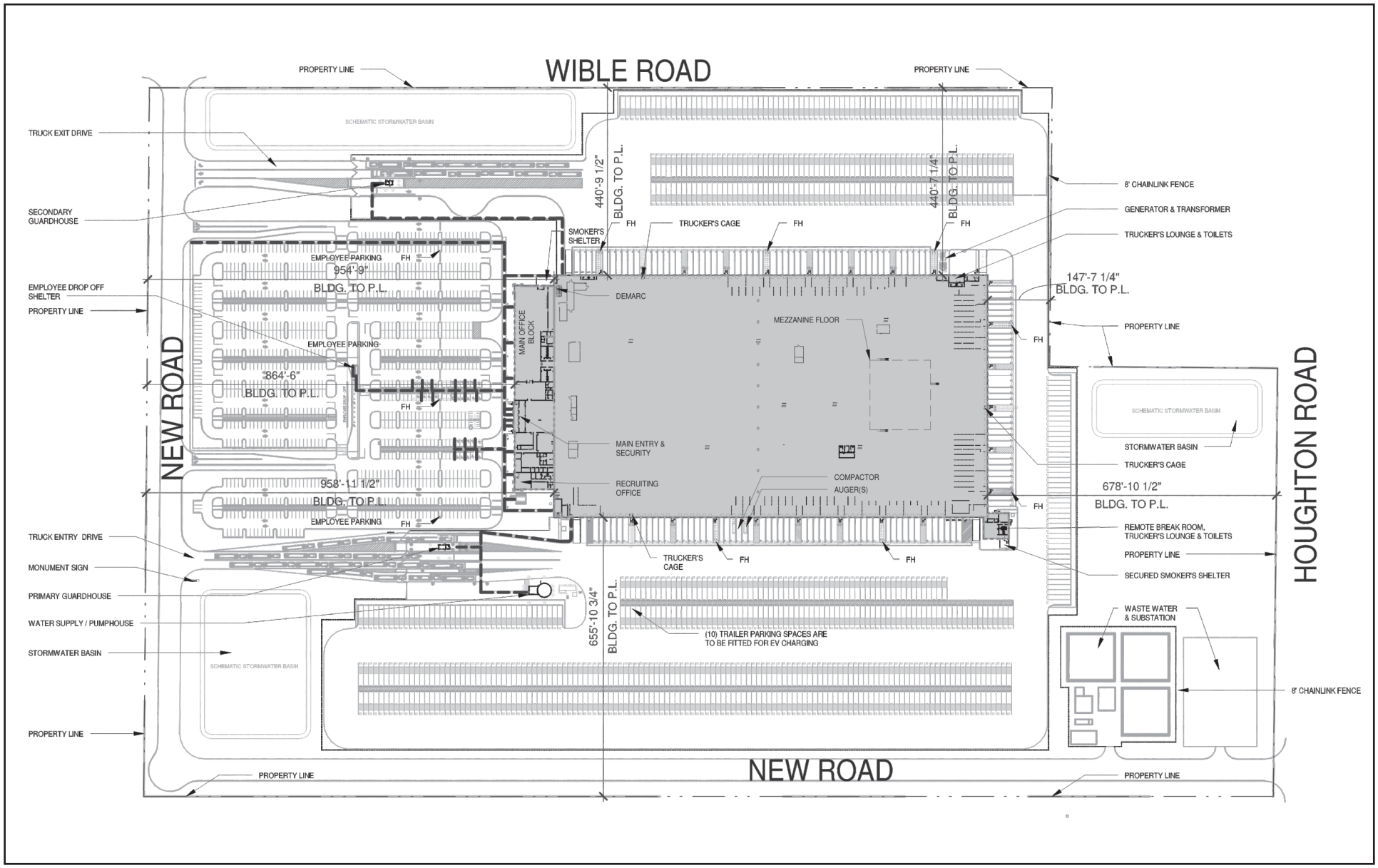

Source: Kimley-Horn, Ware Malcomb, 03/30/2023.

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Exhibit 3
Proposed Site Plan

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SECTION 2: REGULATORY SETTING

2.1 - Federal

2.1.1 - Endangered Species Act

The United States Fish and Wildlife Service (USFWS) has jurisdiction over species listed as threatened or endangered under the Endangered Species Act. Section 9 of the Endangered Species Act protects listed species from "take," which is broadly defined as actions taken to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct." The Endangered Species Act protects threatened and endangered plants and animals and their critical habitat. Candidate species are those proposed for listing; these species are usually treated by resource agencies as if they were actually listed during the environmental review process.

2.1.2 - Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) implements international treaties between the United States and other nations devised to protect migratory birds, their parts, eggs, and nests from activities such as hunting, pursuing, capturing, killing, selling, and shipping, unless expressly authorized in the regulations or by permit. All migratory birds and their nests are protected from take and other impacts under the MBTA (16 United States Code [USC] § 703, *et seq*.).

2.1.3 - Bald and Golden Eagle Protection Act

The golden eagle (*Aquila chrysaetos*) and bald eagle (*Haliaeetus leucocephalus*) are afforded additional protection under the Eagle Protection Act, amended in 1973 (16 USC § 669, *et seq*.) and the Bald and Golden Eagle Protection Act (16 USC §§ 668–668d).

2.1.4 - Clean Water Act

Section 404

The United States Army Corps of Engineers (USACE) administers Section 404 of the federal Clean Water Act (CWA), which regulates the discharge of dredge and fill material into waters of the United States. The USACE has established a series of nationwide permits that authorize certain activities in waters of the United States if a proposed activity can demonstrate compliance with standard conditions. Normally, USACE requires an individual permit for an activity that will affect an area equal to or greater than 0.5 acre of waters of the United States. A project that results in impacts to less than 0.5 acre of waters of the United States can normally be conducted pursuant to one of the nationwide permits if it is consistent with the standard permit conditions. The USACE also has discretionary authority to require an Environmental Impact Statement for projects that result in impacts to between 0.1 and 0.5 acre. Use of any nationwide permit is contingent on the activities having no impacts on endangered species.

Section 401

As stated in Section 401 of the CWA, "any applicant for a federal permit for activities that involve a discharge to waters of the State, shall provide the federal permitting agency a certification from the State in which the discharge is proposed that states that the discharge will comply with the applicable provisions under the federal Clean Water Act." Therefore, before the USACE will issue a Section 404 permit, applicants must apply for and receive a Section 401 Water Quality Certification from the Regional Water Quality Control Board (RWQCB).

2.2 - State

2.2.1 - CEQA Guidelines

The following California Environmental Quality Act (CEQA) Guidelines Appendix G checklist questions serve as thresholds of significance when evaluating the potential impacts of a proposed project on biological resources. Impacts are considered significant if a project would:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as being a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife (CDFW) or USFWS.
- 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 CDFW or USFWS.
- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the CWA (including but not limited to marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.
- Conflict with the provisions of an adopted Habitat Conservation Plan, natural community conservation plan, or other approved local, regional, or State Habitat Conservation Plan.

2.2.2 - California Endangered Species Act

The State of California enacted the California Endangered Species Act (CESA) in 1984. CESA pertains to State-listed endangered and threatened species. CESA requires State agencies to consult with the CDFW when preparing CEQA documents to ensure that the State lead agency actions do not jeopardize the continued existence of a listed species or result in the destruction or adverse modification of habitat essential to the continued existence of those species, if there are reasonable and prudent alternatives available (Fish and Game Code [FGC] § 2080). CESA directs agencies to consult with the CDFW on projects or actions that could affect listed species, directs the CDFW to determine whether jeopardy would occur, and allows the CDFW to identify "reasonable and prudent alternatives" to the project consistent with conserving the species. CESA allows the CDFW to

authorize exceptions to the State's prohibition against take of a listed species if the "take" of a listed species is incidental to carrying out an otherwise lawful project that has been approved under CEQA (FGC § 2081).

2.2.3 - California Fish and Game Code

Under CESA, the CDFW has the responsibility for maintaining a list of endangered and threatened species (FGC § 2070). Fish and Game Code Sections 2050 through 2098 outline the protection provided to California's rare, endangered, and threatened species. Fish and Game Code Section 2080 prohibits the taking of plants and animals listed under the CESA, and Fish and Game Code Section 2081 established an incidental take permit program for State-listed species. The CDFW maintains a list of "candidate species" which it formally notices as being under review for addition to the list of endangered or threatened species.

In addition, the Native Plant Protection Act of 1977 (NPPA) (FGC § 1900, *et seq*.) prohibits the taking, possessing, or sale within the State of any plants with a State designation of rare, threatened, or endangered (as defined by the CDFW). An exception to this prohibition in the NPPA allows landowners, under specified circumstances, to take listed plant species, provided that the owners first notify CDFW and give the agency at least 10 days to come and retrieve (and presumably replant) the plants before they are plowed under or otherwise destroyed. Fish and Game Code Section 1913 exempts from "take" prohibition "the removal of endangered or rare native plants from a canal, lateral ditch, building site, or road, or other right-of-way." Project impacts to these species are not considered significant unless the species are known to have a high potential to occur within the area of disturbance associated with construction of the proposed project.

In addition to formal listing under the Endangered Species Act and CESA, some species receive additional consideration by the CDFW and local lead agencies during the CEQA process. Species that may be considered for review are those listed as a "Species of Special Concern." The CDFW maintains lists of "Species of Special Concern" that serve as species "watch lists." Species with this status may have limited distributions or limited populations and/or the extent of their habitats has been reduced substantially, such that their populations may be threatened. Thus, their populations are monitored and they may receive special attention during environmental review. While they do not have statutory protection, they may be considered rare under CEQA and specific protection measures may be warranted. In addition to Species of Special Concern, the CDFW Special Animals List identifies animals that are tracked by the California Natural Diversity Database (CNDDB) and may be potentially vulnerable but warrant no federal interest and no legal protection.

Sensitive species that would qualify for listing but are not currently listed are afforded protection under CEQA. CEQA Guidelines Section 15065 (Mandatory Findings of Significance) requires that a substantial reduction in numbers of a rare or endangered species be considered a significant effect. CEQA Guidelines Section 15380 (Rare or Endangered Species) provides for the assessment of unlisted species as rare or endangered under CEQA if the species can be shown to meet the criteria for listing. Unlisted plant species on the California Native Plant Society (CNPS) List ranked 1A, 1B, and 2 would typically require evaluation under CEQA.

Fish and Game Code Sections 3500—5500 outline protection for fully protected species of mammals, birds, reptiles, amphibians, and fish. Species that are fully protected by these sections may not be taken or possessed at any time. The CDFW cannot issue permits or licenses that authorize the take of any fully protected species except under certain circumstances such as scientific research and live capture and relocation of such species pursuant to a permit for the protection of livestock.

Under Fish and Game Code Section 3503.5, it is unlawful to take, possess, or destroy any birds in the orders of *Falconiformes* or *Strigiformes* (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto. To comply with the requirements of CESA, an agency reviewing a proposed project within its jurisdiction must determine whether any State-listed endangered or threatened species may be present in the project study area and determine whether the proposed project will have a potentially significant impact on such species. In addition, the CDFW encourages informal consultation on any proposed project that may impact a candidate species.

Project-related impacts to species on the CESA endangered or threatened list would be considered significant. State-listed species are fully protected under the mandates of CESA. "Take" of protected species incidental to otherwise lawful management activities may be authorized under Fish and Game Code Section 206.591. Authorization from the CDFW would be in the form of an Incidental Take Permit.

Fish and Game Code Section 1602 requires any entity to notify the CDFW before beginning any activity that "may 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" or "deposit debris, waste, or other materials that could pass into any river, stream, or lake." "River, stream, or lake" includes waters that are episodic and perennial and ephemeral streams, desert washes, and watercourses with a subsurface flow. A Lake or Streambed Alteration Agreement will be required if the CDFW determines that project activities may substantially adversely affect fish or wildlife resources through alterations to a covered body of water.

California Fully Protected Species

California fully protected species are described in Sections 3511, 4700, 5050, and 5515 of the California Fish and Game Code. These statutes prohibit the take or possession of fully protected species. The CDFW is unable to authorize incidental take of fully protected species when activities are proposed in areas inhabited by those species.

2.2.4 - California Porter-Cologne Water Quality Control Act

The RWQCB regulates actions that would involve "discharging waste, or proposing to discharge waste, within any region that could affect the water of the State" (Water Code § 13260(a)), pursuant to provisions of the Porter-Cologne Water Quality Act. "Waters of the State" are defined as "any surface water or groundwater, including saline waters, within the boundaries of the State" (Water Code § 13050(e)).

2.2.5 - California Native Plant Society Rare Plant Rankings

The CNPS maintains a rank of plant species native to California that have low population numbers, limited distribution, or are otherwise threatened with extinction. This information is published in the Inventory of Rare and Endangered Vascular Plants of California. Following are the definitions of the CNPS ranks:

- **Rank 1A:** Plants presumed extirpated in California and either rare or extinct elsewhere
- **Rank 1B:** Plants rare, threatened, or endangered in California and elsewhere
- **Rank 2A:** Plants presumed extirpated in California but common elsewhere
- **Rank 2B:** Plants rare, threatened, or endangered in California but more common elsewhere
- **Rank 3:** Plants about which more information is needed
- **Rank 4:** Watch List: Plants of limited distribution

Potential impacts to populations of CNPS ranked plants receive consideration under CEQA review. All plants appearing on the CNPS List ranked 1 or 2 are considered to meet the CEQA Guidelines Section 15380 criteria. Rank 3 and 4 plants do not automatically meet this definition. Rank 4 plants do not clearly meet CEQA standards and thresholds for impact considerations.[1]

2.3 - Regional and Local

2.3.1 - Metropolitan Bakersfield General Plan

The Metropolitan Bakersfield General Plan provides guidance for reviewing agencies to review projects in the planning area. The plan includes a Conservation Element that guides decisions pertaining to protection of sensitive biological resources, including special-status plants and wildlife and sensitive habitats and vegetation communities. The element states goals for protecting these resources, including:[2]

Chapter V–Conservation Element

A. Biological Resources

Goals and Policies

Goals

1. Conserve and enhance Bakersfield's biological resources in a manner which facilitates orderly development and reflects the sensitivities and constraints of these resources.
2. To conserve and enhance habitat areas for designated "sensitive" animal and plant species.

[1] California Native Plant Society (CNPS). 2020. Considerations for Including CRPR 4 Plant Taxa in CEQA Biological Resource Impact Analysis. Sacramento, CA. Website: https://www.cnps.org/wp-content/uploads/2020/02/crpr4_technical_memo.pdf. Accessed May 3, 2023.

[2] Metropolitan Bakersfield. 2007. Metropolitan Bakersfield General Plan. Conservation Element. Website: https://psbweb.co.kern.ca.us/planning/pdfs/mbgp/mbgp_complete.pdf. Accessed May 19, 2023.

Policies

These goals are achieved through implementing the following policies:

1. Direct development away from "sensitive biological resource" areas, unless effective mitigation measures can be implemented.
3. Discourage, where appropriate, the use of off-road vehicles to protect designated sensitive biological and natural resources.

2.3.2 - Metropolitan Bakersfield Habitat Conservation Plan

The proposed project falls within the plan area boundary of the Metropolitan Bakersfield Habitat Conservation Plan (MBHCP).[3] The MBHCP, which expired on January 1, 2023, served as a Habitat Conservation Plan pursuant to Section 10(a)(1)(B) of the Endangered Species Act that focused on the conservation of species and habitats in the Metropolitan Bakersfield area. The MBHCP allowed permittees to obtain take of threatened, endangered, and rare plant and animal species covered by the MBHCP. Regulation of take of species was authorized by the USFWS and the CDFW for lawful actions (e.g., public and private projects). The MBHCP covered take of 17 species of concern in the 261,120-acre plan area. Because of the expiration of the MBHCP as of January 1, 2023, the MBHCP will not apply to the proposed project.

2.3.3 - Kern County Valley Floor Habitat Conservation Plan

The project site is within the proposed management area of the Draft Kern County Valley Floor Habitat Conservation Plan (KCVFHCP). The KCVFHCP is a pending Habitat Conservation Plan pursuant to Section 10 of the Endangered Species Act. The plan would cover more than 3,110 square miles in western Kern County with a strategy to conserving and protecting the San Joaquin kit fox, blunt-nosed leopard lizard, and 23 other sensitive species. The plan has not yet been approved by the USFWS, CDFW, or the Kern County Board of Supervisors. Until the plan is approved, the KCVFHCP will not apply to the proposed project.

[3] City of Bakersfield. 1994. Metropolitan Bakersfield Habitat Conservation Plan. Website: https://www.bakersfieldcity.us/259/Metropolitan-Bakersfield-Habitat-Conserv. Accessed May 15, 2023.

SECTION 3: METHODS

3.1 - Literature and Database Reviews

FirstCarbon Solutions (FCS) Biologists conducted literature and database reviews to provide a baseline from which to evaluate potential project impacts on biological resources on the project site and in the surrounding area, as described below.

3.1.1 - Existing Documentation

As part of the literature review, FCS Biologists examined existing environmental documentation for the project site and vicinity. This documentation included literature pertaining to the habitat requirements of special-status species with the potential to occur in the project vicinity and federal register listings, protocols, species data provided by the USFWS and CDFW, and biological reporting prepared for a previous iteration of the project.

3.1.2 - Topographic Maps and Aerial Photographs

FCS Biologists reviewed current USGS 7.5-minute topographic quadrangle map(s)and aerial photographs as a preliminary analysis of the existing conditions within the project site and immediate vicinity.[4] Information obtained from the topographic maps included elevation, general watershed information, and potential drainage feature locations using Google Earth in conjunction with the United States Environmental Protection Agency (EPA) Watershed Assessment, Tracking, and Environmental Results System (WATERS).[5] Aerial photographs provided a perspective of the current site conditions relative to on-site and off-site land use, plant community locations, and potential locations of wildlife movement corridors.

3.1.3 - Soil Surveys

FCS Biologists reviewed the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Web Soil Survey (WSS) [6] to characterize the soil series (i.e., group of soils with similar profiles) on the project site. The FCS Biologists reviewed the soil characteristics to determine whether conditions on-site are suitable for supporting special-status plant populations.

3.1.4 - Special-status Species Database Search

An FCS Biologist compiled a list of threatened, endangered, and otherwise special-status species previously recorded within the project vicinity based on a search of the CNDDB and the CNPS

[4] United States Geological Survey (USGS). 2023. National Geospatial Program. Website: https://www.usgs.gov/core-science-systems/national-geospatial-program/us-topo-maps-america?qt-science_support_page_related_con=4#qt-science_support_page_related_con. Accessed May 3, 2023.

[5] United States Environmental Protection Agency (EPA). 2023. Watershed Assessment, Tracking and Environmental Results System (WATERS). Website: https://www.epa.gov/waterdata/waters-watershed-assessment-tracking-environmental-results-system. Accessed May 3, 2023.

[6] United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS). 2023. Web Soil Survey (WSS). Website: https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx. Accessed May 3, 2023.

Electronic Inventory (CNPSEI) of Rare and Endangered Vascular Plants of California.[7,8] The CNDDB search focused on species records within 5 and 10 miles of the project site. The CNPSEI search focused on records from the *Conner, California* USGS 7.5-minute Topographic Quadrangle Map and the eight surrounding quadrangles. The CNDDB Biogeographic Information and Observation System (BIOS 6) was used to determine distances between species occurrences and the project site.[9]

The potential for occurrence on the project site was assessed for each of the special-status species identified in the database searches. The potential for occurrence was assessed based on conditions on the project site, habitat requirements of special-status species, and number of recent (< 20 years old) occurrences in the project vicinity.

3.1.5 - Trees and Native Vegetation

Prior to conducting the reconnaissance-level field survey, FCS Biologists reviewed applicable County ordinances pertaining to tree and native vegetation preservation and protection and ascertained whether measures or permits are required to remove, replace, or transplant protected trees or native vegetation.

3.1.6 - Jurisdictional Waters and Wetlands

Prior to conducting the reconnaissance-level survey, FCS Biologists reviewed EPA WATERS and aerial photography to identify potential natural drainage features and water bodies.[10] In general, all surface drainage features identified as blue-line streams on USGS maps and linear patches of vegetation are expected to exhibit evidence of flows and considered potentially subject to State and federal regulatory authority as waters of the United States and/or State. A preliminary assessment was conducted to determine the location of any existing drainages and limits of project-related grading activities to aid in determining whether a formal delineation of waters of the United States or State is necessary.

3.2 - Field Surveys

3.2.1 - Survey Personnel

A general biological survey and vegetation community mapping of the project site was performed on April 26, 2023, by FCS Biologist Kelly Evans under the direction of FCS Senior Biologist Michael W. Tuma, PhD. Brief resumes for the FCS Biologists who completed the study are presented in Appendix A.

[7] California Department of Fish and Wildlife (CDFW). 2023. California Natural Diversity Database (CNDDB) RareFind 5 California Natural Diversity Database Query for Special-Status Species. Website: https://map.dfg.ca.gov/rarefind/view/RareFind.aspx. Accessed May 3, 2023.

[8] California Native Plant Society (CNPS). 2023. California Native Plant Society Rare and Endangered Plant Inventory. Website: http://www.rareplants.cnps.org/. Accessed May 3, 2023.

[9] California Department of Fish and Wildlife (CDFW). 2023. Biogeographic Information and Observation System (BIOS 5). Website: https://map.dfg.ca.gov/bios/. Accessed May 3, 2023.

[10] United States Environmental Protection Agency (EPA). 2023. Watershed Assessment, Tracking and Environmental Results System (WATERS). Website: https://www.epa.gov/waterdata/waters-watershed-assessment-tracking-environmental-results-system. Accessed May 3, 2023.

3.2.2 - General Biological Survey

The objective of the general biological survey was to ascertain general site conditions and identify whether existing vegetation communities provide suitable habitat for special-status plant or wildlife species. During this survey, the Biologist walked and drove the project site and characterized and mapped vegetation communities, identified and recorded plants and wildlife observed on-site, and recorded evidence of wildlife habitats, including wildlife corridors, nests, dens, or burrows. Special-status or unusual biological resources identified during the literature review were ground-truthed during the field survey for mapping accuracy. Special attention was paid to sensitive habitats and areas potentially supporting special-status floral and faunal species.

Vegetation Communities and Plants

Common plant species observed during the general biological survey were identified by visual characteristics and morphology in the field and recorded in a field notebook and on field maps. Vegetation community types and boundaries were noted on aerial photos, verified through field observation, and digitized using ESRI ArcGIS software® ArcMap 10.0. By incorporating collected field data and interpreting aerial photography, a map of habitat types, land cover types, and other biological resources within the project site was prepared. Vegetation community and land cover types used to help classify habitat types are based on the Manual of California Vegetation (MCV) and cross-referenced with the CDFW Natural Communities List.[11,12]

Wildlife

Wildlife species detected during the general biological survey by sight, calls, tracks, scat, or other signs were recorded. Notations were made regarding suitable habitat for those special-status species determined to have the potential to occur within the project site.[13] Appropriate field guides were used to assist in species identification during surveys, such as Peterson, Reid, and Stebbins.[14,15,16] Online resources such as Merlin Bird ID were also consulted as necessary. [17]

Wildlife Movement Corridors

Wildlife movement corridors link areas of suitable wildlife habitat that are otherwise separated by rugged terrain, changes in vegetation, or human disturbance. Urbanization and the resulting fragmentation of open space areas create isolated “islands” of wildlife habitat, forming separated populations. Corridors act as an effective link between populations.

The project site was evaluated for evidence of a wildlife movement corridor during the general biological survey. The scope of the biological resource assessment did not include a formal wildlife

[11] Sawyer, J.O., T. Keeler-Wolf, and J.M. Evens. 2009. A Manual of California Vegetation, Second Edition. California Native Plant Society, Sacramento.
[12] California Department of Fish and Wildlife (CDFW). 2022. Natural Communities List, Sacramento: California Department of Fish and Wildlife. July 5, 2022. Website: https://wildlife.ca.gov/Data/VegCAMP/Natural-Communities#sensitive%20natural%20communities. Accessed May 3, 2023.
[13] California Department of Fish and Wildlife (CDFW). 2023. CNDDB RareFind 5 California Natural Diversity Database Query for Special-Status Species. Website: https://map.dfg.ca.gov/rarefind/view/RareFind.aspx. Accessed May 3, 2023.
[14] Peterson, T.R. 2010. A Field Guide to Birds of Western North America, 4th Edition. Boston: Houghton Mifflin Harcourt.
[15] Reid, F. 2006. A Field Guide to Mammals of North America, Fourth Edition. Boston: Houghton Mifflin Harcourt.
[16] Stebbins, R.C. 2003. A Field Guide to Western Reptiles and Amphibians. Third Edition. Boston: Houghton Mifflin Harcourt.
[17] Merlin Bird ID. 2023. Online bird occurrence database. Website: https://merlin.allaboutbirds.org/. Accessed May 3, 2023.

movement corridor study utilizing track plates, camera stations, scent stations, or snares. Rather, the focus of this study was to determine whether a change in land use at the project site could have significant impacts on the regional movement of wildlife. Conclusions are based on the information compiled during the literature review, including aerial photographs, USGS topographic maps, and resource maps for the vicinity; the field survey; and professional experience with the desired topography, habitat, and resource requirements of the special-status species potentially utilizing the project site and vicinity.

SECTION 4: RESULTS

This section summarizes the results of the literature search and general biological reconnaissance survey. The results of the sensitive biological resources database reviews and an analysis for the potential for occurrence of these resources on the project site are presented in Section 5.

4.1 - Literature Review

4.1.1 - Environmental Setting

The project site is situated in a region that is characterized by an uneven plain consisting of extensive alluvial fans, debris flows, and over-bank deposits. The project site and most lands in the project vicinity have been converted to agricultural croplands and orchards and show a long history of agricultural production. The elevation of the project site is approximately 330 feet above mean sea level, with a gradual slope from north to south. The project site is located approximately 0.7 mile east of the Kern Island Canal.

Soils

The USDA NRCS WSS mapped two soil types: Bakersfield fine sandy loam, 0 to 1 percent slopes; and Vineland loamy sand, drained, 0 to 1 percent slopes on the project site (Exhibit 4). The Bakersfield fine sandy loam is somewhat poorly drained, non-saline to slightly saline, and alluvium derived from granitoid rock. The Vineland loamy sand is also alluvium derived from granitoid rock, non-saline, and well-drained.

4.2 - Biological Surveys

FCS Biologist Kelly Evans conducted a general biological survey of the project site on April 26, 2023, from approximately 12:00 p.m. to 2:00 p.m. Weather conditions during the field survey was clear, with an average temperature around 82–88°F (degrees Fahrenheit) and wind speeds around 9 miles per hour (mph).

4.2.1 - Vegetation Communities and Land Use

The site includes the following vegetation and land cover types, depicted on Exhibit 5. Photographs of the project site and 500-foot buffer depicting the condition of the vegetation communities and land cover types are presented in Appendix B.

Ruderal/Bare

The project site is largely agricultural lands that have been subjected to agricultural practices for decades. As such, portions of the project site had been recently disked or subjected to repeated disturbances that resulted in cleared, bare ground that is being invaded by native and non-native ruderal species. These ruderal/bare areas on and adjacent to the project site were observed as fallow land in areas that had been in agricultural production and disturbed areas associated with roads, described below. Additional bare/ruderal areas were observed in the 500-foot buffer of the project site southwest and north of the site (Exhibit 4).

Fallow Fields

Fallow land occupies most of the project site, particularly within the central and western portions of the project. Historic aerial photography indicates the project site has gone through periods of fallowness as part of its agricultural usage, usually alternating between fallow and cultivated every 1–2 years. Previous disturbance events included vegetation control and other management activities associated with agricultural practices that have altered the natural state of the project site. No vegetation was seen within the fallowed land during the field survey as disking occurred on April 26, 2023, which eliminated any vegetation within this portion of the project site. Fallowed land was also identified in the 500-foot buffer of the project site south of the site.

Dirt Access Roads

Dirt access roads are located near the boundary of the southern portion of the project site and separating the fallow land from current agricultural usage within the eastern portion of the site. Small areas of non-native grasses and forbs were observed on the edges of the roads. Species observed include the following: Buck's-horn plantain (*Plantago coronopus*), Canada horseweed (*Erigeron canadensis*), beets (*Beta vulgaris*), and puncture vine (*Tribulus terrestris*). Additional dirt roads are located in the 500-foot buffer of the project site south and southeast of the site.

Bare Areas

There are bare areas within the 500-foot buffer of the project site to the north and southwest of the site that are adjacent to and associated with developed areas. These areas support sparse ruderal vegetation, such as Canada horseweed and puncture vine.

Irrigated Crops

Carrot Fields

The eastern portion of the project site and lands to the east of the site and within the 500-foot buffer consist of irrigated croplands. Carrot (*Daucus carota*) fields were being cultivated and irrigated at the time of the field survey.

Orchards

Almond Orchards

Much of the 500-foot buffer around the project site consists of almond (*Prunus dulcis*) orchards to the west, northwest, and northeast of the site. The trees are arranged in rows and the orchards are actively managed, with sparse herbaceous understory plant cover that consists of sparse ruderal vegetation.

Developed

Developed land includes areas that have been constructed upon or physically altered to an extent that native vegetation is no longer supported and retains no soil substrate. Developed land is characterized by permanent or semi-permanent structures, pavement or hardscape, and landscaped areas that often require irrigation. Areas where no natural land is evident because a large quantity of debris or other materials that have been placed upon it may also be considered urban/developed. Developed areas are typically unvegetated or landscaped with a variety of ornamental (usually non-native) plants. Developed areas are located north and southwest of the project site in the 500-foot buffer. These developed areas consist of a commercial property and facilities associated with farming operations.

4.2.2 - Wildlife

The vegetation community and land cover types on the project site provide limited habitat for wildlife species that are tolerant of agricultural areas. Additionally, the features adjacent to the project site (buildings and croplands) could provide habitat for several wildlife species. Wildlife activity during the general biological reconnaissance survey was low and few species were observed. The following discussions regarding the wildlife species observed within the project site are organized by taxonomic group. Each discussion contains representative examples of a particular taxonomic group either observed or expected to occur on-site. No special-status wildlife species were observed during the survey.

Invertebrates

One invertebrate, the ladybug (*Coccinellidae sp.)* was observed on-site. Other species that are likely to occur at the site year-round or during seasonal pulses include several species of beetles, flies, ants, bees, wasps, moths and butterflies, grasshoppers and crickets, and spiders, among others.

Amphibians and Fish

No amphibian or fish species were observed on-site during the general biological reconnaissance survey. Because of the agricultural nature of the project site and vicinity and a lack of permanent or sufficient water sources, fish and amphibians are not expected to occur on-site.

Reptiles

No reptiles were observed on the project site. A common species that could occur there is the western fence lizard (*Sceloporus occidentalis*).

Birds

Several avian species were observed during the survey, including common raven (*Corvus corax*), house finch (*Haemorhous mexicanus*), house sparrow (*Passer domesticus*), northern mockingbird (*Mimus polyglottos*), and killdeer (*Charadrius vociferus*). Birds may find nesting habitat throughout the project site on bare ground or in orchards and buildings adjacent to the site.

Mammals

No mammals were observed on the project site. Mammal species that could occur on-site include California ground squirrel (*Otospermophilus beecheyi*), desert cottontail (*Sylvilagus audubonii*), and valley pocket gopher (*Thomomys bottae*). No burrows of California ground squirrel were observed on the project site.

4.2.3 - Wildlife Movement Corridors

Much of the project site consists of agricultural/fallow lands, but it is mostly surrounded by orchards, buildings, agriculture, roads, and highways that probably do not limit wildlife movement through the project site. However, the project site itself does not serve as a wildlife movement corridor, nor does it contain any features (e.g., drainage) that would serve as a wildlife corridor.

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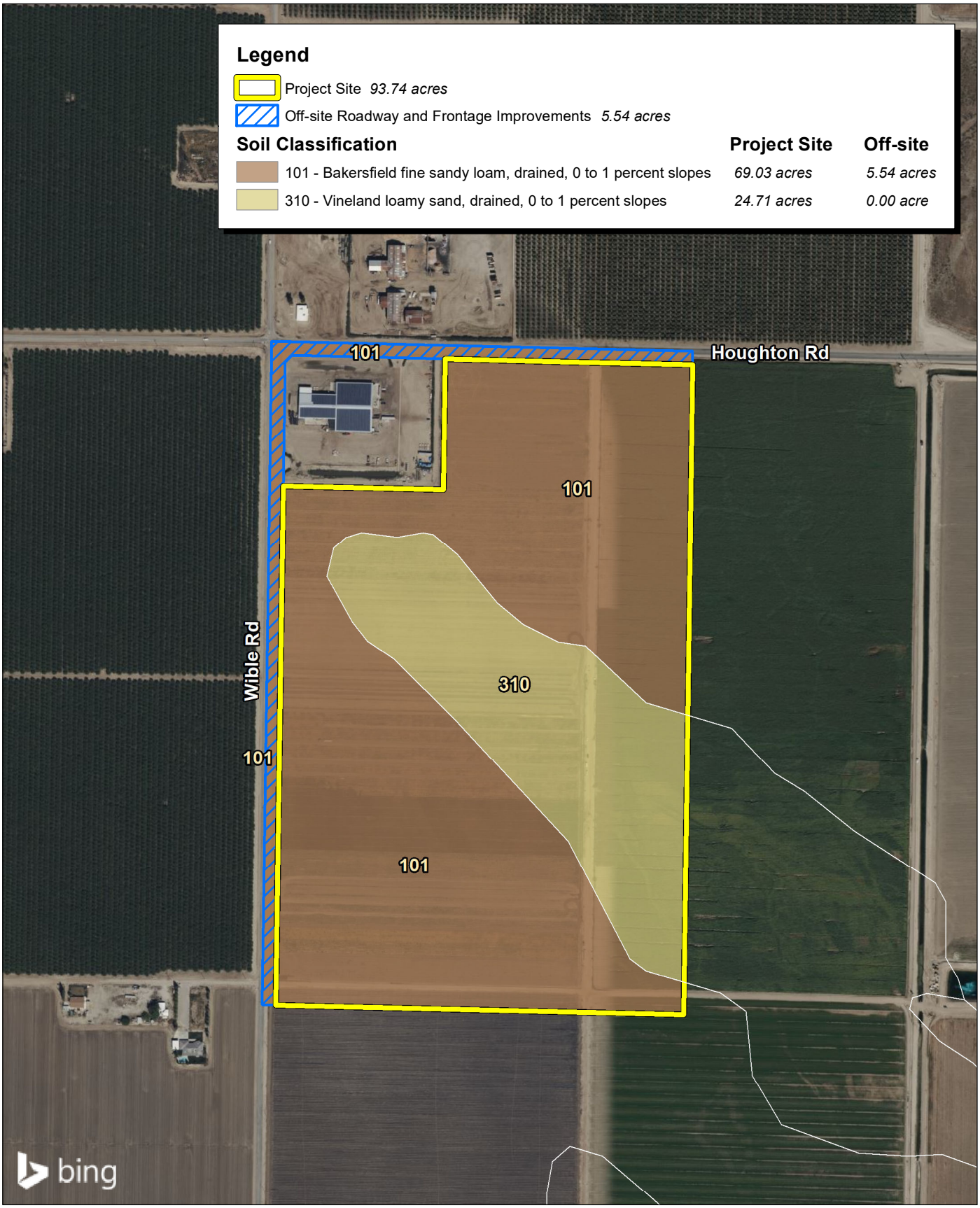

Source: Bing Aerial Imagery. Kimley-Horn, 04/2023. USDA Soils Data Mart, Kern County Southwest Area.

FIRSTCARBON SOLUTIONS™

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Exhibit 4
Soils Map

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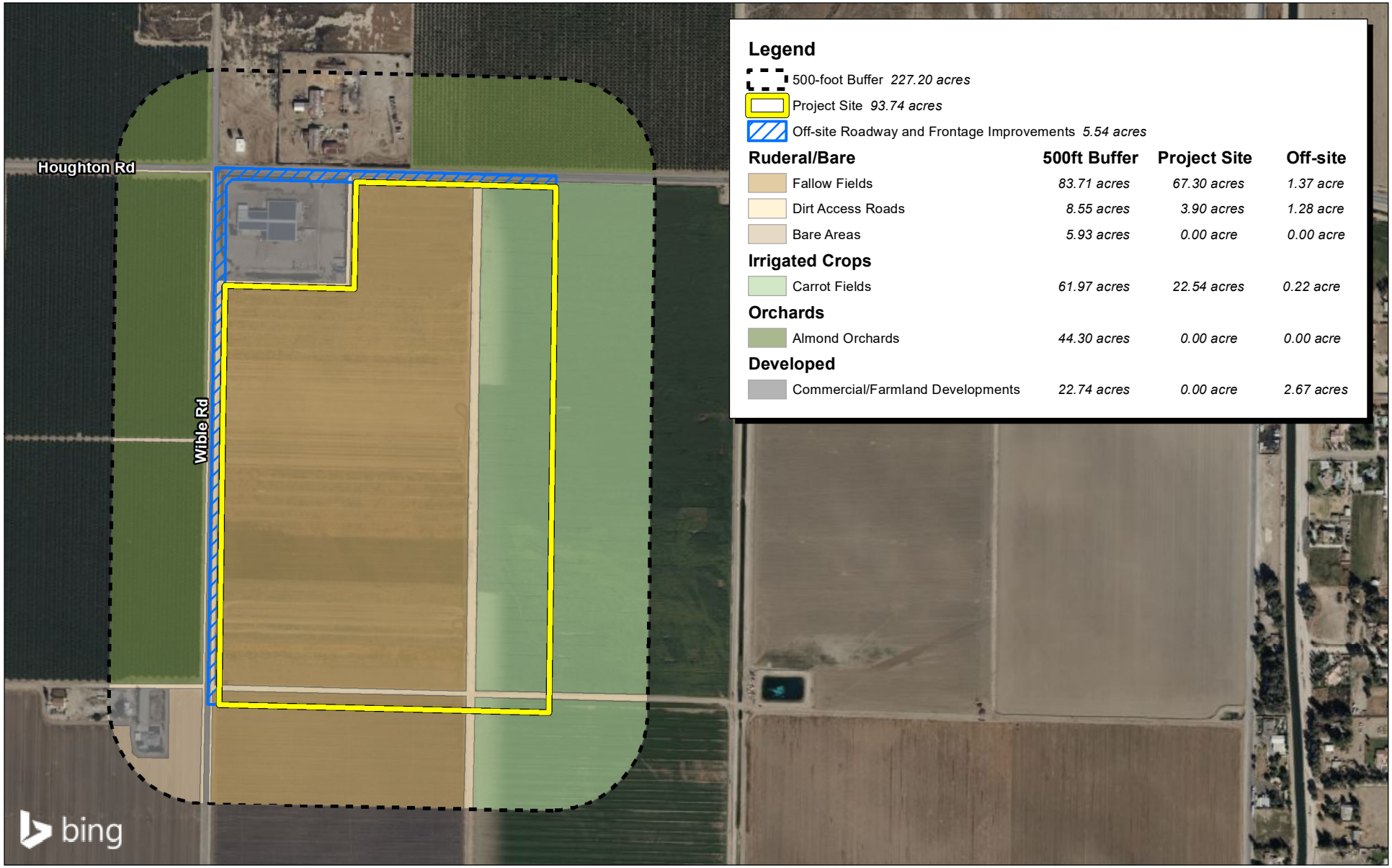

Source: Bing Aerial Imagery. Kimley-Horn, 04/2023

FIRSTCARBON SOLUTIONS™

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Exhibit 5
Vegetation Community/Land Cover Map

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SECTION 5: SENSITIVE BIOLOGICAL RESOURCES DATABASE REVIEWS

The following section discusses the results of the database reviews for sensitive biological resources and an analysis of the potential for these resources to occur within the project site based on existing biological conditions on and adjacent to the site.

5.1 - Sensitive Natural Communities

Sensitive natural communities are vegetation communities or special wildlife habitats that are rare or occur in limited distributions or provide specific habitat requirements for special-status plant or wildlife species. The CDFW maintains a list of natural vegetation communities found in California and ranks them based on rarity. Communities ranked S1–S3 are considered sensitive natural communities.[18] The CNDDB identified one sensitive natural community within 5 miles of the project site: Valley Saltbush Scrub. Two sensitive natural communities—Valley Sink Scrub and Valley Saltbush Scrub—have been recorded in the CNDDB between 5 and 10 miles from the project site.[19] These communities are not present on or adjacent to the project site.

5.2 - Special-status Plant Species

Within 10 miles of the project site, 14 special-status plant species have been recorded in the CNDDB[20,21] and on the 9-quadrangle search area of the CNPSEI[22] (Appendix C, Table 1). Table 1 in Appendix C includes the species' status, required habitat, and a summary analysis of the potential for each species to occur on the project site. The potential for occurrence of a species was based on current biological conditions on the project site and presence of suitable habitats, soil types, and proximity and number of occurrences recorded in the CNDDB.[23,24,25] Previous agricultural disturbances evident throughout the project site have lowered the potential for persistence and occurrence of populations of many special-status plant species.

5.2.1 - Potential for Occurrence of Special-status Plants

The project site is predominantly agricultural and fallow and has been previously subjected to significant surface disturbances, including repeated disking or grubbing during weed abatement activities. The project site is mostly surrounded by agricultural development to the east, orchards to

[18] California Department of Fish and Wildlife (CDFW). 2022. Natural Communities List, Sacramento: California Department of Fish and Wildlife. July 5, 2022. Website: https://wildlife.ca.gov/Data/VegCAMP/Natural-Communities. Accessed May 4, 2023.
[19] California Department of Fish and Wildlife (CDFW). 2023. Biogeographic Information and Observation System (BIOS 5). Website: https://map.dfg.ca.gov/bios/. Accessed May 4, 2023.
[20] California Department of Fish and Wildlife (CDFW). 2023. CNDDB RareFind 5 California Natural Diversity Database Query for Special-Status Species. Website: https://map.dfg.ca.gov/rarefind/view/RareFind.aspx. Accessed May 4, 2023.
[21] California Department of Fish and Wildlife (CDFW). 2023. Biogeographic Information and Observation System (BIOS 5). Website: https://map.dfg.ca.gov/bios/. Accessed May 4, 2023.
[22] California Native Plant Society (CNPS). 2023. California Native Plant Society Rare and Endangered Plant Inventory. Website: http://www.rareplants.cnps.org/. Accessed May 4, 2023.
[23] California Department of Fish and Wildlife (CDFW). 2023. CNDDB RareFind 5 California Natural Diversity Database Query for Special-Status Species. Website: https://map.dfg.ca.gov/rarefind/view/RareFind.aspx. Accessed May 4, 2023.
[24] California Native Plant Society (CNPS). 2023. California Native Plant Society Rare and Endangered Plant Inventory. Website: http://www.rareplants.cnps.org/. Accessed May 4, 2023.
[25] California Department of Fish and Wildlife (CDFW). 2023. Biogeographic Information and Observation System (BIOS 5). Website: https://map.dfg.ca.gov/bios/. Accessed May 4, 2023.

the north and east, and agriculture to the south. Because of the conditions on and adjacent to the project site, all special-status plants that occur in the region were assessed as having no potential for occurrence on the project site (Appendix C, Table 1). Thus, special-status plants are not discussed further.

5.3 - Special-status Wildlife Species

Twenty special-status wildlife species were identified as occurring within 10 miles of the project site as recorded in the CNDDB[26,27] (Appendix C, Table 2). Table 2 in Appendix C includes the legal status of each species, their required habitat types and features, and their potential to occur on the project site. The table also includes special-status wildlife species that have been determined to have no or low potential to occur on-site, primarily based on the project site being situated outside of the range of the species or absence of suitable habitat or the lack of recent records in the project vicinity, along with other justification(s) for their exclusion from further discussion. The potential for wildlife to occur on the project site was based on presence of suitable habitats and proximity and recency of occurrences recorded in the CNDDB.[28,29]

5.3.1 - Potential for Occurrence of Special-status Wildlife

Most species with records in the project vicinity were assessed as having no potential to occur because the project site is outside of the known distributional range of the species or because the project site does not support suitable habitat (Appendix C, Table 2). These species are not discussed further. Three species were assessed as having moderate potential to occur on or adjacent to the project site. These species are discussed further below.

- Burrowing owl (*Athene cunicularia*; breeding and foraging)
- Swainson's hawk (*Buteo swainsoni*; foraging)
- San Joaquin kit fox (*Vulpes macrotis mutica*)

Burrowing Owl

The burrowing owl is an owl in the family Strigidae. Burrowing owls occur in open, dry, annual, or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. This species utilizes, modifies, and nests in burrows created by other species, most notably those of the California ground squirrel but also those excavated by coyotes, desert kit foxes, desert tortoises, American badgers, and other burrowing mammals. Burrowing owl populations are threatened by habitat loss, pesticide use, and ground squirrel eradication programs which limit suitable burrowing habitat. The burrowing owl is designated as a California Species of Special Concern and a federal Bird of Conservation Concern. Their nesting burrows are protected by the MBTA and California Fish and Game Code pertaining to native nesting avian species. Under certain conditions (i.e., prolonged

[26] California Department of Fish and Wildlife (CDFW). 2022. CNDDB RareFind 5 California Natural Diversity Database Query for Special-Status Species. Website: https://map.dfg.ca.gov/rarefind/view/RareFind.aspx. Accessed May 4, 2023.
[27] California Department of Fish and Wildlife (CDFW). 2022. Biogeographic Information and Observation System (BIOS 5). Website: https://map.dfg.ca.gov/bios/. Accessed May 4, 2023.
[28] California Department of Fish and Wildlife (CDFW). 2022. CNDDB RareFind 5 California Natural Diversity Database Query for Special-Status Species. Website: https://map.dfg.ca.gov/rarefind/view/RareFind.aspx. Accessed May 4, 2023.
[29] California Department of Fish and Wildlife (CDFW). 2022. Biogeographic Information and Observation System (BIOS 5). Website: https://map.dfg.ca.gov/bios/. Accessed May 4, 2023.

inactivity on-site and presence of ground squirrel burrows), suitable foraging and nesting habitat could become present in the fallowed land on and adjacent to the project site. There are four recent records within 5 miles of the project site, two historical records of the species between 5 and 10 miles from the project site, and 17 recent records of the species between 5 and 10 miles from the project site (Exhibit 6).

Swainson's Hawk

Swainson's hawk is a hawk in the family Accipitridae. This species is a Neotropical migrant that breeds in the western United States and Canada and winters in South America as far south as Argentina. The breeding season for Swainson's hawk in the Central Valley typically lasts from March to the end of July.[30] They typically forage in open grasslands and have become increasingly dependent on agriculture, especially alfalfa crops, as native communities are converted to agricultural lands. Swainson's hawk often nest near riparian woodlands. They will also use lone trees in agricultural fields or pastures and roadside trees that are adjacent to suitable foraging habitat.[31] The Swainson's hawk is listed as Threatened under CESA. Their nests are additionally protected by the MBTA and California Fish and Game Code pertaining to native nesting avian species. The project site lacks suitable nesting trees, and the species is not expected to nest on-site. However, there are suitable nesting trees within 0.5 mile (disturbance distance) of the project and the site supports suitable foraging habitat. There are three recent records of this species within 5 miles of the project site, one historical record of the species between 5 and 10 miles from the project site, and three recent records of the species between 5 and 10 miles from the project site (Exhibit 6). A 2017 record was a Swainson's hawk nest observed 0.7 mile east of the project site.

San Joaquin Kit Fox

The San Joaquin kit fox occurs from the San Joaquin Valley, north to Contra Costa and Alameda Counties. The San Joaquin kit fox inhabits grasslands and open shrub and scrub habitats (Zeiner et al., 1988). Largely due to widespread habitat loss, the San Joaquin kit fox is listed by the USFWS as endangered and by the CDFW as threatened.

Suitable habitat for this species may become present in fields that are allowed to go fallow on the project site. The project site consists mainly of fallow land that, when regularly disked, discourages kit foxes from burrowing in these areas. Thus, with intensive agricultural practices there is a low potential for San Joaquin kit fox to occupy burrows or breed on-site. However, kit foxes may access the project site at any time to forage. Therefore, there is a moderate potential for San Joaquin kit fox to forage on the project site. There are two recent records of this species within 5 miles of the project site, seven historical records of this species within 5 miles of the project site, nine recent records of this species between 5 and 10 miles from the project site, and 13 historical records of this species between 5 and 10 miles from the project site.[32]

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[30] California Department of Fish and Wildlife (CDFW). 2000. Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley. Swainson's Hawk Technical Advisory Committee. Sacramento, California. May 31, 2000. Website: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=83990&inline.

[31] California Department of Fish and Wildlife (CDFW). 2020. Swainson's Hawks in California. Website: https://wildlife.ca.gov/Conservation/Birds/Swainson-Hawks.

[32] Ibid.

5.3.2 - Nesting Birds

The project site contains vegetation, structures, and surfaces that could provide suitable habitat for nesting birds that are protected under the MBTA and the Fish and Game Code, including species that nest in vegetation, on the ground, or in anthropogenic features or structures. Additionally, ground surfaces, pomegranate shrubs (*Punica granatum*), and almond orchards adjacent to the project site could provide nesting habitat for protected native avian species.

5.4 - Potentially Jurisdictional Water and Wetlands

There were no waters or wetland features detected on the project site that would be considered potentially jurisdictional by USACE, RWQCB, or CDFW. No wetlands or jurisdictional drainages were depicted in the National Wetlands Inventory database or as blue-line streams on the *Conner, California* USGS 7.5-minute Topographic Quadrangle Map.

An artificial basin was observed off-site on the Martin Feed property, but it does not contain riparian or wetland vegetation and there are no indications that this feature would be considered potentially jurisdictional.

CNDDB version 05/2023. Please Note:
The occurrences shown on this map represent the known locations of the species listed here as of the date of this version. There may be additional occurrences or additional species within this area which have not yet been surveyed and/or mapped. Lack of information in the CNDDB about a species or an area can never be used as proof that no special status species occur in an area.

Legend

- Project Site

CNDDB Symbology

- Plant (80m)
- Plant (specific)
- Plant (non-specific)
- Plant (circular)
- Animal (80m)
- Animal (specific)
- Animal (non-specific)
- Animal (circular)
- Terrestrial Comm. (80m)
- Terrestrial Comm. (specific)
- Terrestrial Comm. (non-specific)
- Terrestrial Comm. (circular)
- Aquatic Comm. (80m)
- Aquatic Comm. (specific)
- Aquatic Comm. (non-specific)
- Aquatic Comm. (circular)
- Multiple (80m)
- Multiple (specific)
- Multiple (non-specific)
- Multiple (circular)
- Sensitive EO's (Commercial only)

Source: Bing Street Imagery. California Natural Diversity Database (CNDDB), May 2023.

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Exhibit 6
CNDDB Special-Status Species Occurrences

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SECTION 6: IMPACT ANALYSIS AND RECOMMENDATIONS

The following discussion addresses potential project impacts on regulated biological resources, including special-status species, and recommends measures to avoid and/or mitigate impacts to a less than significant level under CEQA.

6.1 - Mitigation Measures

The following mitigation measures are required to reduce potential project-related impacts to less than significant levels. These mitigation measures clarify, expand upon, and are consistent with measures required under the Metropolitan Bakersfield General Plan.

6.1.1 - Burrowing Owls

The fallowed area of the project site, as well as fallowed/barren land to the south and north of the site, support suitable foraging habitat for burrowing owl. Although the site has recently been disked so no California ground squirrel burrows were observed, under certain circumstances, burrowing habitat could become present on the site, particularly if squirrels occupy the site. The CNDDB shows 21 recent records of burrowing owls within 10 miles of the project site. This species is protected by the MBTA and Fish and Game Code. Construction of the proposed project could potentially impact burrowing owls if ground-disturbing construction activities are initiated or conducted during the burrowing owl breeding season (February 1 through August 31).

MM BIO-1a Burrowing Owl Pre-Construction Survey

The project applicant shall retain a qualified Biologist to perform a pre-construction burrowing owl survey to determine whether burrowing owls are present on-site within 30 days prior to construction activities, according to the California Department of Fish and Wildlife (CDFW) 2012 guidelines. If construction is delayed or suspended for more than 30 days after the survey, the area shall be resurveyed. The pre-construction survey shall be completed on the project site and areas within 500 feet from the project boundary (where possible and appropriate based on habitat). All occupied burrows shall be mapped on an aerial photo. The applicant shall provide a burrowing owl survey report and mapping to Kern County at least 15 days prior to the expected start of any project-related ground disturbance activities or restart of activities. If the survey is positive for burrowing owls, the project applicant shall implement MM BIO-1b. If no burrowing owls are detected during the pre-construction survey, no further action is necessary.

MM BIO-1b Burrowing Owl Mitigation Plan

If the pre-construction survey determines the presence of burrowing owl(s), the applicant shall retain a qualified Biologist to develop and implement a Burrowing Owl Mitigation Plan. The Burrowing Owl Mitigation Plan shall contain the following

elements (as outlined in the California Department of Fish and Wildlife [CDFW] 2012 guidelines) at a minimum:

- Avoidance of burrowing owl during construction, including establishment of a 160-foot radius around occupied burrows during the nonbreeding season (September 1 through January 31) or, during the breeding season (February 1 through August 31), a 200-meter to 500-meter radius around occupied nesting burrows within which construction activities may not occur until a qualified Biologist has determined that (1) nonbreeding season owl have dispersed from the area; or (2) breeding season owl have fledged their juveniles from the occupied burrows and the juveniles are foraging independently and are capable of independent survival or have dispersed from the area.
- A plan for implementing a passive relocation program for nonbreeding owls, should it be needed. The passive relocation techniques should be consistent with CDFW guidelines, including installation of artificial burrows at an off-site location and use of one-way exclusion doors to ensure owls have left the burrow(s).

6.1.2 - Swainson's Hawk

Though Swainson's hawk are not expected to nest on the project site, the site supports suitable foraging habitat, and adjacent lands within disturbance distance (0.5 mile) of the project site could support nesting by Swainson's hawk. If a Swainson's hawk nest is active near the project site during construction, the proposed project could impact this species through generating noise, light, and other disturbances during project construction and operation, which may cause this species to abandon its nests. Project implementation could also result in the loss of Swainson's hawk foraging habitat. To reduce potential impacts on Swainson's hawk to less than significant levels under CEQA, the project applicant shall implement the following mitigation measures, in accordance with the CDFW guidelines:

MM BIO-2a Pre-construction Surveys for Swainson's Hawk

Prior to ground disturbance that occurs during the nesting season for Swainson's hawk (generally March 20 to July 20), a qualified Biologist shall conduct Swainson's hawk nesting surveys within a 0.5-mile radius of the project site to determine whether nests are occupied. Occupancy shall be determined through observation of all accessible areas, including from public roads or other publicly accessible observation areas of Swainson's hawk activity (e.g., foraging) on and near the project site.

The qualified Biologist shall follow the survey protocol outlined in the California Department of Fish and Wildlife (CDFW) Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley, which recommends surveys according to the following survey periods:

Period I, January–March 20: Conduct one survey total. Survey shall be conducted all day.

Period II, March 20–April 5: Conduct three surveys total. Surveys shall be conducted between sunrise to 10:00 a.m. and 4:00 p.m. to sunset.

Period III, April 5–April 20: Conduct three surveys total. Surveys shall be conducted between sunrise to 12:00 p.m. and 4:30 p.m. to sunset.

Period IV, April 21–June 10: Initiating surveys are not recommended. Monitoring of known nest sites is only recommended.

Period V, June 10–July 30 (post-fledging): Conduct three surveys total. Surveys shall be conducted between sunrise to 12:00 p.m. and 4:00 p.m. to sunset.

Pre-construction surveys shall be completed for at least the two survey periods immediately prior to project initiation. It is recommended that surveys be completed in Periods II, III, and V. Surveys shall not be initiated during Period IV.

MM BIO-2b Swainson's Hawk Avoidance and Minimization and Construction Monitoring

If nests are located and determined to be occupied, minimization measures must be implemented and construction monitoring must be conducted as follows:

- Construction activities shall be prohibited within 200 yards (600 feet) of an active and occupied Swainson's hawk nest, or within 200 yards (600 feet) of nests under construction, to prevent nest abandonment.
- Notwithstanding the foregoing, if site-specific conditions or the nature of the construction activity (e.g., other nearby development, steep topography, dense vegetation, limited activities) indicate that a smaller buffer, or no buffer at all, could be used, the applicant may seek approval from the qualified Biologist who, in coordination with the California Department of Fish and Wildlife (CDFW), shall determine the appropriate buffer size, which, once approved, shall govern.
- No tree containing an active Swainson's hawk nest shall be removed.

6.1.3 - San Joaquin Kit Fox

Suitable foraging habitat for San Joaquin kit fox is present throughout the project site and if agricultural fields are allowed to remain fallow for extended periods, burrowing and denning (breeding) habitat may become available. Therefore, there is moderate potential for San Joaquin kit fox to forage on the project site and to burrow, den, and forage in the 500-foot buffer, and low potential for the species to burrow and den on the project site. Construction activities associated with the project could injure or kill individual kit foxes that forage on the project site and disturb kit foxes that burrow, den, or forage within 500 feet of the project site.

Recommended Mitigation Measures

With implementation of MM BIO-3, impacts to the San Joaquin kit fox would be reduced to a less than significant level.

MM BIO-3 San Joaquin Kit Fox Mitigation

- Retain a qualified Biologist(s) to conduct pre-construction survey of the project site no less than 14-days and no more than 30-days prior to beginning of ground and/or vegetation disturbing activities.
- Retain a qualified Biologist to conduct on-site worker awareness training and inspect all construction materials prior to the commencement of ground disturbing activities.
- Include kit fox protection measures on project plans.
- A maximum 25 miles per hour (mph) speed limit at the project site shall be implemented during construction.
- Working days shall end at dusk and stop all construction activities at dusk.
- Cover excavations deeper than 2 feet at the end of each working day or provide escape ramps for kit fox.
- A qualified biologist shall inspect pipes, culverts, or similar structures for kit fox before burying, capping, or moving.
- Remove food-related trash from project site at the end of each working day.
- If pesticides or herbicides are used, they must be used according to local, State, and federal regulations to prevent secondary poisoning of kit foxes.
- If a kit fox is discovered at any time on the project site, all construction must stop and the California Department of Fish and Wildlife (CDFW) and United States Fish and Wildlife Service (USFWS) shall be contacted immediately. The appropriate federal and State permits must be obtained before the project can proceed.
- Additional measures may be needed to maintain compliance with permits.
- Permanent fencing installed as part of the project must allow passage of dispersing kit foxes.

6.1.4 - Nesting Birds

The project site and adjacent lands support vegetation communities, land cover types, trees, and other habitat features that provide nesting habitat for avian species covered under the MBTA and Fish and Game Code, including common, native species. Construction of the proposed project could potentially impact nesting birds if ground-disturbing or vegetation-removing construction activities are initiated or conducted during the avian breeding season (February 1 through September 15). Potential construction-related impacts on special-status and migratory birds could include destruction of eggs or occupied nests, mortality of young, and abandonment of nests with eggs or young birds prior to fledging.

The applicant shall implement the following mitigation measures to avoid potential impacts to nesting birds protected under the Fish and Game Code or the MBTA, including burrowing owl and Swainson's hawk. Implementation of the following measures would avoid and/or minimize potential

effects to migratory birds and habitat in and adjacent to the project area. These measures shall be implemented for construction work during the nesting season (February 1 through September 15)**:**

MM BIO-4a Nesting Bird Pre-construction Surveys

If ground-disturbing or vegetation-removing construction activities or tree removal is proposed during the breeding/nesting season for migratory birds (typically February 1 through September 15), a qualified Biologist shall conduct pre-construction surveys for special-status birds and other migratory birds within the construction area, including a 300-foot survey buffer, no more than 3 days prior to the start of ground-disturbing activities in the construction area.

MM BIO-4b Avoidance of Active Avian Nests

If an active nest is located during pre-construction surveys or at any point during the construction phase of the project, the United States Fish and Wildlife Service (USFWS) and/or California Department of Fish and Wildlife (CDFW) (as appropriate) shall be notified regarding the status of the nest. Furthermore, construction activities shall be restricted as necessary to avoid disturbance of the nest until it is abandoned or a qualified Biologist deems disturbance potential to be minimal. Restrictions may include establishment of exclusion zones (no ingress of personnel or equipment at a minimum radius of 300 feet around an active raptor nest and a 50-foot radius around an active migratory bird nest) or alteration of the construction schedule.

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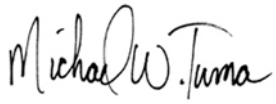
SECTION 7: CERTIFICATION

I hereby certify that the statements furnished above and in the attached exhibits present data and information required for this Biological Resources Assessment, and that the facts, statements, and information presented are true and correct to the best of my knowledge and belief.

Date: December 19, 2023 Signed:



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Appendix A:
Personnel Qualifications

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MICHAEL TUMA, PHD, CWB, RPA—SENIOR BIOLOGIST

OVERVIEW

- More than 26 years of experience
- Experience leading teams in large data collection and analysis efforts

Education

- Doctor of Philosophy, Integrative and Evolutionary Biology, University of Southern California, Los Angeles, CA, 2016
- Master of Science, Anthropology, University of Southern Mississippi, Hattiesburg, MS, 1998
- Master of Science, Zoology, Eastern Illinois University, Charleston, IL, 1993
- Bachelor of Science, Zoology, Truman State University, Kirksville, MO, 1991

Permits, Authorizations, and Certifications

- Certified Wildlife Biologist, The Wildlife Society, 2013–present
- Certified Significant Ecological Areas Technical Advisory Committee (SEATAC) Biota Report Preparer, Los Angeles County Department of Regional Planning, 2008–present
- Qualified Biologist, San Bernardino County, 2007–present
- Authorized Biological Consultant, Riverside County, 2006–present
- Authorized Biologist for Agassiz's desert tortoise activities under 10(a)1(A) Recovery Permits (former) and Biological Opinions, US Fish and Wildlife Service (USFWS), August 2005–present
- California Scientific Collecting Permit/California Endangered Species Act (ESA)-Memorandum of Understanding, California Department of Fish and Wildlife (CDFW), August 2005–present

Trainings and Workshops

- ArcGIS Training Courses, Esri Academy, 2016–present
- Desert Tortoise Health Assessments for Translocation Projects, Desert Tortoise Council, 2015
- CEQA Workshop, Association of Environmental Professionals, 2008
- Endangered Species: Regulation, Conservation Planning, and Permits for Development, University of California, Los Angeles Extension, 2008
- Desert Tortoise Health Assessment and Phlebotomy Training, US Geographical Survey (USGS), 2007
- Endangered Species Permitting: Strategies and Successful Negotiations Workshop, The Wildlife Society, 2006
- A/E/C Project Management Bootcamp, PSMJ Resources, Inc., 2006
- Introduction to CEQA: A Step-by-Step Approach Workshop, SCWA, 2005
- Western Pond Turtle Workshop: Ecology and Conservation, The Wildlife Society, 2005
- Surveying, Monitoring, and Handling Techniques Workshop, Desert Tortoise Council, 2004

Professional Affiliation

- Adjunct Professor, University of Southern California, March 2019–present
- Chair, Board of Directors, Desert Tortoise Council, February 2018–February 2020
- Chair, Media Committee, Desert Tortoise Council, June 2017–present
- Chair, Grants Committee, Desert Tortoise Council, January 2016–present
- Board of Directors Member, Desert Tortoise Council, January 2014–present
- Newsletter Editor, Desert Tortoise Council, January 2014–January 2018

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MICHAEL TUMA, PHD, CWB, RPA—SENIOR BIOLOGIST

Michael Tuma, PhD, CWB, RPA, has more than 26 years of experience as a professional scientist in academic settings, agency positions, and as an environment consultant. He assists clients in complying with laws such as the ESA, the National Historic Preservation Act, CEQA, and NEPA. He has experience in a wide variety of technical biological work, including rare plant surveys and botanical inventories, habitat restoration planning and implementation, field data collection, population and habitat modeling, and technical biological reporting. He is a proficient project and client manager with experience in a diversity of market sectors, including land management, renewable energy, transportation, water infrastructure, gas and mineral extraction, and land development. Dr. Tuma has led teams in the implementation of studies and documentation in support of permitting and compliance with numerous environmental laws, including the Federal Endangered Species Act, California Endangered Species Act, NEPA, CEQA, and Migratory Bird Treaty Act, among many others. Dr. Tuma is an experienced leader and has supervised and mentored groups of biologists. He has directed teams on large and long-term projects and mentored junior staff on issues pertaining to project management, technical studies and documentation, and regulatory processes. He has led and mentored large groups of volunteers and international biologists on learning advanced data collection techniques and has experience leading a non-profit organization with more than 350 members. Dr. Tuma is skilled in project management, statistics, geographic information systems (GIS), and computer modeling. He has a passion for educating the public about science, and has been providing tutoring sessions, workshops, and lectures for more than 20 years.

RELATED EXPERIENCE AND CLIENT SUMMARY

Biological, Archaeological, and Paleontological Monitoring and Reporting Services for the Los Angeles Regional Interoperable Communications System, Los Angeles County, CA

FCS provided monitoring and reporting services during the construction of more than 150 land mobile radio (LMR) facilities at sites located primarily in Los Angeles County. The LMR sites contain the infrastructure and equipment necessary to provide voice communications coverage throughout the County for emergency responders. These locations are widely dispersed across the County in both urban (intensively developed) and rural (less developed) settings and include coastal locations, sites in downtown Los Angeles, remote mountain peaks across the County, and the northern high desert. FCS conducted the biological, archaeological, and paleontological pre-construction and construction monitoring and reporting services in accordance with the Construction Management Requirements outlined in the NEPA Environmental Assessment that FCS prepared for the project.

Dr. Tuma served as Biological Monitor for this project in 2020. His responsibilities included implementing mitigation measures and ensuring project compliance in support of the LA-RICS LMR System in Los Angeles County, California. Dr. Tuma monitored project for compliance for up to 33 mitigation measures, including performing clearance surveys for special status species, pre-construction nesting bird surveys, and several measures pertaining to California condor (*Gymnogyps californianus*) conservation, including condor hazing.

Other Relevant FCS Projects

- Port of Los Angeles Industrial Project Bird's Nest Survey, City of Los Angeles, CA
- Alton Parkway Logistics Facility Project IS/MND and Technical Studies, City of Irvine, CA
- Quick N Clean Car Wash Project IS/MND and Technical Studies, City of Adelanto, CA
- Bridge Point Peer Review of EIR and Technical Reports, City of Rancho Cucamonga, CA

- Redlands Residential Project Biological and Cultural Due Diligence, City of Redlands, CA
- Lilac Avenue Warehouse Due Diligence Memoranda, City of Rialto, CA
- Barton Road Logistics Center Project EIR, Technical Studies, and Peer Review, City of Colton, CA
- Griswold Residential Project Constraints Analysis, Unincorporated Los Angeles County, CA

Prior Work Experience

Santa Susana Field Laboratory, Boeing (through contract with MWH Americas, Inc.), Ventura County, CA

Dr. Tuma served as the Project Manager for this project between 2006 and 2008. Under one task he designed and conducted field investigations on the extent and size of Braunton's milk-vetch (*Astragalus brauntonii*) population within an area of a USFWS-proposed designated Critical Habitat. He led field efforts, which included conducting vegetation mapping, delineating the Braunton's milk-vetch population within the proposed area, estimating the population size with the use of randomized transects and quadrats, conducting a complete vascular plant inventory within the study area, and authoring a technical report detailing the results of the investigation, which were used by the client in commenting on the proposed area of designated Critical Habitat. Dr. Tuma performed other tasks under this project, including nesting bird surveys, pre-construction surveys for special status species, and a revegetation/mitigation effort for the California Rare Santa Susana tarplant.

Environmental Generalist Services Task Order Contract, California Department of Transportation District 7, Los Angeles and Ventura Counties, CA

Dr. Tuma served as a Senior Biologist for this two-year on-call environmental services contract with the California Department of Transportation (Caltrans) District 7 between 2014 and 2015. While serving in this capacity, contributed to two task orders in support of the State Route 138 NW project, which consists of protocol desert tortoise, burrowing owl, and rare plant surveys and an analysis of wildlife crossing and movements on State Route (SR) 138 between SR 14 and Interstate 5. Dr. Tuma led in the field surveys, planned field and desktop analyses, directed a group of biologists and GIS specialists, and served as primary author of the deliverables produced for these task orders.

Dune Palms Road Crossing Replacement, Caltrans (through contract with Parsons Brinckerhoff), Riverside County, CA

Dr. Tuma served as the Project Manager for this project in 2014 and 2015. He was responsible for coordinating natural resources studies and agency consultation in support of the preparation of a Caltrans Natural Environment Study (NES). Project tasks included a general biological survey, focused surveys for burrowing owl and rare plants, trapping efforts for Palm Springs round-tailed ground squirrel (*Spermophilus tereticaudus*) and Palm Springs pocket mouse, a jurisdictional waters/habitats determination, agency consultation, preparation of a Biological Assessment in support of Section 7 consultation, documentation of study results, and preparation of the NES.

Desert Quartzite Solar Energy Project EIR/EIS and Biological Studies, First Solar, Inc., Riverside County, CA

Dr. Tuma served as the Project Manager for this project in 2015 and 2016, and was responsible for client management, biological studies, technical report preparation, and CEQA/NEPA documentation for a large-scale development in east Riverside County, California. His specific duties included reviewing studies prepared by prior consultants, conducting updated field surveys (vegetation mapping, rare plant, and desert tortoise surveys) and technical studies, and preparing the EIR/EIS Biological Resources

section and appendices (Invasive Weed Management Plan, Raven Management Plan, Desert Tortoise Translocation Plan, Desert Kit Fox and American Badger Management Plan, Rare Plant Management Plan, and Vegetation Restoration Plan).

Edom Hills Wind Energy Facility, BP Wind Energy North America, Inc., Riverside County, CA

Dr. Tuma served as the Project Manager and Lead Authorized Biologist for this project in 2016 and was responsible for conducting a habitat assessment, eolian dune characterization study, and biological monitoring of project activities in support of minimizing the potential for take of Coachella Valley fringe-toed lizard (*Uma inornata*) and Coachella Valley milk-vetch (*Astragalus lentiginosus var. coachellae*) during the installation of equipment in two project turbines. He coordinated with the BLM project Biologist to gain approval of biologists to monitor the work, and concurrence for the recommended mitigation measures, which included removing wind-blown sands from portions of the access road and placing the sand in adjacent areas where they could continue transport in the eolian ecosystem. He authored a post-construction memorandum that detailed the restoration of the eolian sand and avoidance of sensitive microhabitats where fringe-toed lizards typically hibernate during the project activities.

High Desert Solar Project, Middle River Power (through contract with AECOM), San Bernardino County, CA

Dr. Tuma served as the Lead Authorized Biologist for this project in 2020. He led the implementation of a desert tortoise translocation program in support of the High Desert Solar Project site in Victorville, San Bernardino County, California. The effort consists of performing protocol health assessments, collecting blood samples for disease testing, translocating tortoises from the development area to an off-site location in the Kramer Hills in the Fremont-Kramer Critical Habitat Unit, and monitoring them following translocation. Additional tasks included transplanting western Joshua trees from the project site, and monitoring of Environmentally Sensitive Areas established around active desert kit fox dens and burrowing owl burrows.

Agassiz's Desert Tortoise Population Modeling and Conservation Planning for the Superior-Cronese and Gold Butte-Pakoon Critical Habitat Units, BLM, San Bernardino County, CA, Clark County, NV, and Mohave County, AZ

As the Project Manager, Client Manager, and Principal Investigator of this project, Dr. Tuma conducted research into the population biology of Agassiz's desert tortoises on two study areas that comprise federal lands administered by the BLM between 2008 and 2013. He directed a team of more than 40 biologists, statisticians, and GIS specialists who contributed to the project; successfully developed spatially explicit, individual-based population models used to rank the importance of site-specific threats at each of the study areas; and served as the primary author of the technical report deliverables. This project consisted of collecting field data, compiling GIS data, conducting intensive literature reviews and expert interviews, and developing tortoise occurrence models, population models, and threats models for study areas that included the Superior-Cronese Critical Habitat Unit in San Bernardino County, California, and the Gold Butte-Pakoon Critical Habitat Unit in Clark County, Nevada, and Mohave County, Arizona. The modeling effort allowed Dr. Tuma to simulate the effects of site-specific threats on tortoise populations at each study area and develop land management and species conservation strategies that could be implemented by the BLM Field and State Offices on tortoise populations within each Critical Habitat Unit. He presented the research at the annual meetings of the Desert Tortoise Council, The Wildlife Society, and the World Congress of Herpetology, and published a manuscript in the Journal of Wildlife Management in early 2016.

Appendix B:
Site Photographs

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Photograph 1: Fallow land and dirt access road in northern portion of the project site. Almond orchard on western boundary (outside of) site.

Photograph 2: Irrigated crop field on the eastern portion of the project site.

Photograph 3: Fallow land in the southern and central portion of the project site.

Photograph 4: Martin feed store north (outside) of project site.

Photograph 5: Almond orchard and Wible Road to west, feed store to north of project site.

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Appendix C:
Special-status Species

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Table 1: Special-status Plant Species Habitat Value Evaluation

Scientific Name Common Name	Status			Habitat Description[4]	Habitat Value and Rationale5
	ESA[1]	CESA[2]	CRPR[3]		
Astragalus hornii var. hornii Horn's milk-vetch	—	—	1B.1	Meadows and seeps, playas. Lake margins, alkaline sites. Elevation: 75–350 m.	**None**: The project site does not contain suitable habitat for this species, and intensive agricultural use of the project site in recent and historical times has likely eliminated the possibility for persistence of this species on the project site. There are three historical records for this species within 5 miles of the project site, three historical records between 5 and 10 miles from the project site, and one recent record between 5 and 10 miles from the project site.
Atriplex cordulata var. *cordulata* heartscale	—	—	1B.2	Chenopod scrub, valley and foothill grassland, meadows and seeps. Alkaline flats and scalds in the Central Valley, sandy soils. Elevation: 3–275 m	**None**: The project site does not contain suitable habitat for this species, and intensive agricultural use of the project site in recent and historical times has likely eliminated the possibility for persistence of this species on the project site. There is one historical record for this species between 5 and 10 miles from the project site.
Atriplex coronata var. *vallicola* Lost Hills crownscale	—	—	1B.2	Chenopod scrub, valley and foothill grassland, vernal pools. Often grows on powdery, alkaline soils that are vernally moist with *Frankenia, Atriplex* spp. and *Distichlis*. Elevation: 45–885 m. Blooming period: April–September	**None.** The project site does not contain suitable habitat for this species, and intensive agricultural use of the project site in recent and historical times has likely eliminated the possibility for persistence of this species on the project site. There is one historical record for this species between 5 and 10 miles from the project site.
Atriplex tularensis Bakersfield smallscale	FE	—	1A	Historically occurred in valley sink scrub (chenopod scrub) or alklai seeps with saltgrass (*Distichlis spicata*). Elevation: 90–110 m. Blooming period: June–October	**None.** The project site does not contain suitable habitat for this species, and intensive agricultural use of the project site in recent and historical times has likely eliminated the possibility for persistence of this species on the project site. There are two historical records for this species within 5 miles of the project site and one historical record between 5 and 10 miles from the project site.
Calochortus striatus alkali mariposa-lily	—	—	1B.2	Perennial bulbiferous herb found in chaparral, chenopod scrub, Mojavean desert scrub, seeps, alkaline meadows and ephemeral washes. Elevation: 70–1,600 meters Blooming period: April–June	**None.** The project site does not contain suitable habitat for this species, and intensive agricultural use of the project site in recent and historical times has likely eliminated the possibility for persistence of this species on the project site. There is one recent record for this species between 5 and 10 miles from the project site.

Scientific Name Common Name	Status			Habitat Description[4]	Habitat Value and Rationale5
	ESA[1]	CESA[2]	CRPR[3]		
Caulanthus californicus California jewelflower	FE	CE	1B.1	Usually present in Chenopod scrub, Pinyon and juniper woodland, and valley and foothill grassland. Elevation: 61–1000 m Blooming period: February–May	**None**: The project site does not contain suitable habitat for this species, and intensive agricultural use of the project site in recent and historical times has likely eliminated the possibility for persistence of this species on the project site. There is one recent record for this species between 5 and 10 miles from the project site.
Chloropyron molle ssp. *hispidum* hispid salty bird's-beak	—	—	1B.1	Meadows and seeps, playas, valley and foothill grassland. Often grows on damp alkaline soils, especially in alkaline meadows and alkali sinks with *Distichlis*. Elevation: 5–155 m. Blooming period: June–September	**None.** The project site does not contain suitable habitat for this species, and intensive agricultural use of the project site in recent and historical times has likely eliminated the possibility for persistence of this species on the project site. There is one historical record for this species within 5 miles of the project site, one historical record between 5 and 10 miles from the project site, and one recent record between 5 and 10 miles from the project site.
Delphinium recurvatum recurved larkspur	—	—	1B.2	Chenopod scrub, valley and foothill grassland, cismontane woodland. Often grows on alkaline soils in valley saltbush or valley chenopod scrub. Elevation: 3–790 m. Blooming period: March–June	**None.** The project site does not contain suitable habitat for this species, and intensive agricultural use of the project site in recent and historical times has likely eliminated the possibility for persistence of this species on the project site. There are two historical records between 5 and 10 miles from the project site, and one recent record between 5 and 10 miles from the project site.
Eremalche parryi ssp. *kernensis* Kern mallow	FE	—	1B.2	Usually occurs within valley saltbush scrub (chenopod scrub), often at edge of balds. May also occur in valley and foothill grassland, pinyon and juniper woodlands. Often grows on dry, open areas with sandy to clay soils. Elevation: 60–1295 m. Blooming period: January–May	**None.** The project site does not contain suitable habitat for this species, and intensive agricultural use of the project site in recent and historical times has likely eliminated the possibility for persistence of this species on the project site. There is one historical record for this species within 5 miles of the project site, one historical record between 5 and 10 miles from the project site, and one recent record between 5 and 10 miles from the project site.
Eriastrum hooveri Hoover's eriastrum	FD	—	4.2	Annual herb found in gravelly (sometimes) soils in chenopod scrub, pinyon and juniper woodland, and valley and foothill grassland. Elevation: 50–915 m Blooming period: March–July	**None.** The project site does not contain suitable habitat for this species, and intensive agricultural use of the project site in recent and historical times has likely eliminated the possibility for persistence of this species on the project site. There are two historical records for this species between 5 and 10 miles from the project site.

Scientific Name Common Name	Status			Habitat Description[4]	Habitat Value and Rationale5
	ESA[1]	CESA[2]	CRPR[3]		
Imperata brevifolia California satintail	—	—	2B.1	Perennial rhizomatous herb found in mesic soils in chaparral, coastal scrub, Mojavean desert scrub, meadows and seeps (often alkali), and riparian scrub. Elevation: 0–1,215 m Blooming period: September–May	**None.** The project site does not contain suitable habitat for this species, and intensive agricultural use of the project site in recent and historical times has likely eliminated the possibility for persistence of this species on the project site. There is one historical record for this species between 5 and 10 miles from the project site.
Layia leucopappa Comanche Point layia	—	—	1B.1	Chenopod scrub, valley and foothill grassland. Often grows on dry hills where white-grey clay soils are present, often with weedy grasses. Does not reliably appear every year. Elevation: 100 – 315 m. Blooming period: (February) March – April	**None.** The project site does not contain suitable habitat for this species, and intensive agricultural use of the project site in recent and historical times has likely eliminated the possibility for persistence of this species on the project site. There are two historical records for this species between 5 and 10 miles from the project site.
Monolopia congdonii San Joaquin woollythreads	FE	—	1B.2	Usually occurs in Chenopod scrub and within valley and foothill grassland (sandy). Elevation: 60-800 m Blooming period: February-May	**None.** The project site does not contain suitable habitat for this species, and intensive agricultural use of the project site in recent and historical times has likely eliminated the possibility for persistence of this species on the project site. There are no records for this species within 10 miles of the project site.
Opuntia basilaris var. *treleasei* Bakersfield cactus	FE	CE	1B.1	Occurs in chenopod scrub, valley and foothill grassland, cismontane woodlands. Often grows on bluffs, low hills, and flats on substrates of coarse or cobbly well-drained granitic sand. Elevation: 85 – 550 m. Blooming period: April – May	**None.** The project site does not contain suitable habitat for this species, and intensive agricultural use of the project site in recent and historical times has likely eliminated the possibility for persistence of this species on the project site. There is one recent and one historical record within 5 miles of the project site and one historical record between 5 and 10 miles from the project site.
Puccinellia simplex California alkali grass	—	—	1B.2	Annual herb found in alkaline and vernally mesic soils, flats, and margins in chenopod scrub, meadows and seeps, valley and foothill grassland, and vernal pools. Elevation: 2–930 meters Blooming period: March–May	**None:** The project site does not contain suitable habitat for this species, and intensive agricultural use of the project site in recent and historical times has likely eliminated the possibility for persistence of this species on the project site. There is one historical record for this species between 5 and 10 miles from the project site.

Scientific Name Common Name	Status			Habitat Description[4]	Habitat Value and Rationale5
	ESA[1]	CESA[2]	CRPR[3]		
Code Designations					
[1] **Federal Status: 2023 Endangered Species Act (ESA) Listing** **ESU** = Evolutionary Significant Unit is a distinctive population. **FE** = Listed as endangered under the Endangered Species Act. **FT** = Listed as threatened under the Endangered Species Act. **FC** = Candidate for listing (threatened or endangered) under the Endangered Species Act. **FD** = Delisted in accordance with the Endangered Species Act. **FPD** = Federally Proposed to be Delisted. **MBTA** = protected by the Migratory Bird Treaty Act **—** = Not federally listed				[2] **State Status: 2023 California Endangered Species Act (CESA) Listing** **SSE** = Listed as endangered under CESA. **ST** = Listed as threatened under CESA. **SSC** = Species of Special Concern as identified by the CDFW. **FP** = Listed as fully protected under Fish and Game Code. **CFG** = FGC = protected by Fish and Game Code 3503.5 **CR** = Rare in California. **—** = Not State listed	[3] **California Rare Plant Rank (CRPR) 2023 CRPR Listing** **Rank 1A** = Plants species that presumed extinct in California. **Rank 1B** = Plant species that are rare, threatened, or endangered in California and elsewhere. **Rank 2** = Plant species that are rare, threatened, or endangered in California, but more common elsewhere. **Rank 3** = Plants about which we need more information—A Review List **Rank 4** = Plants of limited distribution—A Watch List **Blooming period:** Months in parentheses are uncommon.

[4] **Habitat Description**: Habitat description adapted from the California Natural Diversity Database (CNDDB) and California Native Plant Society (CNPS) Electronic Inventory (CNPSEI) or other specified source.

[5] **Potential to Occur and Rationale**: Location of recorded species occurrences determined by geospatial information from BIOS 6 or other specified source.

Sources:

California Department of Fish and Wildlife (CDFW). 2022. CNDDB RareFind 5 California Natural Diversity Database Query for Special-Status Species. Website: https://map.dfg.ca.gov/rarefind/view/RareFind.aspx. Accessed May 3, 2023.

California Native Plant Society (CNPS). 2020. California Native Plant Society Rare and Endangered Plant Inventory. Website: http://www.rareplants.cnps.org/. Accessed May 3, 2023.

California Department of Fish and Wildlife (CDFW). 2020. Biogeographic Information and Observation System (BIOS 6). Website: https://map.dfg.ca.gov/bios/. Accessed May 3, 2023.

Table 2: Special-status Wildlife Species Habitat Value Evaluation

Scientific Name Common Name	Status		Habitat Description[3]	Habitat Value and Rationale[4]
	ESA[1]	CESA/ FGC[2]		
Invertebrates				
Helminthoglypta callistoderma Kern shoulderband	—	—	Terrestrial snail. Habitat requirements are poorly understood, but individuals have been observed in relatively mesic locations.	**None.** The project site does not contain suitable habitat that would support occurrence of this species, and intensive agricultural use of the project site and vicinity in recent and historical times has likely eliminated the possibility for occurrence of this species on the project site. There is one historical record for this species between 5 and 10 miles from the project site.
Bombus crotchii Crotch's bumble bee	FT	—	Occurs in grassland and scrubland habitats. Nests in abandoned rodent burrows.	**None.** The project site does not contain suitable habitat that would support occurrence of this species, and intensive agricultural use of the project site and vicinity in recent and historical times has likely eliminated the possibility for occurrence of this species on the project site. There is one historical record for this species between 5 and 10 miles from the project site.
Amphibians				
Spea hammondii western spadefoot	—	SSC	Occurs in open areas with sandy or gravelly soils in mixed woodlands, grasslands, coastal sage and Riversidean alluvial fan sage scrub, chaparral, sandy washes, lowlands, river floodplains, alluvial fans, playas, alkali flats, foothills, and mountains. Breeds in ephemeral rain pools that do not contain bullfrogs, fish, or crayfish.	**None**: The project site does not contain suitable habitat that would support occurrence of this species, and intensive agricultural use of the project site and vicinity in recent and historical times has likely eliminated the possibility for occurrence of this species on the project site. There is one historical record between 5 and 10 miles from the project site and one recent record between 5 and 10 miles from the project site.
Reptiles				
Anniella grinnelli Bakersfield legless lizard	—	SSC	Occurs in the southern San Joaquin Valley. This species is only known to occur in two disjunct areas: the east side of the Carrizo Plain and portions of the city limits of Bakersfield. Microhabitat of this species is poorly known. Other legless lizard species occur in sparsely vegetated areas with moist, loose soil. Often found underneath leaf litter, rocks, and logs.	**None**: The project site does not contain suitable habitat that would support occurrence of this species, and intensive agricultural use of the project site and vicinity in recent and historical times has likely eliminated the possibility for occurrence of this species on the project site. There are three historical records between 5 and 10 miles from the project site and two recent records between 5 and 10 miles from the project site.

Scientific Name Common Name	Status		Habitat Description[3]	Habitat Value and Rationale[4]
	ESA[1]	CESA/ FGC[2]		
Anniella spp. California legless lizard	—	SSC	Occurs in moist, loose soil in a variety of coastal and interior habitats, including sandy washes and alluvial fans. Occurs in sparsely vegetated areas of beach dunes, chaparral, pine-oak woodlands, desert scrub, sandy washes, and stream terraces with sycamores, cottonwoods, or oaks. Leaf litter under trees and bushes in sunny areas and dunes stabilized with bush lupine and mock heather often indicate suitable habitat. Often can be found under surface objects such as rocks, boards, driftwood, and logs.	**None**: The project site does not contain suitable habitat that would support occurrence of this species, and intensive agricultural use of the project site and vicinity in recent and historical times has likely eliminated the possibility for occurrence of this species on the project site. There is one historical record within 5 miles of the project site.
Arizona elegans occidentalis California glossy snake	—	SSC	Inhabits arid scrub, rocky washes in grasslands and chaparral. Appears to prefer microhabitats of open areas and areas with soil loose enough for easy burrowing.	**None**: The project site does not contain suitable habitat that would support occurrence of this species, and intensive agricultural use of the project site and vicinity in recent and historical times has likely eliminated the possibility for occurrence of this species on the project site. There are four historical records within 5 miles of the project site and three historical records between 5 and 10 miles from the project site.
Emys marmorata western pond turtle	—	SSC	A thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches, usually with aquatic vegetation, below 6000 ft elevation.	**None**: The project site does not contain suitable habitat that would support occurrence of this species. There is one record of this species between 5 and 10 miles from the project site.
Gambelia sila blunt-nosed leopard lizard	FE	SE; FP	Occurs in sparsely vegetated alkali and desert scrub habitats, in areas of low topographic relief. Seeks cover in mammal burrows, under shrubs or structures such as fence posts.	**None.** The project site does not contain suitable habitat that would support occurrence of this species, and intensive agricultural use of the project site and vicinity in recent and historical times has likely eliminated the possibility for occurrence of this species on the project site. There are two historical records of this species between 5 and 10 miles from the project site.
Masticophis flagellum ruddocki San Joaquin coachwhip	—	SSC	Open, dry habitats with little or no tree cover. Found in valley grassland and saltbush scrub in the San Joaquin Valley. Needs mammal burrows for refuge and oviposition sites.	**None.** The project site does not contain suitable habitat that would support occurrence of this species, and intensive agricultural use of the project site and vicinity in recent and historical times has likely eliminated the possibility for occurrence of this species on the project site. There is one historical record between 5 and 10 miles from the project site and two recent records between 5 and 10 miles from the project site.

Scientific Name Common Name	Status		Habitat Description[3]	Habitat Value and Rationale[4]
	ESA[1]	CESA/ FGC[2]		
Phrynosoma blainvillii coast horned lizard	—	SSC	Inhabits open areas of sandy soil and low vegetation in valleys, foothills and semiarid mountains. Found in grasslands, coniferous forests, woodlands, and chaparral, with open areas and patches of loose soil. Often found in lowlands along sandy washes with scattered shrubs and along dirt roads. Often found near ant hills feeding on ants.	**None.** The project site does not contain suitable habitat that would support occurrence of this species, and intensive agricultural use of the project site and vicinity in recent and historical times has likely eliminated the possibility for occurrence of this species on the project site. There are two recent records of this species between 5 and 10 miles from the project site.
Birds				
Agelaius tricolor Tricolored blackbird	MTBA	ST; SSC; FGC	Breeds near fresh water in dense emergent vegetation.	None**.** The project site does not contain suitable habitat that would support breeding occurrence of this species. There is one recent record of this species within 5 miles of the project site and one recent record of this species between 5 and 10 miles from the project site.
Ardea alba Great egret (nesting colony)	MTBA	FGC	Colonial nester in trees or shrubs near water, sometimes in thickets some distance from water, sometimes low in marsh.	**None.** The project site does not contain suitable habitat that would support breeding occurrence of this species. There is one historical record of this species within 5 miles of the project site.
Athene cunicularia Burrowing owl	MTBA	SSC; FGC	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	**Moderate**: The project site may, under certain circumstances, contain suitable breeding and foraging habitat such as fallow fields and mammal (California ground squirrel) burrows. Intensive agricultural practices limit their occurrence. There are four recent records within 5 miles of the project site, two historical records of the species between 5 and 10 miles from the project site, and 17 recent records of the species between 5 and 10 miles from the project site.
Buteo swainsoni Swainson's hawk	MTBA	ST; FGC	Breeds in stands with few trees in juniper-sage flats, riparian areas, and in oak savannah. Requires adjacent suitable foraging areas such as grasslands or alfalfa fields supporting rodent populations.	**Moderate:** The project site supports suitable foraging habitat but does not contain suitable breeding habitat. There are three recent records of this species within 5 miles of the project site, one historical record of the species between 5 and 10 miles from the project site, and three recent records of the species between 5 and 10 miles from the project site.
Egretta thula snowy egret (nesting colony)	MTBA	FGC	Nests in colonies in trees, shrubs, mangroves, sometimes on or near the ground in marshes.	**None.** The project site does not contain suitable habitat that would support breeding occurrence of this species. There is one historical record of this species within 5 miles of the project site.

Scientific Name Common Name	Status		Habitat Description[3]	Habitat Value and Rationale[4]
	ESA[1]	CESA/ FGC[2]		
Mammals				
Ammospermophilus nelsoni Nelson's (=San Joaquin) antelope squirrel	—	ST; SSC	Occurs in Western San Joaquin Valley in elevations of 200-1200 ft. on dry, sparsely vegetated loam soils. Digs burrows or uses k-rat burrows. Needs widely scattered shrubs, forbs and grasses in broken terrain with gullies and washes.	**None.** The project site does not contain suitable habitat that would support occurrence of this species, and intensive agricultural use of the project site and vicinity in recent and historical times has likely eliminated the possibility for occurrence of this species on the project site. There are two records of this species between 5 and 10 miles from the project site.
Dipodomys ingens giant kangaroo rat	FE	SE	Occurs in annual grasslands on the western side of the San Joaquin Valley, marginal habitat in alkali scrub. Needs level terrain and sandy loam soils for burrowing.	**None.** The project site does not contain suitable habitat that would support occurrence of this species, and intensive agricultural use of the project site and vicinity in recent and historical times has likely eliminated the possibility for occurrence of this species on the project site. There is one historical record of this species between 5 and 10 miles from the project site.
Dipodomys nitratoides brevinasus short-nosed kangaroo rat		SSC	Occurs on the western side of San Joaquin Valley in grassland and desert shrub associations, especially *Atriplex*. Occurs in highly alkaline soils around Soda Lake. Needs friable soils. Favors flat to gently sloping terrain.	**None.** The project site does not contain suitable habitat that would support occurrence of this species, and intensive agricultural use of the project site and vicinity in recent and historical times has likely eliminated the possibility for occurrence of this species on the project site. There is one historical record of this species between 5 and 10 miles from the project site.
Dipodomys nitratoides nitratoides Tipton kangaroo rat	FE	SE	Native to saltbrush scrub and sink scrub communities in the Tulare Lake Basin of the southern San Joaquin Valley. This species needs soft friable soils to dig its burrows which consist of elevated soil mounds at bases of shrubs in order to escape seasonal flooding.	**None.** The project site does not contain suitable habitat that would support occurrence of this species, and intensive agricultural use of the project site and vicinity in recent and historical times has likely eliminated the possibility for occurrence of this species on the project site. There are three historical records of this species within 5 miles of the project site, eight historical records of this species between 5 and 10 miles from the project site, and two recent records of this species between 5 and 10 miles from the project site.
Eumops perotis californicus western mastiff bat	—	SSC	Occurs in many open, semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, grasslands, chaparral. Roosts in crevices in cliff faces, high buildings, trees, and tunnels.	**None.** The project site does not contain suitable roosting habitat that would support occurrence of this species, and intensive agricultural use of the project site and vicinity in recent and historical times has likely eliminated the possibility for occurrence of this species as a forager on the project site. There are two records of this species between 5 and 10 miles from the project site.

Scientific Name Common Name	Status		Habitat Description[3]	Habitat Value and Rationale[4]
	ESA[1]	CESA/ FGC[2]		
Lasiurus cinereus hoary bat	—	—	Occurs in mixed habitats, where it prefer tree roosts near open foraging areas.	**None.** The project site does not contain suitable roosting habitat that would support occurrence of this species, and intensive agricultural use of the project site and vicinity in recent and historical times has likely eliminated the possibility for occurrence of this species as a forager on the project site. There is one historical record of this species between 5 and 10 miles from the project site.
Sorex ornatus relictus Buena Vista Lake ornate shrew	FE	SSC	Occurs in marshlands and riparian areas in the Tulare Basin. Prefers moist soil. Uses stumps, logs and litter for cover.	**None.** The project site does not contain suitable habitat that would support occurrence of this species, and intensive agricultural use of the project site and vicinity in recent and historical times has likely eliminated the possibility for occurrence of this species on the project site. There is one historical record of this species between 5 and 10 miles from the project site.
Taxidea taxus American badger	—	SSC	Found in drier open stages of most shrub, forest and herbaceous habitats with friable soils, specifically grassland environments. Natal dens occur on slopes.	**None.** The project site does not contain suitable habitat that would support occurrence of this species, and intensive agricultural use of the project site and vicinity in recent and historical times has likely eliminated the possibility for occurrence of this species on the project site. There is one historical record within 5 miles of the project site.
Vulpes macrotis mutica San Joaquin kit fox	FE	ST	Annual grasslands or grassy open stages with scattered shrubby vegetation.	**Moderate**: The project site may, under certain circumstances, contain suitable breeding habitat if the fields are allowed to go fallow for extended periods. The project may be accessed by foxes for foraging at any time. Intensive agricultural practices likely limit their occurrence. There are two recent records of this species within 5 miles of the project site, seven historical records of this species within 5 miles of the project site, nine recent records of this species between 5 and 10 miles from the project site, and 13 historical records of this species between 5 and 10 miles from the project site.

Scientific Name Common Name	Status		Habitat Description[3]	Habitat Value and Rationale
	ESA[1]	CESA/FGC[2]		

Code Designations

[1] Federal Status: 2022 Endangered Species Act (ESA) Listing		[2] State Status: 2022 California Endangered Species Act (CESA) Listing	
ESU	= Evolutionary Significant Unit is a distinctive population.	**SE**	= Listed as endangered under CESA.
FE	= Listed as endangered under the Endangered Species Act.	**ST**	= Listed as threatened under CESA.
FT	= Listed as threatened under the Endangered Species Act.	**SSC**	= Species of Special Concern as identified by the CDFW.
FC	= Candidate for listing (threatened or endangered) under the Endangered Species Act.	**FP**	= Listed as fully protected under the Fish and Game Code.
FD	= Delisted in accordance with the Endangered Species Act.	**CFG**	= FGC =protected by Fish and Game Code 3503.5
FPD	= Federally Proposed to be Delisted.	**CR**	= Rare in California.
MBTA	= protected by the Migratory Bird Treaty Act	**—**	= Not State listed
—	= Not federally listed		

[3] **Habitat Description**: Habitat description adapted from CNDDB or other specified source.
[4] **Potential to Occur and Rationale**: Location of recorded species occurrences determined by geospatial information from BIOS 5 or other specified source.

Sources:

California Department of Fish and Wildlife (CDFW). 2022. CNDDB RareFind 5 California Natural Diversity Database Query for Special-Status Species. Website: https://map.dfg.ca.gov/rarefind/view/RareFind.aspx. Accessed May 3, 2023.
California Department of Fish and Wildlife (CDFW). 2020. Biogeographic Information and Observation System (BIOS 5). Website: https://map.dfg.ca.gov/bios/. Accessed May 3, 2023.

Appendix D:
Phase I Cultural Resources Assessment

This appendix contains sensitive information relating to cultural resources and has been redacted pursuant to Public Resources Code Section 21082.3(C)(2).

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Phase I Cultural Resources Assessment
Westside Industrial Project
Kern County, California

USGS *Conner, California* 7.5-minute Topographic Quadrangle Map
Township 31 South, Range 27 East, Section 13
Assessor's Parcel Number (APN) 184-391-08

Project Applicant:
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Fieldwork Conducted by Natalie Adame

Report Date: July 15, 2021
Revised Date: October 22,2021
Revised Date: May 31, 2023

THIS REPORT CONTAINS SENSITIVE INFORMATION RELATING TO CULTURAL RESOURCES AND IS NOT INTENDED FOR PUBLIC DISTRIBUTION PURSUANT TO PUBLIC RESOURCES CODE, SECTION 21082.3(C)(2).

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MANAGEMENT SUMMARY

At the request of Seefried Industrial Properties, Inc. (project applicant), FirstCarbon Solutions (FCS) conducted a Phase I Cultural Resources Assessment (Phase I CRA) for the proposed Westside Industrial Project (proposed project) located in Kern County, California. The purpose of this assessment is to identify the presence or absence of potentially significant cultural resources within the project site and, if present, propose recommendations for mitigation. Completion of this investigation fulfills the requirements associated with the California Environmental Quality Act (CEQA) guidelines. This report follows the California Office of Historic Preservation (OHP) procedures for cultural resource surveys and the OHP Archaeological Resource Management Report (ARMR) format for archaeological reports. This report is also intended to fulfill any Kern County Planning Department cultural resources survey and reporting guidelines.

On May 13, 2021, a records search was conducted at the Southern San Joaquin Valley Information Center (SSJVIC) located at California State University, Bakersfield, for the project site and a 0.5-mile radius beyond the project boundaries. The current inventories of the National Register of Historic Places (NRHP), the California Register of Historical Resources (CRHR), the California Historical Landmarks (CHL) list, the California Points of Historical Interest (CPHI) list, and the California Built Environment Resource Directory (BERD) for Kern County were also reviewed to determine the existence of previously documented local historical resources. The results of the records search indicate that one cultural resource [redacted] has been recorded within 0.5 mile of the project site, which is not located within the project boundaries. In addition, four area-specific survey reports are on file within a 0.5-mile radius, one of which [redacted] partially addresses the proposed project site.

On May 13, 2021, FCS sent a request to the Native American Heritage Commission (NAHC) in an effort to determine whether any sacred sites are listed on its Sacred Lands File for the project site. A response was received on May 25, 2021, indicating that the Sacred Lands File search failed to locate the presence of Native American cultural resources within the project site. The NAHC included a list of 24 tribal representatives available for consultation. To ensure that all Native American knowledge and concerns over potential Tribal Cultural Resources (TCRs) that may be affected by implementation of the proposed project are addressed, a letter containing project information and requesting additional information was sent to each tribal representative on June 1, 2021. A total of three responses were received. On June 1, 2021, the yak tityu yak tiłhini-Northern Chumash Tribe responded with no comments on the proposed project and deferred to a more local tribe, and on June 2, 2021, the Quechan Tribe of the Fort Yuma Reservation had no additional information or comments. Additionally, the Xolon Salinan Tribe stated that the project site is not within their ancient territory. No additional responses have been received to date. To address the 24.76 acres that were added east of the original project footprint, letters containing the updated project footprint and project description were sent to each of the tribal representatives on May 24, 2023. On May 25, 2023, a reply was received from the yak tityu tityu yak tiłhini Northern Chumash Tribe, and on May 30, 2023, a reply was received from the Quechan Tribe of the Fort Yuma Reservation. Both tribes declined to consult and deferred to tribes closer to the project site. No other responses have been received to date.

On June 7, 2021, FCS Staff Archaeologists, Natalie Adame and Sam Banderas conducted a drive-by pedestrian survey along the borders of the proposed project, with overview photos taken at each corner of the site. Ms. Adame and Mr. Banderas were unable to access the proposed project site due to the overgrown agricultural field. On October 11, 2021, Ms. Adame and Mr. Banderas returned to the project site to finish the survey. Upon arriving, it was observed that the project site had been replanted and was an active agricultural field. The survey was not possible, as observation and inspection of soil was compromised due to the inability to walk between the planted rows. In addition, sections of the project site were in the process of being irrigated, which made access even more difficult. The boundary survey was possible, however, and the survey began on the northwestern corner of the project site, just south of the warehouse located outside of the project site, followed by the southwestern corner, southeastern corner, and finally, northeastern corner. Overview photographs as well as Munsell readings were taken at each corner, with the northwest (NW) and southwest (SW) corner soil consisting of grayish brown sandy silt (Munsell 5/2 10YR) and the southeast (SE) and northeast (NE) corner consisting of dark grayish brown sandy silt (Munsell 4/2 10YR).

Mr. Banderas and Ms. Adame returned to the project site on May 3, 2023, to survey the approximately 93.74 acres that includes the original project boundary (68.98 acres) and the area (24.76 acres) extended to the east of the original project site. The survey began on the southeastern corner of the project site, using east-west transects spaced at 15-meter intervals, whenever possible, and moving south. The entirety of the project area had recently been sowed and cropped, thus transects occurred between the ridges of each linear crop. The project area was relatively flat, and visibility of disturbed soil was at 100 percent. Overview photos were taken at each corner in addition to start/end of the odd numbered transects. Soil composition was made up of dark yellowish brown silty-sand (10YR 4/4).

To the greatest extent possible, all areas of the project site were inspected for culturally modified soils or other indicators of potential historic or prehistoric resources. No historic or prehistoric cultural resources or raw materials commonly used in the manufacture of tools (e.g., obsidian, Franciscan chert, etc.) were found over the course of the boundary survey.

Based on the results of the records searches, archival research, tribal correspondence, and the pedestrian survey, FCS considers the potential for the proposed project to have an adverse effect on historic or prehistoric cultural resources to be low to moderate. The results from the NAHC Sacred Lands File search were negative for the presence of TCRs on the project site, and no prehistoric or historic resources were identified during the pedestrian boundary survey. However, the presence of a recorded prehistoric/historic resource within 0.5 mile of the project boundaries, coupled with the lack of overall site access and soil visibility, increases the probability that undiscovered cultural resources may be encountered and impacted by construction activities.

FCS therefore recommends that an Archaeologist who meets the Secretary of the Interior's Professional Qualification Standards for archaeology be present to inspect the site during the clearing and grubbing and prior to grading and trenching of the site to check for the inadvertent exposure of cultural materials. In the event exposed soils indicate cultural materials may be present, this may be followed by regular or periodic archaeological monitoring as determined by the Archaeologist. Full-time archaeological monitoring is not recommended at this time. The Kern County standard procedures for the inadvertent discovery of human remains and cultural resources should be followed and are provided in this report.

SECTION 1: INTRODUCTION

1.1 - Project Location and Setting

The approximately 93.74-acre project site is located in the southern San Joaquin Valley in unincorporated Kern County, California (Exhibit 1). This site is part of a larger 629.24-acre parcel known as Assessor's Parcel Number (APN) 184-391-08. The site is bounded by Wible Road (west), Houghton Road (north), and agricultural land (south and east) (Exhibit 2). The project site is located on the *Connor, California* United States Geological Survey (USGS) 7.5-minute Topographic Quadrangle Map, Township 31 South, Range 27 East, Section 13 (Exhibit 3).

The project site is surrounded primarily by agricultural lands and by limited commercial developments and associated infrastructure. These include Martin Feed, warehouses, Houghton Road, and an almond orchard to the north; carrot fields, Kern Island Canal, and State Route (SR) 99 to the east; cultivated agricultural rows to the south; and Wible Road and an almond orchard to the west. The project site is currently used for agricultural production.

1.2 - Project Description

The project applicant, Seefried Industrial Properties, Inc., proposes to develop a 653,442-square-foot single warehouse and distribution facility and related improvements. The proposed facility has a footprint of approximately 629,186 square feet (including approximately 44,424 square feet of office space) that would primarily facilitate material handling equipment and warehouse uses. The remaining square footage is made up of a 24,256-square-foot mezzanine, which would contain material handling equipment conveyors with occasional maintenance and no storage. The proposed project would also include two guardhouses and one pumphouse.

1.2.1 - Vehicular Access and Circulation

The proposed project would include approximately 5.54 acres of off-site improvements. The project frontage along Houghton Road and Wible Road would be improved to meet applicable Kern County (County) standards as follows. The frontage roads, classified as major arterials, would be improved with new pavement, raised median, curb and gutter, and sidewalk. Additionally, signing and marking would be constructed for the new pavement delineations.

1.2.2 - Site Access and Circulation

New roads would be constructed along the eastern and southern perimeter of the project site to link Houghton Road and Wible Road. Each road would be two lanes and designed to accommodate heavy trucks. The new intersection of Houghton Road and the new eastern perimeter road would be signalized. In addition, the intersection of Wible Road and Houghton Road would be signalized.

Once operational, ingress to the proposed project would be taken from the new southern perimeter road via the existing Wible Road. The southern perimeter road driveways would serve the employee parking lot as well as the truck entrance and exit. The eastern entrance would feature a primary

guardhouse. Truck egress would occur at the western entrance of the southern perimeter road, which would also feature a secondary guardhouse.

1.2.3 - Landscaping

The proposed project would include approximately 217,529 square feet (4.99 acres) of landscaping and irrigation, which would consist primarily of drought-tolerant and low-maintenance plants. Islands with canopy trees would be provided to reduce heat island effect. Native hydroseed mix and rock cobble will be applied to large areas where landscaping and irrigation is not practical due to non-employee use. Landscaping would exceed the 5 percent landscaping requirement according to the County Code. There are no existing trees on the project site, and therefore no trees would be required to be removed.

1.2.4 - Utilities and Infrastructure

The proposed project would be served with potable water provided by Cal Water. Service laterals would be extended from an existing water line located within Wible Road. The project proposes a single water tank for fire suppression volume.

The proposed project would be served by a private wastewater collection and treatment package system located on-site to accommodate the wastewater needs. Electricity and natural gas service would be provided by Pacific Gas and Electric Company (PG&E). Service laterals would be extended to the project site from existing utility facilities along Houghton Road and Wible Road. A substation would be located at the northeast corner of the project site and would provide power generation for the on-site building.

The proposed project would install an on-site storm drainage system consisting of inlets, underground piping, and surface and underground basins. Runoff would drain to one of three underground detention basins located at the southwest and southeast corners of the project site as well as near the northern frontage of the project site along Houghton Road. The basins would be designed to accommodate a 100-year storm event and would detain runoff and release it at a rate no greater than the pre-development condition of the project site. The proposed project would be required to retain the stormwater per Kern County's drainage requirements and all other applicable standards.

1.2.5 - Phasing and Construction

For the purposes of this environmental analysis, the following construction schedule is assumed. Grading of the proposed project would start in July 2024 and would last approximately 20 days. Construction would be completed in a single phase beginning in September 2024 and concluding in September 2025. It is anticipated that the proposed project would be operational in 2025. Should commencement of construction be delayed, the utilization of July 2024 represents a conservative analysis for the purposes of this CRA.

During construction, a temporary on-site batch plant would be necessary and assembled to manufacture and construct the facility and related improvements. This on-site batch plant would be de-assembled after construction is complete.

1.2.6 - Operation

The proposed facility would operate 24 hours a day, 365 days a year and typically consist of both day and night shifts. The facility would employ approximately 915 employees per shift (two shifts, for a total of 1,830 employees) in peak season and approximately 732 employees per shift (two shifts for a total of 1,464 employees) in non-peak season.

1.3 - Assessment Team

FCS Staff Archaeologist, Natalie Adame, conducted the pedestrian survey. FCS Staff Archaeologist, Stefanie Griffin, MA, authored this report. Professional qualifications for Ms. Griffin and Ms. Adame can be found in Appendix A.

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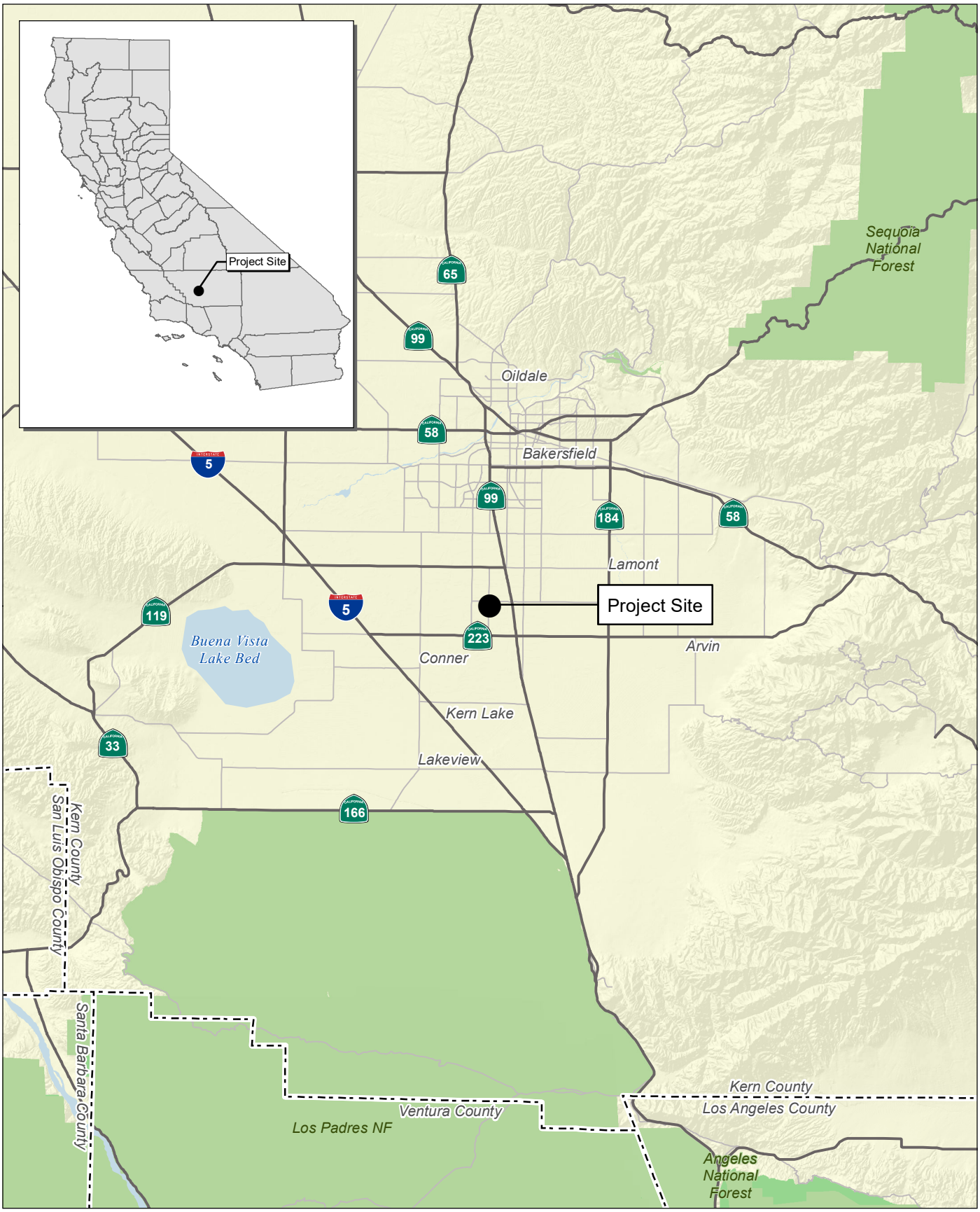

Source: Census 2000 Data, The California Spatial Information Library (CaSIL).

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8.5 4.25 0 8.5 Miles

Exhibit 1
Regional Location Map

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SEEFRIED INDUSTRIAL PROPERTIES, INC.
WESTSIDE INDUSTRIAL PROJECT
PHASE I CULTURAL RESOURCE ASSESSMENT

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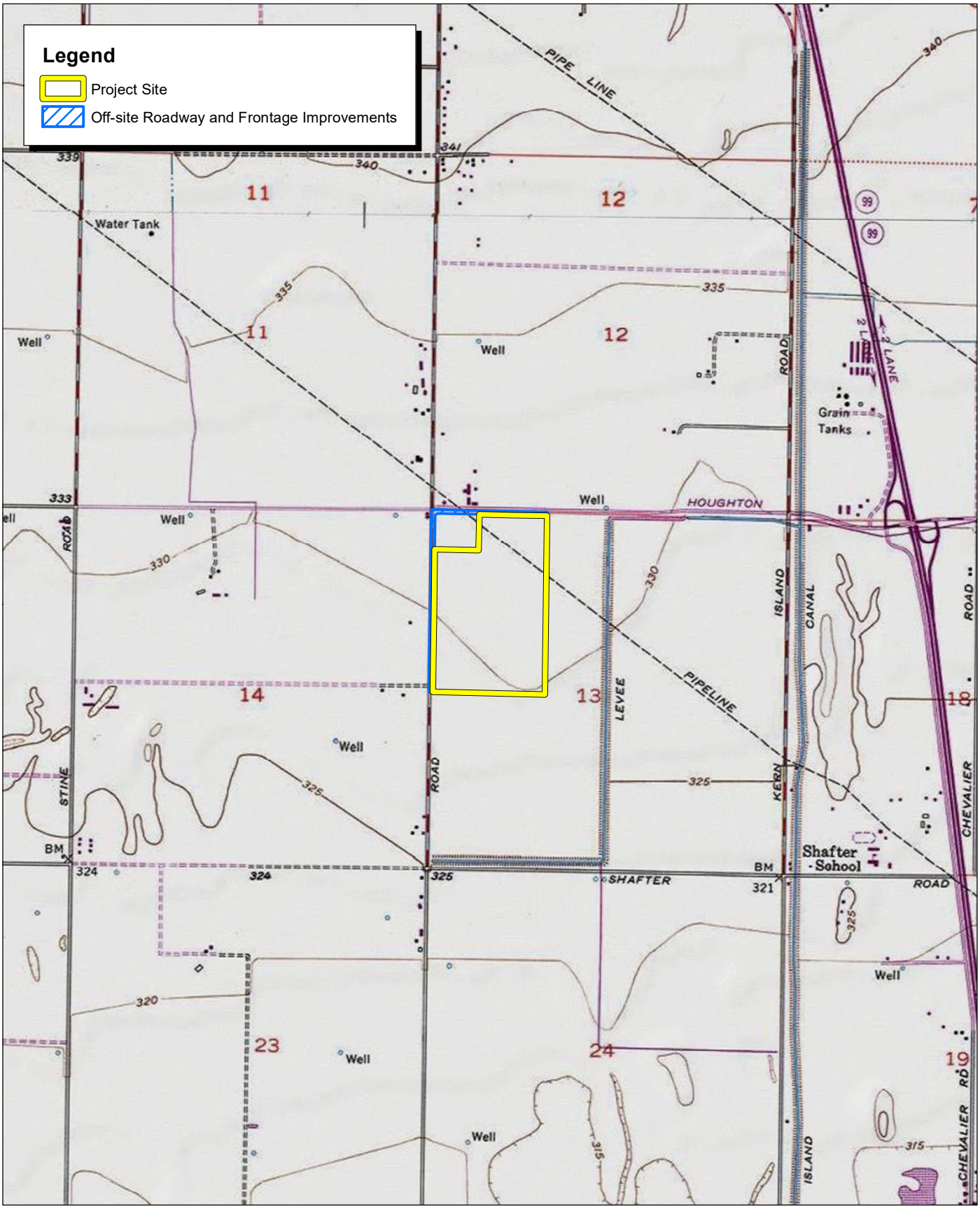

Source: USGS Conner 7.5' Quadrangle / T31S,R27E,sec11,12,13,14.

FIRSTCARBON SOLUTIONS™

2,000 1,000 0 2,000 Feet

Exhibit 2
Local Vicinity Map, Topographic Base

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PHASE I CULTURAL RESOURCE ASSESSMENT

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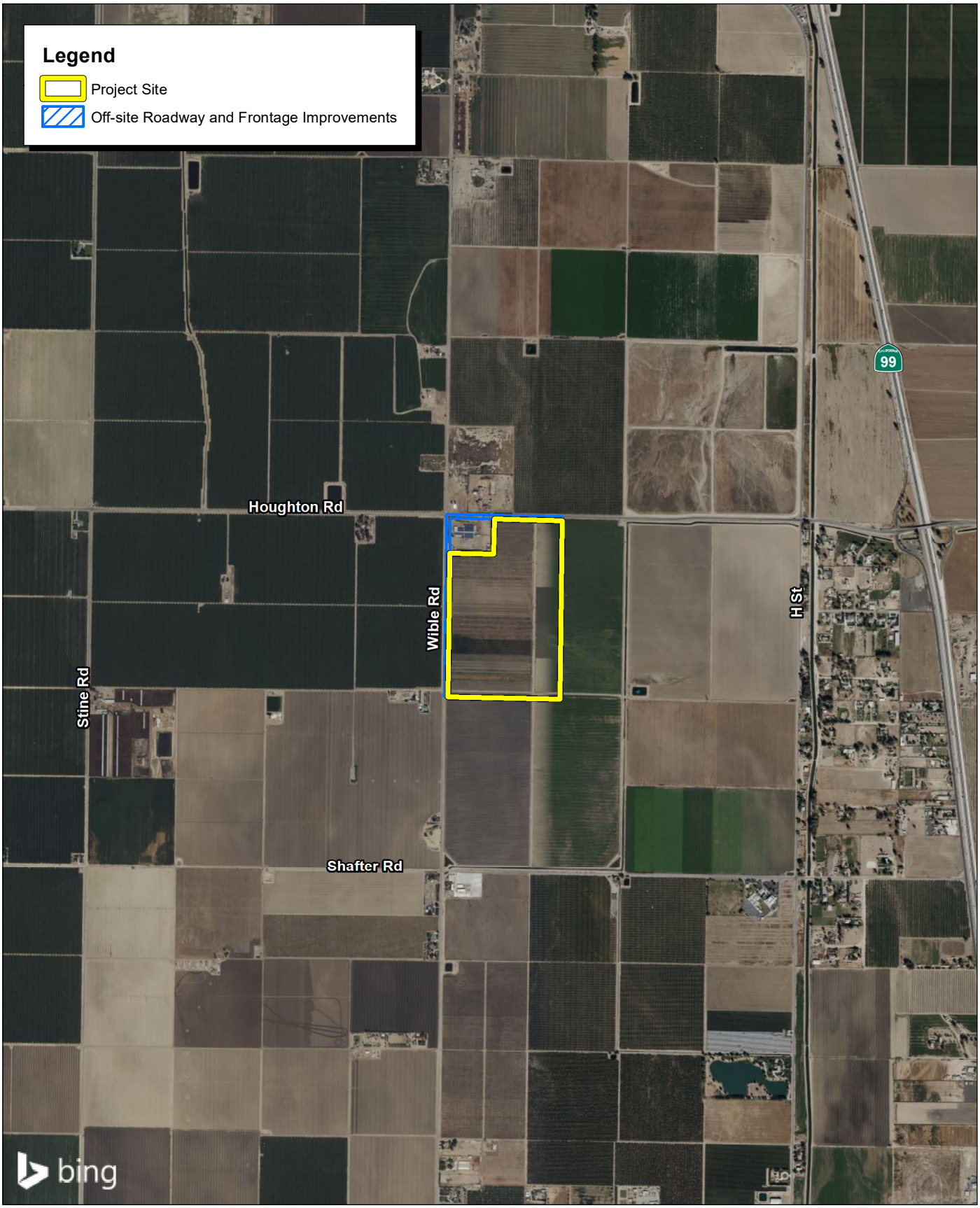

Source: Bing Aerial Imagery.

FIRSTCARBON SOLUTIONS™

2,000 1,000 0 2,000 Feet

Exhibit 3
Local Vicinity Map, Aerial Base

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SEEFRIED INDUSTRIAL PROPERTIES, INC.
WESTSIDE INDUSTRIAL PROJECT
PHASE I CULTURAL RESOURCE ASSESSMENT

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SECTION 2: CULTURAL SETTING

The following is a brief overview of the prehistoric and historic background of the general area, which provides context to understand the relevance of resources found in the general project area. This section is not intended to be a comprehensive review of the current resources available; rather, it serves as a general overview.

Further details can be found in the ethnographic studies, mission records, and major published sources, including Beardsley (1948 and 1954), Bennyhoff (1950), Fredrickson (1973), Kroeber (1925), Moratto (1984), Chartkoff and Chartkoff (1984), Heizer (ed. 1978), and Jones and Klar (2007).

2.1 - Prehistoric and Ethnographic Background

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. These investigations of the artifacts of the San Joaquin Valley's prehistoric 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. These patterns include:

- Early Period (12,000 Before Present [BP] to 8000 BP)
- Middle Period (8000 BP to 2500 BP)
- Late Period (2500 BP to Ethnohistoric Present)

Brief descriptions of these temporal ranges and their unique characteristics follow.

2.1.1 - Early Period (12,000 BP to 8000 BP)

Archaeological sites from the Early Period are not very well represented in the southern San Joaquin Valley, partially due to periodic episodes of erosion and deposition that have removed or buried large segments of the Early Period landscape. Currently, the earliest evidence of human occupation in the region comes from fluted and basally thinned projectile points in the Tulare Lake basin at the Witt site (KIN-32). Hundreds of Late Pleistocene concave base points have been discovered from human occupation along the remnant shoreline of Tulare Lake in southern Kings County. Artifacts from this site include Clovis-like projectile points made of chert, chipped crescents, various scrapers, and other stone tools associated with the Fluted Point and/or Western Pluvial Lakes tradition. The Witt site also contained faunal bones from horse, bison, and ground sloth and the tusk of a mammoth or mastodon (Greenwood and Associates 2012). The bones, including some human bone, have been radiocarbon dated to 11,000 to 13,000 BP (Rosenthal et al. 2007).

2.1.2 - Middle Period (8000 BP to 2500 BP)

The Middle Period is characterized by an increase in groundstone tools, including metates and manos. Middle Period site deposits include an abundance of expedient cobble-based pounding, chopping, scraping, and mulling tools, which reflects an increased dependence on vegetative foods that require processing. Archaeobotanical assemblages from foothill sites confirm that acorn and

pine nuts were targeted food plants (Jones and Klar 2007; Rosenthal et al. 2007). However, lithic technology remained relatively unchanged from the Early Period, in which stone tools were very similar to the Western Pluvial Lakes Tradition (Greenwood and Associates 2012).

2.1.3 - Late Period (2500 BP to Ethnohistoric Present)

The beginning of the Late Period corresponds with the onset of the Late Holocene environmental conditions, marked by an abrupt turn to cooler, wetter, and a more stable climate. Lakes that had dried or diminished during the later parts of the Middle Period returned to higher levels. Cultural diversity was more pronounced marked by artifact styles, contrasting burial positions, and other elements of material culture. People were buried in flexed positions more frequently, and burial goods were more numerous than those from the Middle Period (Rosenthal et al. 2007). Both the Olivella shell bead and bow-and-arrow technology made their first appearance in the area. There was also a greater reliance on ground stone tools, indicating an increased dependence on nuts, seeds, and acorns. Villages and smaller residential communities developed along the many streams of the foothills and along the river channels and sloughs of the valley bottom. Occupation sites were also larger, reflecting semi-sedentism (Greenwood and Associates 2012).

2.1.4 - Southern Valley Yokuts

At the time of European contact, most of the San Joaquin Valley and the foothills of the western slope of the Sierra Nevada were occupied by 40 or so groups classified together as the Yokuts (Silverstein 1978) with a Foothills division and a Valley division of language dialects. The Yokuts were recognized as having three major subgroups: the Northern Valley, the Foothill, and the Southern Valley. Each of these ethnolinguistic groups was composed of autonomous, culturally, and linguistically related tribes or tribelets. Ethnographic evidence suggests that Kern County is located in the Southern Valley Yokuts territory. The Southern Valley Yokuts were divided into true tribes, with individual tribelets having their own name, dialect, and territory, and there is no evidence to suggest that they practiced any formal religion (Gayton 1948).

Alfred Kroeber divided a Yokuts classification system into Valley Divisions and Foothill Divisions based on ethnographic lines, geographic habitat, and dialect (Kroeber 1925). Here, the Foothill Division's worldview and economy were influenced more by their Shoshonean neighbors than the Valley Division Yokuts. Later, William Wallace divided the Yokuts into three subgroups, Southern Valley, Northern Valley, and Foothill, and shifted the known tribelets among these divisions (Wallace 1978). The following is a review of ethnographic information associated with the Southern Valley Yokuts. The Southern Valley Yokuts occupied a rich environment with abundant water resources from the nearby sloughs, lake basins, and river systems. Swamps and tule marshes surrounded the waterways and teemed with wildlife, including aquatic mammals, fish, and waterfowl. Adjacent grasslands provided food for herds of elk, antelope, and (in the winter) deer. The regional flora was equally, if not more, diverse and was used as a main staple of the Yokuts diet. The Southern Valley Yokuts dietary base relied on a mixed strategy of fishing, waterfowl hunting, shellfish, and plant collecting, with less emphasis on large-game hunting. Important vegetal resources included cattail roots, grasses, nuts, seeds, tule, and bulbs. The resource-rich environment allowed for permanent village sites, which typically were occupied throughout the year.

2.2 - Regional Historic Background

2.2.1 - The Spanish Period (1769-1821)

The formalization of Spanish routes in California were established by Father Junípero Serra and Gaspar de Portolà in 1769, in what was known as the Portolà Expedition. Although the Portolà party were not the first Europeans nor the first people to pass through the region, it was their observations and discoveries that formalized the routes and locations of the Mission System and facilitate trade and travel through California (Farquhar 1928). The route used by Portolà was further explored in detail by Lieutenant Colonel Juan Bautista de Anza and Father Pedro Font during the Anza Expedition that lasted from 1775-1776. The Anza Expedition was considered pivotal as it helped establish practical relationships with the natives, who at the time were revolting in San Diego, and furthered exploration and mapping of the Monterey and the San Francisco Bay Area (Hyslop 2019).

The region that would become San Joaquin Valley was periodically visited by Franciscan friars scouting the area for mission sites, but a military expedition was led by Gabriel Moraga in September and October of 1806. The expedition started in San Juan Bautista and continued to the San Joaquin Plain. Once there, Moraga traversed several tributaries that flow to the San Joaquin River and discovered and named the Merced River. Moraga additionally came upon the Tuolumne, Stanislaus, and Mokelumne Rivers. Moraga's Expedition took him from the foot of the Sierras and the Rancherias between Kings River and Kern River. In 1808, Moraga traveled to Stockton and headed east, scouting sites for future missions. Moraga's discoveries and mapping of the region contributed to the knowledge of the geography and ethnography of the area. This information served pivotal to Father Narciso Duran, Father Ramón Abella, and Lieutenant Luis Antonio Argüello, who followed the San Joaquin River at least as far as the Stockton Channel in 1817, meticulously mapping the area for future mission establishments (Kyle 2002; Farquhar 1928). The diary kept by Father Duran helped illustrate how the region appeared prior to colonization as well as initial contact with the Yokut people.

2.2.2 - The Mexican Period (1821-1848)

In 1821, Mexico overthrew Spanish rule and the monopoly that the missions had in the area began to decline. By 1833, the Mexican government passed the Secularization Act, and the missions reorganized as parish churches and lost their vast land holdings. Following the Secularization Act, the Mexican government initially planned on redistributing the land to the Native Americans, however, they were instead redistributed to prominent citizens. The last of the mission land holdings were relinquished in 1845, which led the way for the large ranchos common to California in the mid-1800s.

California experienced a period of success with the establishment of the Ranchos, adopting the Spanish ranching traditions and focusing on the herding of cattle as well as adapting to the market trends of the time that included the trade of fur and pelts; however, the constant threat of Russian invasion, the illegal squatting of American immigrants, and a growing threat of rebellion from the mission Indians prevented the region from achieving socio-political stability (Beck and Williams 1972). The growing tensions between Mexicans and American settlers led to the Bear Flag Revolt of

1846, led by U.S. Army Captain John C. Fremont and Ezekiel Merritt against Mexican General Mariano Vallejo who was attempting to bring aid to the Mexican governor of California to suppress the growing wave of support for an American coup of California (NPS.gov 2015). The rebellion concluded with the takeover of Sonoma, thus weakening the little control that Mexico had over Alta California and paving the way for the United States to seize control of the Pacific Coast shortly thereafter (NPS.gov 2015).

By 1846, on the eve of the U.S.-Mexican War (1846 to 1848), the estimated population of California was 8,000 non-natives and 10,000 Native Americans. However, these estimates have been debated. Cook suggests the Native American population was 100,000 in 1850; the U.S. Census of 1880 reports the Native American population as 20,385 (Cook 1976).

2.2.3 - Kern County

Kern County, located in the San Joaquin Valley, was incorporated on April 2, 1866, when parts of Los Angeles and Tulare counties were split due to the population growth in those communities. The county was named after the Kern River which flows throughout the area. Gold was discovered in 1864, and a town named Havilah was established. Ashbury Harpending, also known as "The Father of Kern County," founded the town, which was 8 miles south of what is now Bodfish (Brewer 2001). By 1866, Havilah was a booming town of mines, stamp mills, 13 saloons, and the first county hospital, and the school district was established, and the first newspaper, the Havilah Courier, began publication. Havilah was the first county seat from 1866 to 1874, and eventually the governmental seat was moved to Bakersfield in February of 1874. Michael Erskine, Danial W. Walser, John M. Brite, Eli Smith, and Thomas Baker (Commission Chair) were appointed by the State Legislature as the Commission to organize the county. The Commission experienced difficulties in the first year as a result of misrepresentation of outlying areas within the county. However, the following year saw improvements as a result of the transportation system, Baker Toll Road, making its way up the hills between Bena and Walker Basin (Brewer 2001).

On April 26, 1875, Southern Pacific Railroad completed its construction of railroad tracks located east of the town of Caliente. By July 10, 1876, the railroad line through the Tehachapi Mountains was completed (Brewer 2001). By 1890, a plant built by the Bakersfield Gas Company produced the first electric lighting in Bakersfield. Construction began for the first oil pipeline in the county in January 1901 and was completed in 1902. The pipeline extended from Kern River field, which is north of Bakersfield, to Point Richmond near the San Francisco Bay.

On June 5, 1917, Kern County was the first place where draft registration for World War I ensued, and 7,150 men were enlisted in one day. The draftees left Kern County for duty on September 9, 1917. From the 1920s to 1940, Kern County experienced several changes, such as the founding of the Kern County Woolgrower's Association, the construction of the first steel derrick used for oil drilling, and the 1933 cotton picker strike in the San Joaquin Valley, and the Dust Bowl migration (1935 to 1940) brought many to people to Kern County (Bakersfield 2021).

In February and March 1942, Japanese Americans of Kern County were rounded up and placed in internment camps shortly after the bombing at Pearl Harbor. The internment camps were located at

DiGiorgio farms at Arvin and Delano. In 1945, during World War II, German and Japanese prisoners were interned at camps near Shafter and Lamont to work on area farms. Post-war, Kern County experienced a major earthquake in August 1952, and the Isabella Dam was completed in 1953. The Delano Grape Strike of September 1965 originated with members of the Agricultural Workers Organizing Committee and then was joined by the National Farmworkers Association led by Cesar Chavez, Richard Chavez, and Dolores Huerta. The strikers were demanding equal wages equivalent to the federal minimum wage. The two groups joined together to form the United Farm Workers of America, and the strike/boycott lasted for more than 5 years (Bakersfield 2021).

In the mid-1990s, the first African American woman, Irma Carson, was elected to the Bakersfield City Council; the 2000s saw the crash of the housing market that tripled the rate of foreclosures; and the 2010s saw layoffs due to low oil prices, which hit the County's economy.

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SECTION 3: RESULTS

3.1 - Records Search

3.1.1 - Southern San Joaquin Valley Information Center Records Search

On May 13, 2021, a records search for the project site and a 0.5-mile radius beyond the project boundaries was conducted at the SSJVIC located at California State University, Bakersfield. The current inventories of the NRHP, the CRHR, the CHL list, the CPHI list, and the California BERD for Kern County were also reviewed to determine the existence of previously documented local historical resources. The records search results can be found in Appendix B.

The results of the records search indicate that one cultural resource [redacted] has been recorded within 0.5 mile of the project site, none of which are within the project boundaries (Table 1). In addition, four area-specific survey reports are on file within the 0.5-mile radius, one of which [redacted] partially addresses the proposed project site (Table 2).

Table 1: Cultural Resources Within 0.5-mile Radius of the Project Site

Resource No.	Resource Description	Date Recorded
P-15-012209	CA-KER-006913/H (Prehistoric, Historic Site): Baldwin Ranch Site, [redacted]	2005
Source: Southern San Joaquin Valley Information Center (SSJVIC) Records Search. May 13, 2021.		

Table 2: Previous Investigations Within 0.5-mile Radius of the Project Site

Report No.	Report Title/Project Focus	Author	Date
[redacted]	[redacted]	[redacted]	[redacted]
KE-01067	Archaeological Investigation of the 1979 Systems Improvement Project for the Kern Delta Water District	Robert Schiffman	1979
KE-03585	Archaeological Investigations at CA-KER-6913/H for the Kern Delta Water District Water Banking and In Lieu Water Supply Project, Kern County, California	Wendy M. Nettles and Jay B. Lloyd	2007
KE-03726	Cultural Resources Surveys for the Kern Delta Water District Water Banking and In Lieu Water Supply Project, Kern County, California	Sandra S. Flint, Dennis P. McDougall, Kathleen Jerrigan, and Lisa Anderson	2005
Source: Southern San Joaquin Valley Information Center (SSJVIC) Records. Search May 13, 2021. [redacted]			

[redacted]

3.1.2 - Historical Aerials

A review of 11 historic aerial photographs from 1952 to 2016 indicate that from the earliest aerial in 1952 until the present, the project site has never been developed and has been used for agricultural purposes (Historic Aerials 2021).

3.1.3 - Native American Heritage Commission Record Search

On May 13, 2021, FCS sent a request to the NAHC in an effort to determine whether any sacred sites are listed on its Sacred Lands File for the project site. A response was received on May 25, 2021, indicating that the Sacred Lands File search failed to locate the presence of Native American cultural resources within the project site. The NAHC included a list of 24 tribal representatives available for consultation. To ensure that all Native American knowledge and concerns over potential TCRs that may be affected by implementation of the proposed project are addressed, a letter containing project information and requesting additional information was sent to each tribal representative on June 1, 2021.

A total of three responses were received. On June 1, 2021, the yak tityu yak tiłhini-Northern Chumash Tribe had no comments on the proposed project and deferred to a more local tribe, and on

June 2, 2021, the Quechan Tribe of the Fort Yuma Reservation had no additional information or comments. Additionally, the Xolon Salinan Tribe stated that the project site is not within their ancient territory. No additional responses have been received to date.

To address the 24.76 acres that were added east of the original project footprint, letters containing the updated project footprint and project description were sent to each of the tribal representatives on May 24, 2023. On May 25, 2023, a reply was received from the yak tityu tityu yak tiłhini Northern Chumash Tribe, and on May 30, 2023, a reply was received from the Quechan Tribe of the Fort Yuma Reservation. Both tribes declined to consult and deferred to tribes closer to the project site. No other responses have been received to date.

Correspondence related to the NAHC record searches and tribal representatives can be found in Appendix C.

3.2 - Pedestrian Survey and Buried Site Potential

3.2.1 - Pedestrian Survey

On June 7, 2021, FCS Staff Archaeologists Natalie Adame and Sam Banderas conducted a drive-by pedestrian survey along the borders of the proposed project, with overview photos taken at each corner of the site. Ms. Adame and Mr. Banderas were unable to access the proposed project site due to the overgrown agricultural field, which was filled with corn at the time. The boundary survey began on the northwestern corner of the project site, just south of the warehouse located outside of the project site, followed by the southwestern corner, southeastern corner, and finally, northeastern corner. Overview pictures, as well as Munsell readings were taken at each corner, with the NW and SW corner soil consisting of grayish brown sandy silt (Munsell 5/2 10YR) and the SE and NE corner consisting of dark grayish brown sandy silt (Munsell 4/2 10YR).

On October 11, 2021, Ms. Adame and Mr. Banderas returned to the project site to finish the survey after being notified that the corn had been harvested. However, upon arrival it was observed that the project site had been replanted and was an active agricultural field. The survey was not possible, as observation and inspection of soil was compromised due to the inability to walk between the planted rows. In addition, sections of the project site were in the process of being irrigated, making access even more difficult. As such, Mr. Banderas and Ms. Adame conducted an additional survey of the perimeter of the project site and took overview photos as well as additional Munsell readings from each project corner. The NE and SE corners consisted of dark grayish brown clayish-silt (Munsell 10YR 3/2), the SW corner consisted of grayish brown clayish-silt (Munsell 10YR 5/2) and the NW corner consisted of dark brown silt (Munsell 10YR 3/3). Survey conditions were documented using digital photographs and field notes.

Mr. Banderas and Ms. Adame returned to the project site on May 3, 2023, to survey the approximately 93.74 acres that includes the original project boundary (68.98 acres) and the area (24.76 acres) extended to the east of the original project site. The survey began on the southeastern corner of the project site, using east-west transects spaced at 15-meter intervals, whenever possible, and moving south. The entirety of the project area had recently been sowed and cropped, thus transects occurred between the ridges of each linear crop. The project area was relatively flat, and

visibility disturbed soil was at 100 percent. Overview photos were taken at each corner in addition to start/end of the odd numbered transects. Soil composition was made up of dark yellowish brown silty-sand (Munsell 10YR 4/4).

During the survey, Ms. Adame and Mr. Banderas examined all areas of the exposed ground surface for prehistoric artifacts (e.g., fire-affected rock, milling tools, flaked stone tools, tool-making debris, ceramics), soil discoloration and depressions that might indicate the presence of a cultural midden, faunal and human osteological remains, and features indicative of the former presence of structures or buildings (e.g., postholes, standing exterior walls, foundations) or historic debris (e.g., glass, metal, ceramics). No historic or prehistoric cultural resources or raw materials commonly used in the manufacture of tools (e.g., obsidian, Franciscan chert, etc.) were found over the course of either boundary survey. Pedestrian survey photos can be found in Appendix D.

3.2.2 - Buried Site Potential

In addition to the pedestrian survey, the potential for undiscovered cultural resources in the project area was reviewed against geologic and topographic geographic information system data for the general area and information from other nearby projects. The proposed project was evaluated against a set of criteria originally identified by a geoarchaeological overview of the Central Valley that was prepared for the California Department of Transportation (Caltrans) Districts 6 and 9 (Meyer et al. 2011). This study mapped the “archaeological sensitivity,” or potential to support the presence of buried prehistoric archaeological deposits, throughout the Central Valley based on geology and environmental parameters including distance to water and landform slope. The methodology used in the study is applicable to other parts of California and generally concluded that sites consisting of flat, Holocene-era deposits in close proximity to water resources had a moderate to high probability of containing subsurface archaeological deposits when compared to earlier Pleistocene deposits situated on slopes or further away from drainages, lakes, and rivers.

The project site is situated on flat terrain and in close proximity to a canal, which lies 0.2 mile east of the project site. According to the geological map of Smith (1964), the surface of the project site consists entirely of recent Holocene fan deposits. There are no older deposits identified in the vicinity of the project site. Applying the criteria set forth in Meyer et al. (2011), all Holocene-era deposits have the potential to contain archaeological deposits, which increases with the ease of the slope and proximity to water resources. While the project site is not situated near a natural water source, its slope, composition, and proximity to a known prehistoric/historic site would suggest a low to moderate potential for unanticipated buried cultural resources to be impacted by project construction.

Section 4: **SUMMARY AND RECOMMENDATIONS**

4.1 - Summary

In accordance with CEQA Guidelines, FCS assessed the potential for the proposed project to have an adverse impact on known and potential cultural resources at the project site. Results from the SSJVIC indicate one recorded cultural resource is within the 0.5-mile search radius of the project site. Of the four area-specific survey reports on file within the 0.5-mile radius, one report [redacted] partially addresses the project site. Mr. Banderas and Ms. Adame visited the project area three times to conduct pedestrian surveys. During the first two visits on June 7, 2021, and October 11, 2021, Mr. Banderas and Ms. Adame were unable to access the project area. The third visit on May 3, 2023, addressed the 24.76 acres that were added to the east of the original project footprint, in addition to the sections or the project that had previously been inaccessible. All three site visits produced negative results.

The pedestrian surveys and NAHC Sacred Lands File search reported a negative result for Native American cultural resources in the immediate project area. FCS contacted Native American representatives, and, to date, three responses have been received, from Quechan Tribe of the Fort Yuma Reservation, yak tityu yak tiłhini-Northern Chumash, and Xolon Salinan Tribe. Tribal representatives have not provided additional information or comments pertaining to the project site. FCS sent updated project information to the Native American representatives. To date, two responses has been received, one from the yak tityu tityu yak tiłhini Northern Chumash Tribe and one from the Quechan Tribe of the Fort Yuma Reservation. No other responses have been received to date.

4.2 - Recommendations

4.2.1 - Cultural Resources Recommendations

Based on the results of the records searches, archival research, tribal correspondence, and the pedestrian survey, FCS considers the potential for the proposed project to have an adverse effect on historic or prehistoric cultural resources to be low to moderate. The results from the NAHC Sacred Lands File search were negative for the presence of TCRs on the project site, and no prehistoric or historic resources were identified during the pedestrian boundary survey. However, the presence of a recorded prehistoric/historic resource within 0.5 mile of the project boundaries, coupled with the lack of overall site access and soil visibility, increases the probability that undiscovered cultural resources may be encountered and impacted by construction activities.

FCS therefore recommends that an Archaeologist who meets the Secretary of the Interior's Professional Qualification Standards for archaeology be present to inspect the site during the clearing and grubbing and prior to grading and trenching of the site to check for the inadvertent exposure of cultural materials. In the event exposed soils indicate cultural materials may be present, this may be followed by regular or periodic archaeological monitoring as determined by the Archaeologist, but full-time archaeological monitoring is not recommended at this time. The County

standard procedures for the inadvertent discovery of human remains and cultural resources should be followed and are provided below and within Appendix E.

4.3 - Inadvertent Discovery Procedures

4.3.1 - Archaeological Resources

Prior to ground disturbance, or the issuance of grading or building permits, the project applicant shall retain a qualified Lead Archaeologist to carry out all mitigation measures related to archaeological resources.

The approved Archaeological Monitor shall monitor all initial ground-disturbing activities (such as site preparation and initial grading) and excavations on the project site.

If archaeological resources are encountered during implementation of the project, ground-disturbing activities will cease within the immediate vicinity of the find. The Lead Archaeologist shall establish a buffer area around the find and make an evaluation of the find to determine appropriate treatment that may include the development and implementation of a data recovery investigation or preservation in place.

All cultural resources recovered shall be documented on California Department of Parks and Recreation (DPR) Site Forms to be filed with the California Historical Resources Information System (CHRIS). The Archaeologist shall prepare a final report about the find to be filed with the applicant/landowner and the CHRIS. The report shall include documentation and interpretation of resources recovered. Interpretation shall include full evaluation of the eligibility with respect to the NRHP and CRHR and CEQA. The developer, in consultation with the Lead Agency and Lead Archaeologist, shall designate repositories in the event that resources are recovered.

4.3.2 - Historical Resources

Prior to the issuance of grading or building permits, the project applicant shall ensure the following measures are implemented for resources, which are discretionarily considered historical resources for the purposes of this proposed project:

- The construction zone shall be narrowed or otherwise altered to avoid resources. All avoidance areas delineated on the site plan shall be coordinated through the Lead Archaeologist and submitted to the Kern County Planning and Natural Resources Department for approval.
- In coordination with the qualified Archaeologist, avoidance shall be ensured by the delineation of environmentally sensitive areas. Protective fencing shall not identify the protected area as a cultural resource area in order to discourage unauthorized disturbance or collection of artifacts.
- A qualified Archaeological Monitor and Native American Monitor shall monitor all project-related ground-disturbing activities within 150 feet of the environmentally sensitive areas in order to ensure avoidance.

If avoidance is demonstrated to be infeasible, the resource shall be collected and curated at an appropriate curatorial facility. Or, if avoidance is demonstrated to be infeasible, a detailed Cultural Resources Treatment Plan shall be prepared and implemented by a qualified Archaeologist. The Cultural Resources Treatment Plan shall include a research design and a scope of work for data recovery of the portion(s) to be impacted by the proposed project. Treatment may consist of (but would not be limited to) the following:

- A sufficient avoidance buffer to protect the resource until data recovery and/or removal is completed; sample excavation; surface artifact collection; site documentation; and historical research, with the aim to target the recovery of important scientific data contained in the portion of the significant resource to be impacted by the proposed project.

The Cultural Resources Treatment Plan shall also include provisions for analysis of data in a regional context, reporting of results within a timely manner, and curation of artifacts and data at an approved facility. The reports documenting the implementation of the Cultural Resources Treatment Plan shall be submitted to and approved by the Kern County Planning and Natural Resources Director and shall also be submitted to the Southern San Joaquin Valley Information Center at California State University, Bakersfield.

4.3.3 - Found Human Remains

If human remains are uncovered during project construction, the project applicant shall immediately halt work, contact the Kern County Coroner to evaluate the remains, and follow the procedures and protocols set forth in CEQA Guidelines Section 15064.4 (e)(1). Notification shall be made to the Kern County Planning and Natural Resources Department within 12 hours of contacting the Coroner. If the County Coroner determines the remains are Native American, the Coroner shall contact the NAHC, in accordance with Health and Safety Code Section 7050.5, subdivision (c), and Public Resources Code 5097.98 (as amended by Assembly Bill [AB] 2641). The NAHC shall designate a Most Likely Descendant (MLD) for the remains per Public Resources Code 5097.98. Per Public Resources Code 5097.98, the landowner shall ensure, according to generally accepted cultural or archaeological standards or practices, that the immediate vicinity where the Native American human remains are located is not damaged or further disturbed.

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Appendix A:
Personnel Qualifications

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FIRSTCARBON SOLUTIONS™

STEFANIE E. GRIFFIN, MA—STAFF ARCHAEOLOGIST

OVERVIEW

- More than 13 years of experience

Education

- Master of Arts, Interdisciplinary Studies in Prehistoric Archaeology, California State University, Stanislaus, CA
- Bachelor of Arts, Anthropology, Concentration in Prehistoric Archaeology, California State University, Stanislaus, CA

Programs

- ESRI Arc View and Arc Map

Professional Affiliations

- President, National Board of Directors, Upsilon Kappa Delta Multicultural Sorority, Inc., 2009–2015

Stefanie E. Griffin, MA, has more than 13 years of experience in anthropology and archaeology, which she gained from laboratory and field experience. She has worked with private companies and public agencies throughout California and this strengthened her knowledge of CEQA and NEPA policies. She has excellent writing, research, and organizational skills which have aided her when assigning primary and trinomial numbers for archaeological projects for counties in Central California and the development and application of cataloging systems.

RELATED EXPERIENCE AND CLIENT SUMMARY

Ritz-Carlton Napa Valley Resort Hotel Napa Data Recovery of CA-NAP-928, Napa, CA

FCS is currently assisting the US Army Corps of Engineers (USACE) with the data recovery of CA-NAP-928. FCS's Dana DePietro, PhD, RPA, as Principal Investigator, is implementing the Memorandum of Agreement (MOA) and Historic Properties Treatment Plan (HPTP) for the Ritz-Carlton Napa Valley Resort Project, which was determined to have an adverse effect on the prehistoric site CA-NAP-928. The project proponent is a private developer whose application for the hotel site (which included a wetland) prompted Section 106 review by the USACE, San Francisco District. The project would result in the complete displacement of CA-NAP-928, which was determined eligible for listing in the National Register of Historic Places under criterion D for its data potential. To address this adverse effect, the USACE and the California State Historic Preservation Office executed a MOA calling for the implementation of the HPTP. Treatment includes data recovery of the large, complex, multi-period site, involving the analysis of macrobotanical remains, lithics, fire-affected rock, obsidian hydration analysis, C-14 dating, and the treatment and recovery of faunal and human osteological remains. FCS is also working closely with Scott Gabaldon, the Chairperson of the Mishewal Wappo Tribe of Alexander Valley, who has been designated Most Likely Descendant by the Native American Heritage Commission. Mr. Gabaldon has assigned one Native American monitor to be present at the site during all ground-disturbing activities. Ms. Griffin serves as Laboratory Director and Coordinator, developing and applying a cataloging system for all

features, artifacts, and ecofacts associated with field and laboratory processing. She also facilitates data sets for the initial write-ups for phases two to five of excavation and budgeting.

Basin "EN" Construction Project Cultural Resources for the Fresno Metropolitan Flood Control District, City of Fresno, CA

The Fresno Metropolitan Flood Control District is proposing to acquire and construct a stormwater basin adjacent to Garfield and Gettysburg Avenues in Fresno, California. The project site is 16.80 acres and involves phased excavation to 25 feet below ground surface for the purposes of capturing and recharging stormwater. FCS is providing biological and cultural resource services to evaluate the potential biological effects of the project, and whether any cultural resources are present at the site for the purposes of complying with CEQA. Ms. Griffin will assist the District by providing assessments for cultural resources.

7190 Trenton/Healdsburg Road Project Biological and Cultural Resources Assessments for Green Qi, Sonoma County, CA

Ms. Griffin supported cultural resource assessment efforts for the 7190 Trenton/Healdsburg Road Project. The proposed project includes the renovation and expansion of an existing barn and cultivation of approximately 1 acre. The exact locations of these facilities have not yet been determined. As such, a comprehensive study was conducted.

Elk Grove Mixed-Use Development Air Quality and Cultural Studies for The Planning Associates Group, City of Sacramento, CA

Ms. Griffin provided cultural resource assessment services for a 2.57-acre site consisting of undeveloped land located in Sacramento, California. The site is bounded by a commercial development to the north, multifamily residential development to the south, and West Stockton Boulevard to the east. The project applicant is proposing to develop a four-story, 92-unit building with 5,200 square feet of commercial space, an 800-square-foot leasing office, and a 3,560-square-foot clubhouse.

Field Technician III, Stockton East Water District Project, InContext, City of Stockton, CA

Ms. Griffin performed Phase I initial shovel testing for municipal infrastructure development.

Field Technician, Borello Excavation Project, LSA Associates, Inc., City of Morgan Hill, CA

Ms. Griffin assisted with the rapid recovery excavation of human remains in compliance with Section 106.

Field Technician/Monitor, Southern California Edison 16-1002 Hazardous Tree Removal Program and Drought-Related Hazardous Tree Program, Environmental Intelligence, LLC, Sequoia National Forest and Sierra National Forest, CA

Ms. Griffin was first credential selection for the archaeological division of the company to lead the tree removal program in Sequoia and Sierra National Forests.

STEFANIE E. GRIFFIN, MA—STAFF ARCHAEOLOGIST

Field Technician, #2159 Sunpower SCL-68, Far Western Anthropological Research Group, Inc., City of San Jose, CA

Ms. Griffin assisted with the excavation project for a previously recorded prehistoric site.

Field Technician, Crowder Canyon Data Recovery, Cogstone Resource Management, Inc. and Applied EarthWorks, Inc., Phelan, CA

Ms. Griffin performed excavation and data recovery of previously recorded prehistoric sites that were to be demolished for the California Department of Transportation expansion highway project.

Field Technician A, BUT 1123 Feather River West Levee Project, Far Western Anthropological Research Group, Inc., Biggs, CA

Ms. Griffin performed excavation, data recovery, laboratory analysis, and artifact processing for the USACE and Enterprise Tribal Group.

Field Technician, Forebay Dam Project 21250.01, ASM Affiliates, Inc., Pollock Pines, CA

Ms. Griffin tested and evaluated a 20th century work camp site in El Dorado County, located within the area of potential effects of the El Dorado Forebay Dam Modification Project.

Field Technician A, Feather River West Levee Project, Far Western Anthropological Research Group, Inc., Gridley, CA

Ms. Griffin reviewed residual materials, sent from the field to the laboratory, to identify all cultural artifacts; inventoried field unit artifacts in preparation for entry into the access database; performed records management; and organized and prepared artifacts to be transported and analyzed.

Field Technician B, #1944 Moke 3700-Acre Survey, Far Western Anthropological Research Group, Inc., Pioneer, CA

For Bear River Lake Resorts, Inc.'s project, Ms. Griffin conducted an archaeological survey for the US Forest Service.

Field Technician, Middle Creek Stewardship Project 23190, ASM Affiliates, Inc., Susanville, CA

Ms. Griffin assisted with Class II and Class III pedestrian surveys of 6,491 acres for the Bureau of Land Management project.

Field Technician, #1868 Mendocino Headlands Project, Far Western Anthropological Research Group, Inc., Mendocino, CA

Ms. Griffin performed exploratory excavation of shovel test units of prehistoric and historic sites.

Field Technician, #1873 Pacific Gas & Electric L107 Fremont Test Project, Far Western Anthropological Research Group, Inc., Fremont, CA

Ms. Griffin assisted in the excavation of a prehistoric site.

STEFANIE E. GRIFFIN, MA—STAFF ARCHAEOLOGIST

Field Technician A, Feather River West Levee Project, Far Western Anthropological Research Group, Inc., Live Oak, CA

Ms. Griffin participated in monitoring backhoe excavation for construction purposes, unit excavation of prehistoric and historic artifacts, review of residual materials sent from the field to the laboratory to identify all cultural artifacts, preparation of inventory of field unit artifacts for entry into the access database, records management, and organization and preparation of artifacts to be transported for analysis.

Field Technician, Sand Pass Project, Enviroscientists, Inc., Winnemucca, NV

Ms. Griffin performed a 650-acre survey of previously recorded historic sites outside Winnemucca, Nevada, particularly on a private land in Silver State Valley.

Field Technician, NAS Base Fallon Project, ASM Affiliates, Inc., Fallon, NV

Ms. Griffin performed testing and data recovery on training ranges in 37 sites, which ranged from the Paleoindian to Late Archaic eras and included historic materials.

Field Technician, Summit Exploration Survey, ASM Affiliates, Inc., Wells, NV

Ms. Griffin participated in a notice-level clearance survey of five drill pads and associated access roads of a Class III inventory of 750 acres.

Jordan Archaeological Project of La Sierra University, Riverside, Jordan

Ms. Griffin participated in the excavation field school's program, which involves one of three archaeological sites currently being excavated by the Madaba Plains Project in Jordan.

Proyecto Arqueológico Regional El Paraiso, Honduras

Ms. Griffin participated in this Honduras archaeological project, which entailed excavations at several Late Classic Period (425–825 AD) sites. She also conducted raw mineral surveys of El Paraiso Valley.

Anthropological Studies Center, Sonoma State University, City of Rohnert Park, CA

As Laboratory Assistant II, Ms. Griffin processed artifacts through cleaning, sorting and inventory. She also performed historic artifact reconstruction and collection management.

Central California Information Center, California Historical Resources Information System, California State University, Stanislaus, City of Turlock, CA

As Student Intern and Student Assistant, Ms. Griffin participated in the operations of the Central California Information Center by overseeing seven counties in Central Valley. This role entailed data processing of reports, records, and hard-copy and electronic database entries. She also directed Geographic Information System data input, such as mapping and scanning of documents, and performed quality control. Ms. Griffin conducted archaeological investigations, specifically field surveys, excavations, and laboratory analysis, for California Department of Forestry and Fire Protection (CAL FIRE) projects.

STEFANIE E. GRIFFIN, MA—STAFF ARCHAEOLOGIST

California Department of Transportation District 10, City of Stockton, CA

As Student Intern for the Environmental Planner-Archaeologist, Ms. Griffin assisted in the completion of projects and, to ensure efficiency of day-to-day tasks, filed and maintained the inventory of tracking systems of project materials. She assisted the Archaeologist with writing letters to Native American tribe consultants/monitors and participated in archaeological field surveys.

Previous Administrative Experience

Central California Information Center, City of Turlock, CA

Ms. Griffin served as Assistant Administrator where she managed the processing of archaeological reports for cultural resource management firms and corresponded with the California State Historic Preservation Office to comply with Section 106 of the Historical Preservation Act (HPA). In her previous role as Assistant Lab Administrator, she processed archaeological material for CAL FIRE to comply with Section 106 of the HPA.

California Department of Transportation District 10

Ms. Griffin was an Office Assistant to the Environmental Planner for Archaeology where she wrote correspondences to the Tribal Historical Preservation Office.

Publications

E Griffin, Stefanie (2013) “Building the Maya World: Raw Materials, Trade Routes, and Procurement Strategies in the El Paraiso Valley, Copan, Honduras”, California State University Stanislaus Press.

FIRSTCARBON SOLUTIONS™

NATALIE ADAME—ARCHAEOLOGICAL MONITOR

OVERVIEW

- More than 2 years of experience

Education

- Bachelor of Arts, Biological Anthropology, Minor in Geology, California State University, East Bay, Hayward, CA, 2016
- Associate of Arts, Geology, Mt. San Antonio College, Walnut, CA, 2011

Skill

- Esri Aeronautical Reconnaissance Coverage Geographic Information System (ArcGIS)

Natalie Adame has more than 2 years of experience in archaeology, which she gained from extensive fieldwork and museum experience. Ms. Adame has established excellent research skills exemplified by her ability to prepare comprehensive reports and presentations. Her experience includes performing land use analyses and preparing Initial Studies and EIRs for various development projects. As an Archaeological Monitor/Field Technician, Ms. Adame implements Worker Environmental Awareness Programs (WEAP) 'tailgate' training sessions and coordinates with construction staff and Native American Monitors, construction monitoring, and the salvage and recordation of archaeological resources.

RELATED EXPERIENCE AND CLIENT SUMMARY

Biological, Archaeological, and Paleontological Monitoring and Reporting Services, Los Angeles Regional Interoperable Communications System, Los Angeles County, CA

FCS is providing monitoring and reporting services during the construction of more than 150 land mobile radio (LMR) facilities at sites located primarily in Los Angeles County. The LMR sites contain the infrastructure and equipment necessary to provide voice communications coverage throughout the County for emergency responders. These locations are widely dispersed across the County in both urban (intensively developed) and rural (less developed) settings and include coastal locations, sites in downtown Los Angeles, remote mountain peaks across the County, and the northern high desert. FCS is conducting the biological, archaeological, and paleontological pre-construction and construction monitoring and reporting services in accordance with the Construction Management Requirements outlined in the NEPA Environmental Assessment that FCS prepared for the project. Ms. Adame is a Field Archaeological Monitor on the project.

Barton Road Logistics Facility Project EIR, Technical Studies, and Peer Review, City of Colton, CA

FCS is providing CEQA documentation and peer review services for the Barton Road Logistics Facility Project in the City of Colton, in San Bernardino County. The proposed project includes the demolition of four industrial buildings, an office building, and parking lot. The proposed project would construct two state-of-the-art speculative concrete tilt-up industrial warehouse logistics facilities with a total square footage of 960,040 square feet. The project will develop Best-in-Class industrial facilities in the City of Colton that are designed to meet contemporary industry standards, can easily accommodate a wide

variety of warehouse and distribution uses, and are economically competitive with similar warehouse facilities in the local Inland Empire marketplace. FCS is preparing an EIR with supporting stand-alone Air Quality and Greenhouse Gas (GHG) Emissions Analysis with Health Risk Assessment, Biological Resources Assessment, Phase I Cultural Resources Assessment (CRA), Noise Impact Analysis, and Traffic Impact Analysis. Our team will also peer review the Geotechnical Report. The Phase I Cultural Resources Assessment will provide an evaluation and recommendations regarding potential construction related impacts to cultural resources. Ms. Adame is a Field Archaeological Monitor on the project.

Library/Learning Resource Center Building Project Biological and Cultural Construction Monitoring Services for the Solano Community College District, Fairfield, CA

FCS prepared the IS/MND and provided the subsequent biological and cultural construction monitoring services for the construction of a new 59,252-gross-square-foot, 2-story Library/Learning Resources Center building on the Fairfield Campus of the Solano Community College Campus. The building would be constructed on an open quad in the center of campus, replacing an open lawn. FCS conducted AB 52 consultation in coordination with the District and tribal representatives from the Yocha Dehe Wintun Nation to address concerns about tribal cultural resources in the immediate vicinity of the site. In additional to preparing a full PI-CRA, FCS drafted mitigation measures in coordination with the Tribe and District to effectively allow the project to proceed while protecting the Tribal Cultural resources in question. The District approved the project in May 2016, with the approval of the tribe and all parties involved. FCS will provide coordination with Tribal representatives from the Yocha Dehe Wintun Nation, as well as a "tailgate" sensitivity training session for construction personnel. Ms. Adame is a Field Archaeological Monitor on the project.

Prior Work Experience

Archaeologist, Material Culture Consulting, City of Pomona, CA

As an archaeologist, Ms. Adame performed excavations, recorded prehistoric and historic artifacts, and catalogued data using ArcGIS. She conducted Phase I, II, and III Environmental Site Assessments (ESAs) and drafted EIRs. Ms. Adame also prepared Department of Parks and Recreation (DPR) forms, searched records, and monitored projects in the State and county.

Field Archaeologist, ICF International, City of Los Angeles, CA

As a field archaeologist, Ms. Adame conducted environment surveys, performed excavations, and catalogued prehistoric and historic artifacts using ArcGIS. She prepared Federal Environment Management environmental reviews, DPR forms, and ESAs. Ms. Adame also worked with different transportation agencies, including the Orange County Transportation Authority, OC 405 Partners, LA Metro, and the California Department of Transportation.

Field Archaeologist, Dudek , City of Pasadena, CA

As a field archaeologist, Ms. Adame performed architectural and cultural historical assessments and conducted surveys for various projects to evaluate conflicts during construction period. Her responsibilities also include evaluating historic resource significance, cataloguing exhibit pieces, and gathering daily records of environmental compliances.

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NATALIE ADAME—ARCHAEOLOGICAL MONITOR

Grants and Proposal Writer – Applied Anthropology Coursework, California State University, East Bay, City of Hayward, CA

As a Grants and Proposal Writer, Ms. Adame analyzed organizational cultures, conducted needs assessment, and prepared social impact reports. Part of her task was to identify the appropriate research disciplines necessary for specific jobs.

Student Museum Docent, California State University, East Bay, City of Hayward, CA

Ms. Adame served as a docent at the university's C.E. Smith Museum of Anthropology. Her responsibilities include preparing materials for exhibits, researching and writing about artifacts, and mounting display materials in the museum.

Appendix B: Southern San Joaquin Valley Information Center Records Search Results

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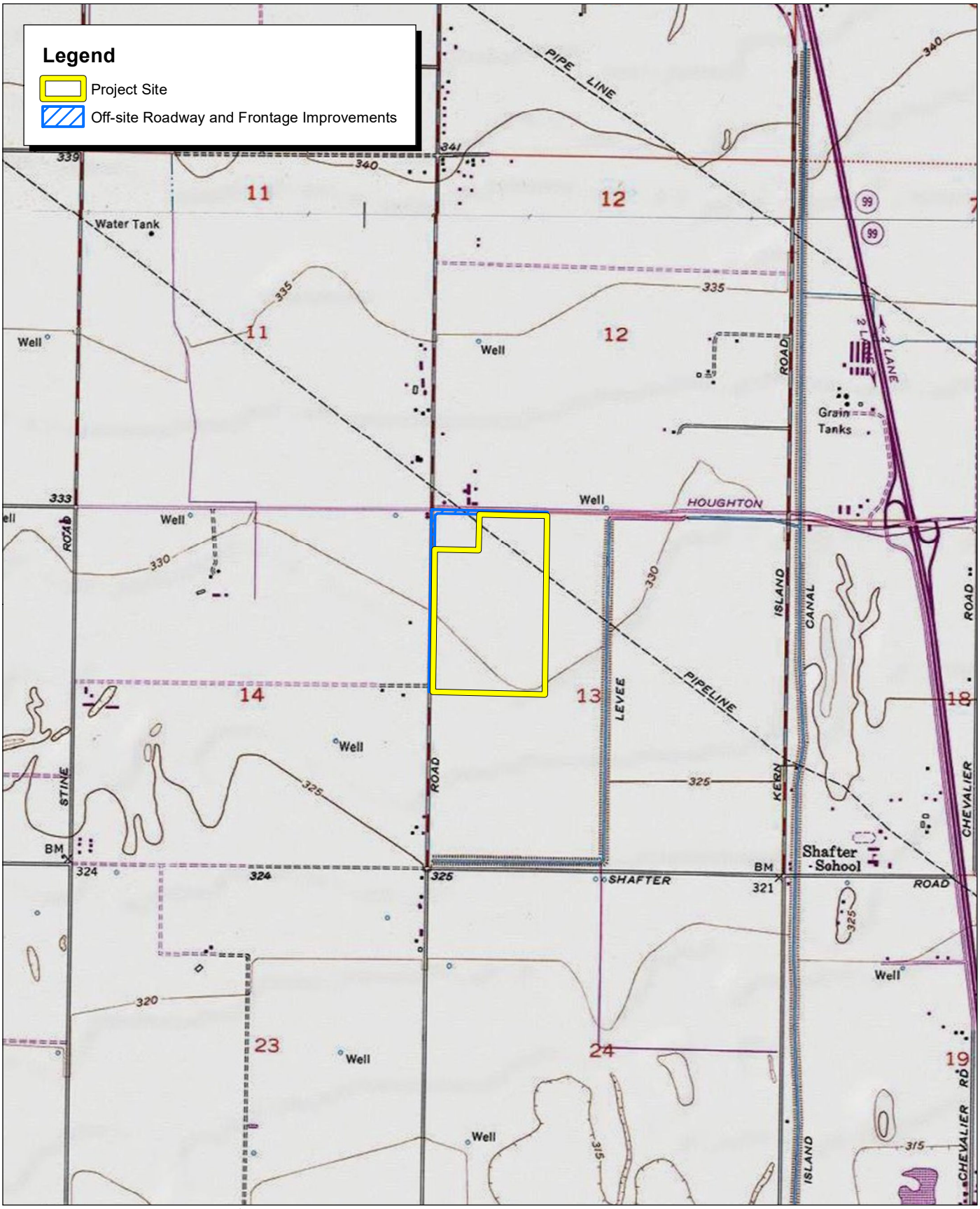

Source: USGS Conner 7.5' Quadrangle / T31S,R27E,sec11,12,13,14.

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Exhibit 2
Local Vicinity Map, Topographic Base

Resource List

SSJVIC Record Search 21-180

Primary No.	Trinomial	Other IDs	Type	Age	Attribute codes	Recorded by	Reports
P-15-012209	CA-KER-006913/H	Resource Name - Baldwin Ranch Site	Site	Prehistoric, Historic	AH02; AH04; AP02; AP03	2005 (S. Flint, Applied EarthWorks, Inc.)	KE-03585, KE-03726

Report List

SSJVIC Record Search 21-180

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
KE-00254	BLM - Permit No. CA-881600; NADB-R - 1140843; Submitter - ARS Report #609	1990	Clay, Vickie L. and Hause, Larry L.	An Archaeological Inventory of the Proposed PG&E Pipeline Corridor Segments: Newberry Springs to Hinkley 29.6 MI by 200 FT (717.6 AC), Kern County, California	Archaeological Research Services, Inc.	
KE-01067		1979	Schiffman, Robert	Archaeological Investigation of the 1979 Systems Improvement Project for the Kern Delta Water District	Individual Consultant (Bakersfield)	
KE-03585		2007	Nettles, Wendy M. and Lloyd, Jay B.	Archaeological Investigations at CA-KER-6913/H for the Kern Delta Water District Water Banking and In-Lieu Water Supply Project, Kern County, California	Applied EarthWorks, Inc.	15-012209
KE-03726		2005	Flint, Sandra S., McDougall, Dennis P., Jernigan, Kathleen, and Anderson, Lisa	Cultural Resources Surveys for the Kern Delta Water District Water Banking and In-Lieu Water Supply Project, Kern County, California	Applied EarthWorks, Inc.	15-012209

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Appendix C:
Native American Heritage Commission and Tribal Correspondence

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May 26, 2023

Big Pine Paiute Tribe of Owens Valley
Danelle Gutierrez, THPO
P.O. Box 700
Big Pine, CA 93513

Subject: Proposed Ware Malcomb Industrial Project

Dear Danelle Gutierrez:

FirstCarbon Solutions (FCS) is preparing a Cultural Resources Assessment for the proposed Ware Malcomb Industrial Project located in Kern County. As part of the environmental review process, we are conducting a cultural analysis.

The project applicant, Seefried Industrial Properties, Inc., proposes to develop a 653,442-square-foot single warehouse and distribution facility and related improvements. The proposed facility has a footprint of approximately 629,186 square feet (including approximately 44,424 square feet of office space) that would primarily facilitate material handling equipment and warehouse uses. The remaining square footage is made up of a 24,256-square-foot mezzanine, which would contain material handling equipment conveyors with occasional maintenance and no storage. The proposed project would also include two guardhouses and one pumphouse

A Records Search map with a 0.5 mile buffer around the site is enclosed for your reference.

As part of the cultural resources assessment, FCS conducted a Sacred Lands File (SLF) search and California Historical Resource Information System (CHRIS). The results of the SLF records search was negative. The CHRIS search showed that there are no recorded resources within the project site. However, 4 cultural resources were recorded within a 0.5 mile radius of the project site. The CHRIS search showed there there are 15 reports recorded within a 0.5 mile radius of the project site, one of which intersects the project site. The Native American Heritage Commission (NAHC) suggested you might be able to provide further information. If you have any additional information regarding potential historic or cultural resources in proximity or relation to the proposed project area, we would greatly appreciate your input.

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Sincerely,

Stefanie Estelle Griffin, MA, Archaeologist
FirstCarbon Solutions
967 Kendall Drive # A-537
San Bernardino, CA 92407

Enc: Attachment A: Records Search Map

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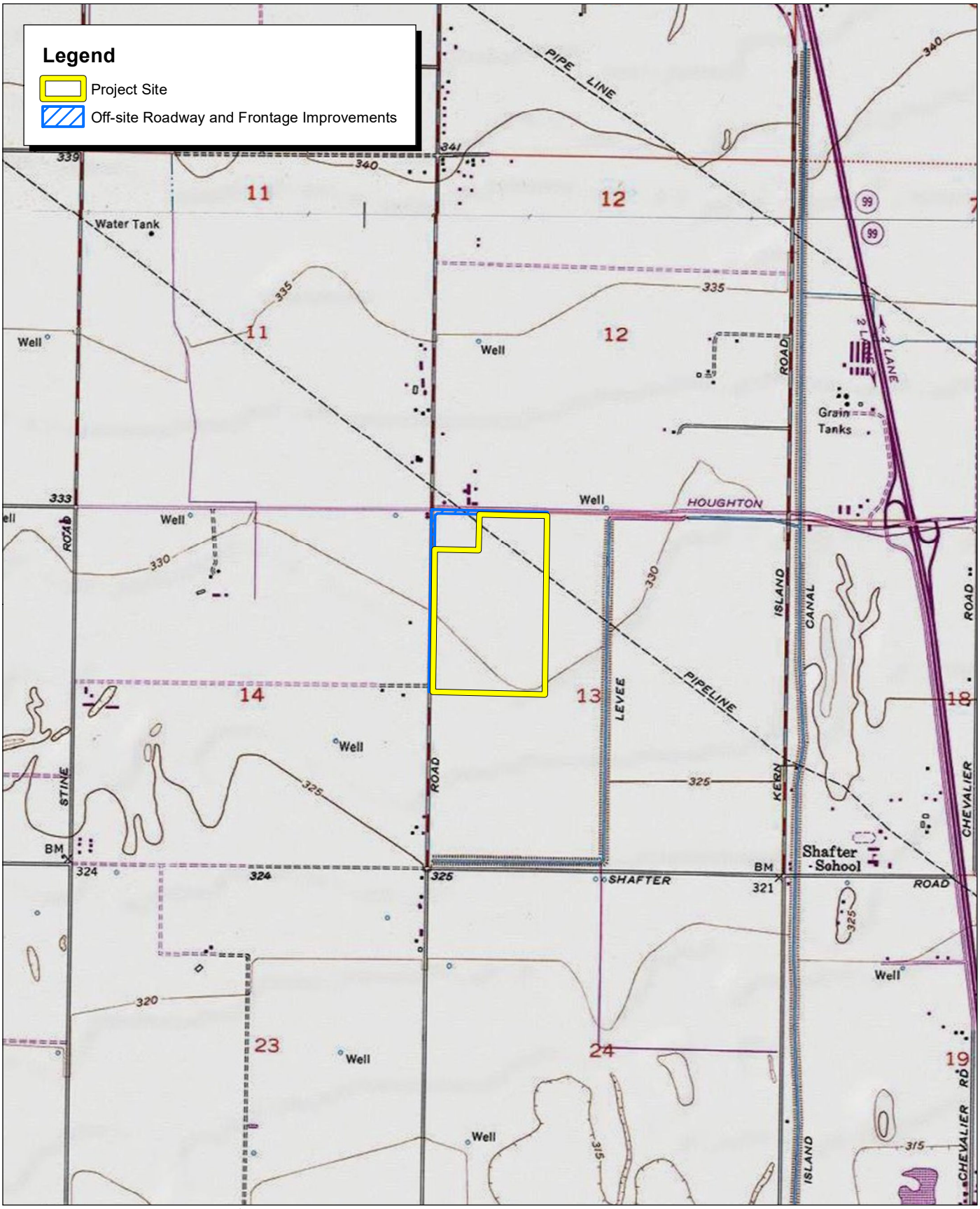
FCS INTERNATIONAL, INC.

Attachment A:
Records Search Map



Source: USGS Conner 7.5' Quadrangle / T31S,R27E,sec11,12,13,14.

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Exhibit 2
Local Vicinity Map, Topographic Base

May 26, 2023

Big Pine Paiute Tribe of Owens Valley
Sally Manning, Environmental Director
P.O. Box 700
Big Pine, CA 93513

Subject: Proposed Ware Malcomb Industrial Project

Dear Sally Manning:

FirstCarbon Solutions (FCS) is preparing a Cultural Resources Assessment for the proposed Ware Malcomb Industrial Project located in Kern County. As part of the environmental review process, we are conducting a cultural analysis.

The project applicant, Seefried Industrial Properties, Inc., proposes to develop a 653,442-square-foot single warehouse and distribution facility and related improvements. The proposed facility has a footprint of approximately 629,186 square feet (including approximately 44,424 square feet of office space) that would primarily facilitate material handling equipment and warehouse uses. The remaining square footage is made up of a 24,256-square-foot mezzanine, which would contain material handling equipment conveyors with occasional maintenance and no storage. The proposed project would also include two guardhouses and one pumphouse

A Records Search map with a 0.5 mile buffer around the site is enclosed for your reference.

As part of the cultural resources assessment, FCS conducted a Sacred Lands File (SLF) search and California Historical Resource Information System (CHRIS). The results of the SLF records search was negative. The CHRIS search showed that there are no recorded resources within the project site. However, 4 cultural resources were recorded within a 0.5 mile radius of the project site. The CHRIS search showed there there are 15 reports recorded within a 0.5 mile radius of the project site, one of which intersects the project site. The Native American Heritage Commission (NAHC) suggested you might be able to provide further information. If you have any additional information regarding potential historic or cultural resources in proximity or relation to the proposed project area, we would greatly appreciate your input.

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Sincerely,

Stefanie Estelle Griffin, MA, Archaeologist
FirstCarbon Solutions
967 Kendall Drive # A-537
San Bernardino, CA 92407

Enc: Attachment A: Records Search Map

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Attachment A:
Records Search Map

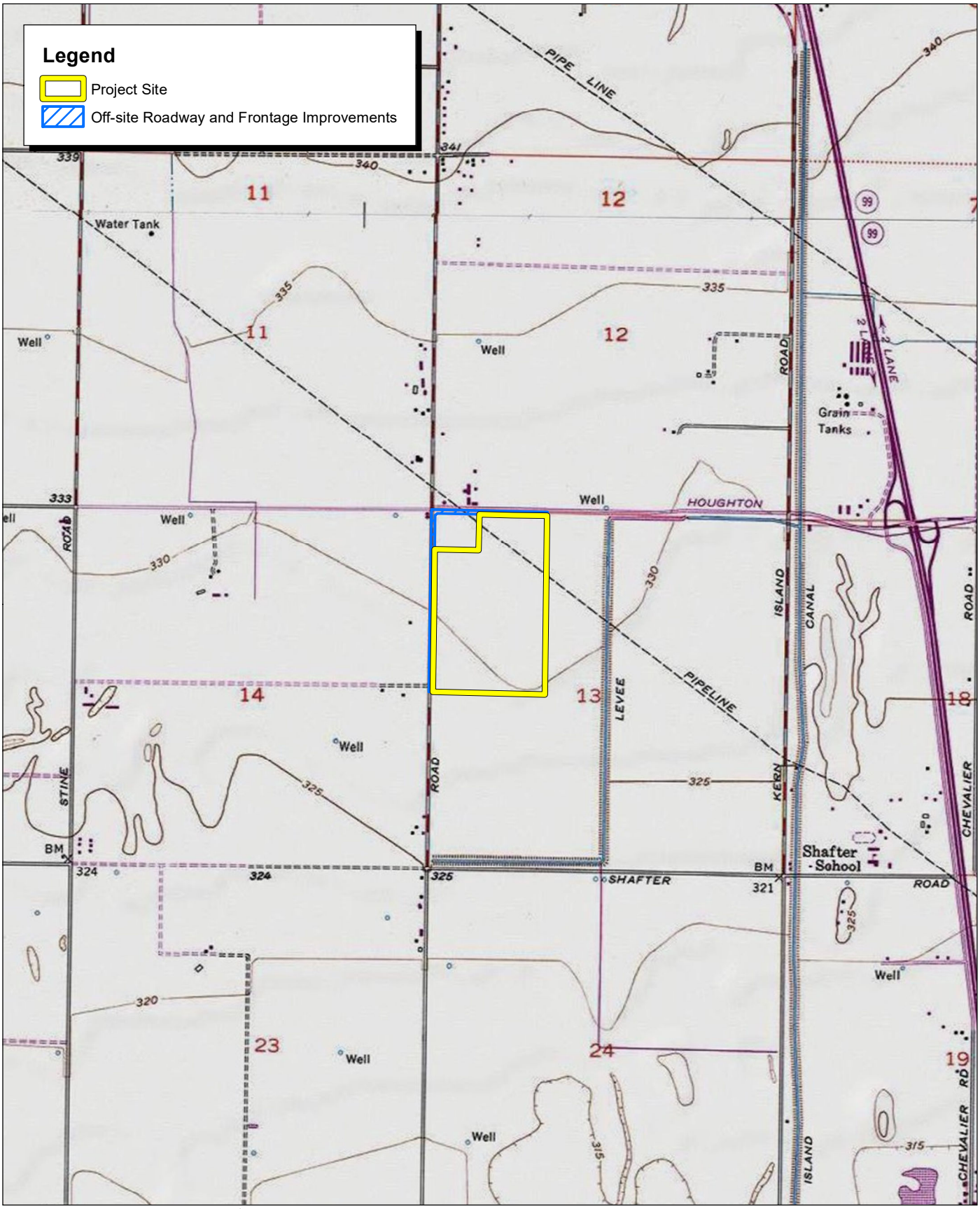

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Exhibit 2
Local Vicinity Map, Topographic Base

May 26, 2023

Big Pine Paiute Tribe of Owens Valley
James Rambeau, Sr., Chairperson
P.O. Box 700
Big Pine, CA 93513

Subject: Proposed Ware Malcomb Industrial Project

Dear Sr. Chairperson Rambeau

FirstCarbon Solutions (FCS) is preparing a Cultural Resources Assessment for the proposed Ware Malcomb Industrial Project located in Kern County. As part of the environmental review process, we are conducting a cultural analysis.

The project applicant, Seefried Industrial Properties, Inc., proposes to develop a 653,442-square-foot single warehouse and distribution facility and related improvements. The proposed facility has a footprint of approximately 629,186 square feet (including approximately 44,424 square feet of office space) that would primarily facilitate material handling equipment and warehouse uses. The remaining square footage is made up of a 24,256-square-foot mezzanine, which would contain material handling equipment conveyors with occasional maintenance and no storage. The proposed project would also include two guardhouses and one pumphouse

A Records Search map with a 0.5 mile buffer around the site is enclosed for your reference.

As part of the cultural resources assessment, FCS conducted a Sacred Lands File (SLF) search and California Historical Resource Information System (CHRIS). The results of the SLF records search was negative. The CHRIS search showed that there are no recorded resources within the project site. However, 4 cultural resources were recorded within a 0.5 mile radius of the project site. The CHRIS search showed there there are 15 reports recorded within a 0.5 mile radius of the project site, one of which intersects the project site. The Native American Heritage Commission (NAHC) suggested you might be able to provide further information. If you have any additional information regarding potential historic or cultural resources in proximity or relation to the proposed project area, we would greatly appreciate your input.

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Sincerely,

Stefanie Estelle Griffin, MA, Archaeologist
FirstCarbon Solutions
967 Kendall Drive # A-537
San Bernardino, CA 92407

Enc: Attachment A: Records Search Map

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Attachment A:
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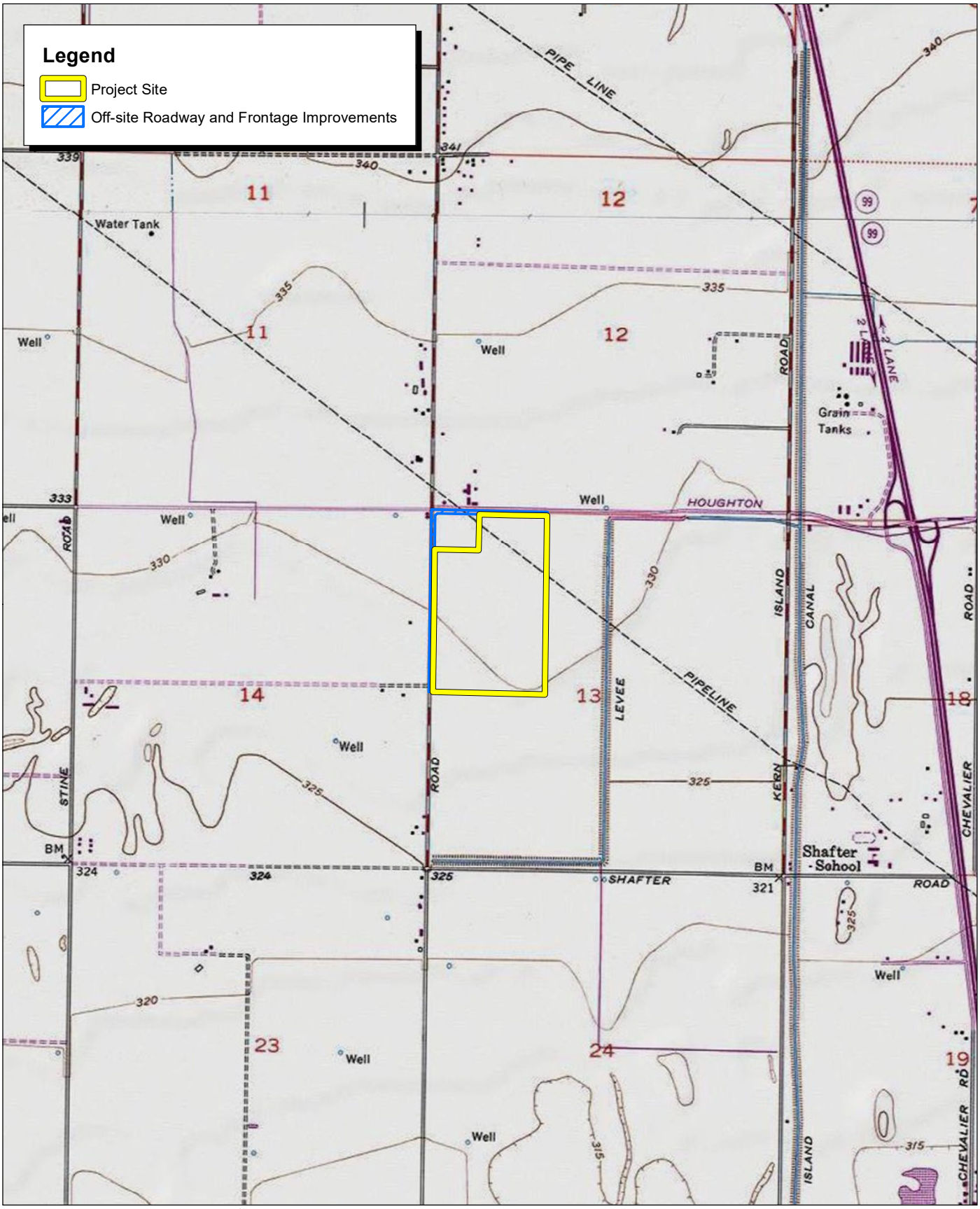

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Exhibit 2
Local Vicinity Map, Topographic Base

May 26, 2023

Big Pine Paiute Tribe of the Owens Valley
Danelle Gutierrez THPO
P.O. Box 700
Big Pine, CA 93513

Subject: Proposed Ware Malcomb Industrial Project

Dear Danelle Gutierrez:

FirstCarbon Solutions (FCS) is preparing a Cultural Resources Assessment for the proposed Ware Malcomb Industrial Project located in Kern County. As part of the environmental review process, we are conducting a cultural analysis.

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FirstCarbon Solutions
967 Kendall Drive # A-537
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Enc: Attachment A: Records Search Map

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Attachment A:
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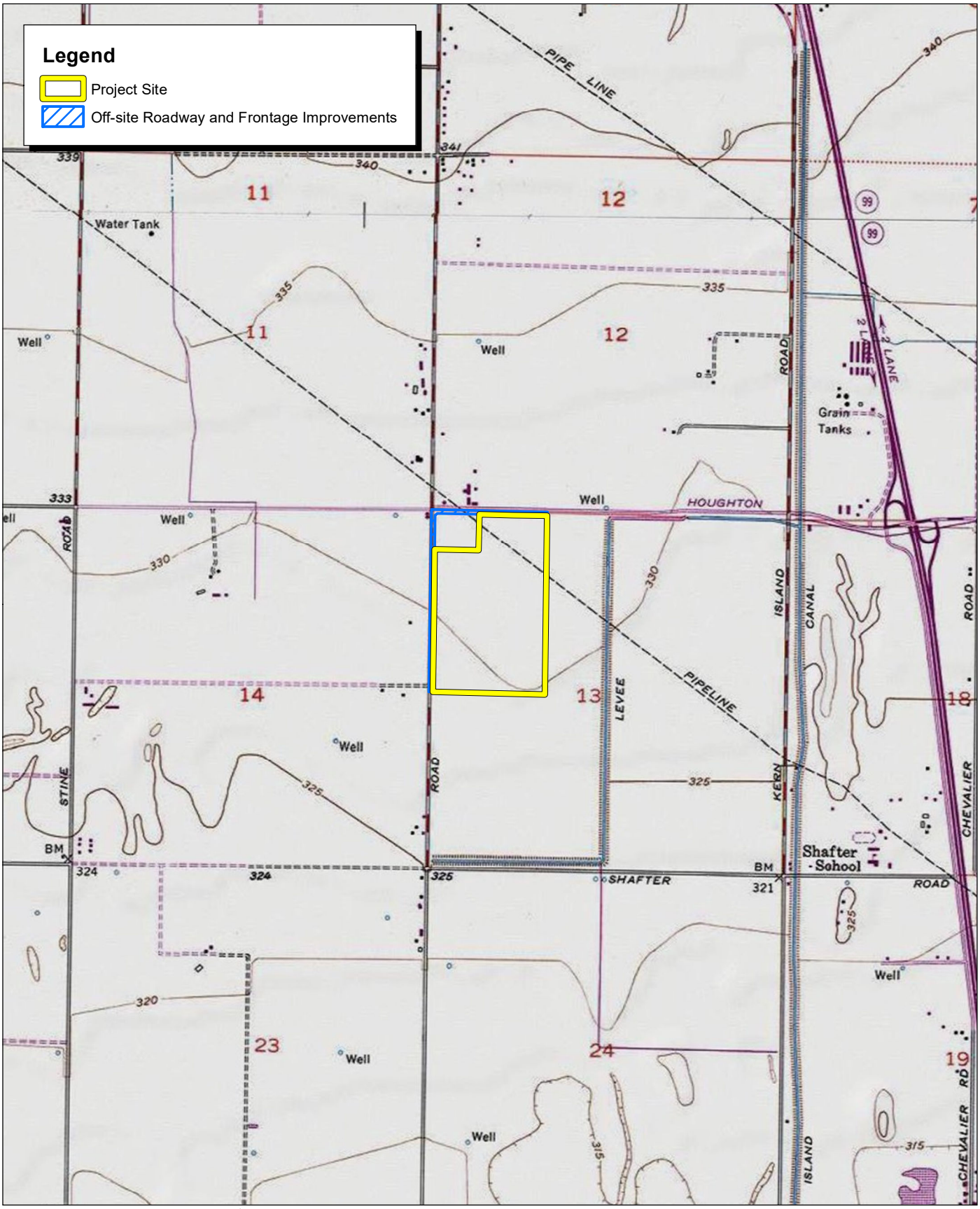

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Exhibit 2
Local Vicinity Map, Topographic Base

May 26, 2023

Chumash Council of Bakersfield
Julio Quair, Chairperson
729 Texas Street
Bakersfield, CA 93307

Subject: Proposed Ware Malcomb Industrial Project

Dear Chairperson Julio Quair:

FirstCarbon Solutions (FCS) is preparing a Cultural Resources Assessment for the proposed Ware Malcomb Industrial Project located in Kern County. As part of the environmental review process, we are conducting a cultural analysis.

The project applicant, Seefried Industrial Properties, Inc., proposes to develop a 653,442-square-foot single warehouse and distribution facility and related improvements. The proposed facility has a footprint of approximately 629,186 square feet (including approximately 44,424 square feet of office space) that would primarily facilitate material handling equipment and warehouse uses. The remaining square footage is made up of a 24,256-square-foot mezzanine, which would contain material handling equipment conveyors with occasional maintenance and no storage. The proposed project would also include two guardhouses and one pumphouse

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Stefanie Estelle Griffin, MA, Archaeologist
FirstCarbon Solutions
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San Bernardino, CA 92407

Enc: Attachment A: Records Search Map

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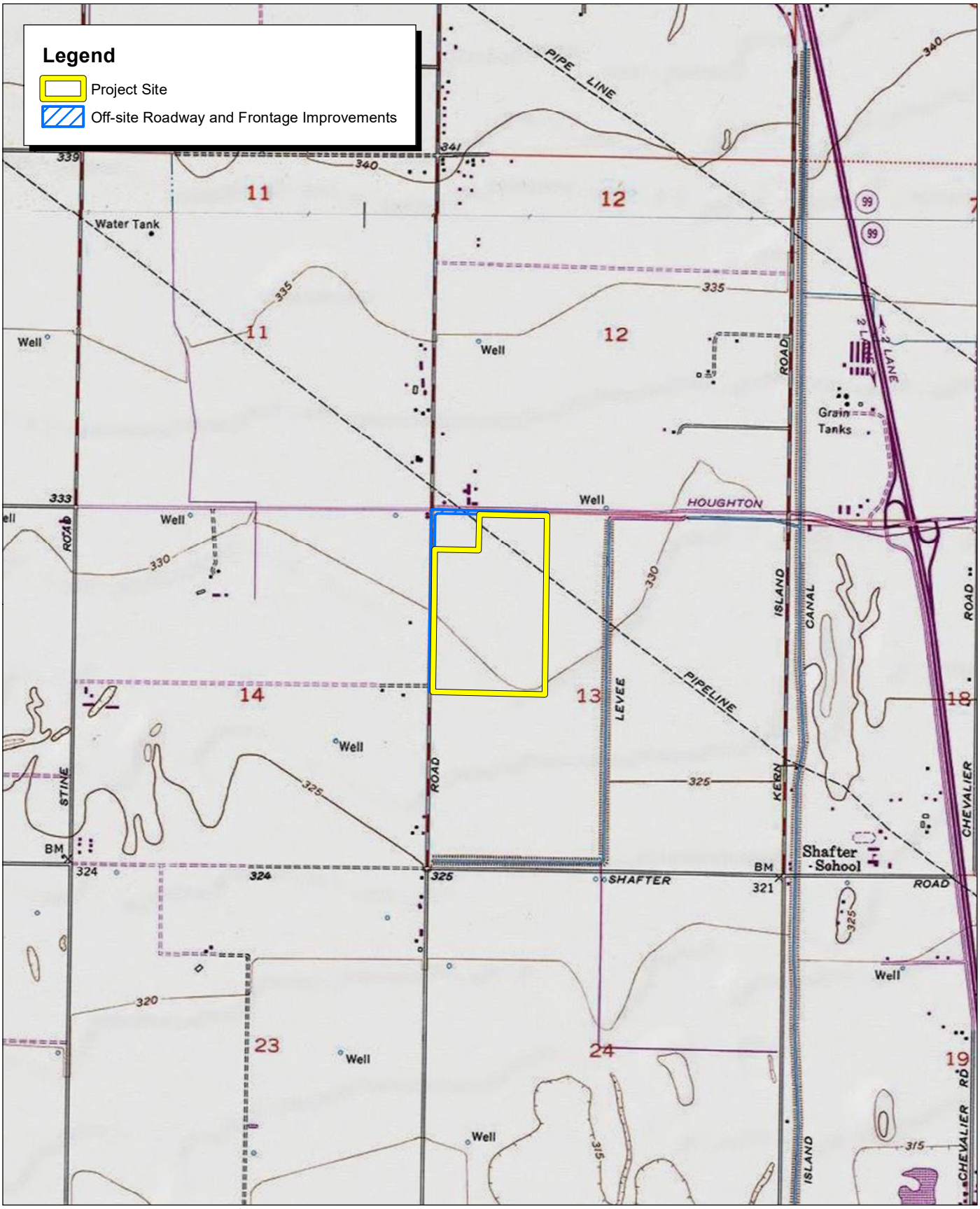

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Exhibit 2
Local Vicinity Map, Topographic Base

May 26, 2023

Coastal Band of the Chumash Nation
Mariza Sullivan, Chairperson
P. O. Box 4464
Santa Barbara, CA 93140

Subject: Proposed Ware Malcomb Industrial Project

Dear Chairperson Sullivan:

FirstCarbon Solutions (FCS) is preparing a Cultural Resources Assessment for the proposed Ware Malcomb Industrial Project located in Kern County. As part of the environmental review process, we are conducting a cultural analysis.

The project applicant, Seefried Industrial Properties, Inc., proposes to develop a 653,442-square-foot single warehouse and distribution facility and related improvements. The proposed facility has a footprint of approximately 629,186 square feet (including approximately 44,424 square feet of office space) that would primarily facilitate material handling equipment and warehouse uses. The remaining square footage is made up of a 24,256-square-foot mezzanine, which would contain material handling equipment conveyors with occasional maintenance and no storage. The proposed project would also include two guardhouses and one pumphouse

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Sincerely,

Stefanie Estelle Griffin, MA, Archaeologist
FirstCarbon Solutions
967 Kendall Drive # A-537
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Enc: Attachment A: Records Search Map

FIRSTCARBON
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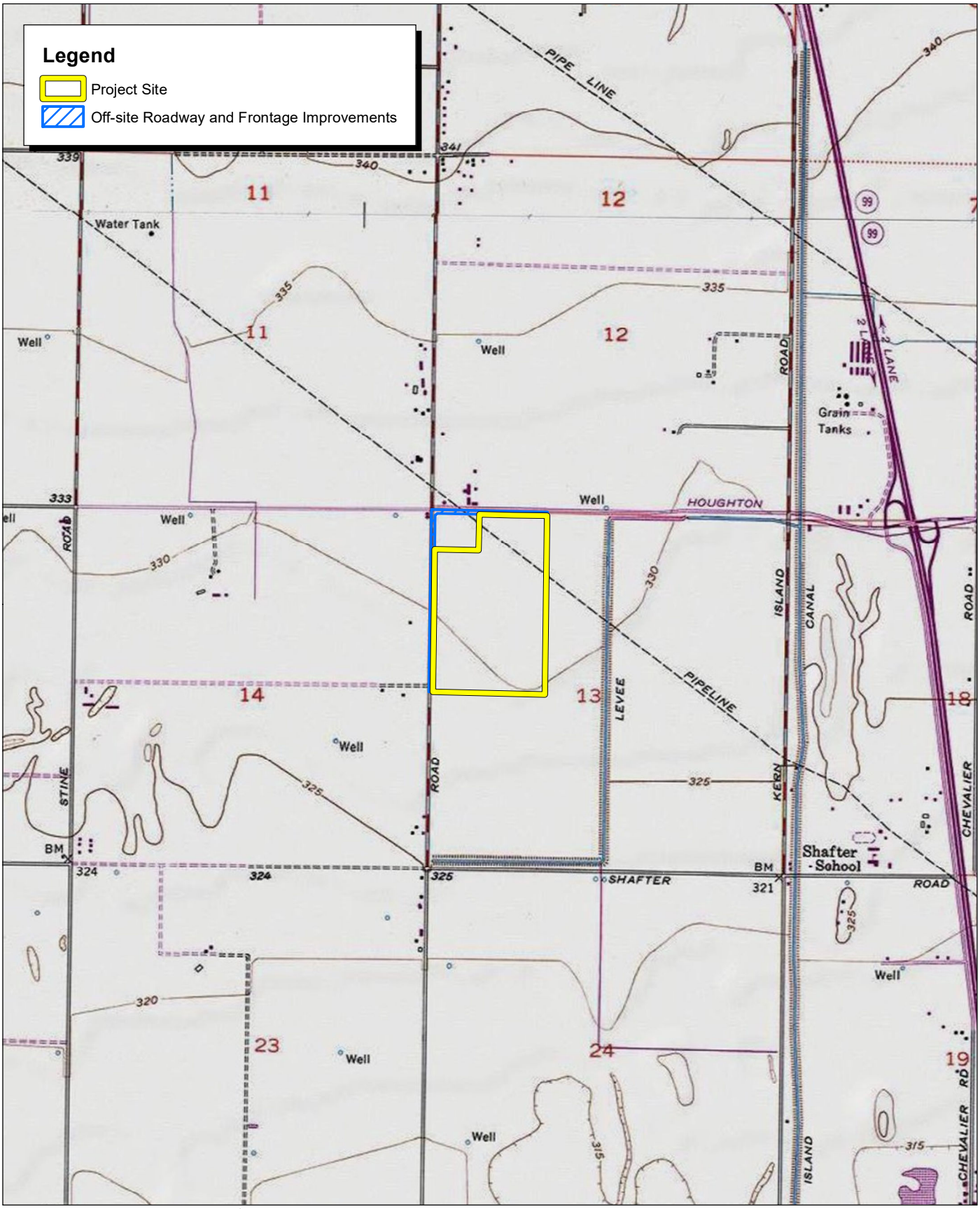
FCS INTERNATIONAL, INC.

Attachment A:
Records Search Map



Source: USGS Conner 7.5' Quadrangle / T31S,R27E,sec11,12,13,14.

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Exhibit 2
Local Vicinity Map, Topographic Base

May 26, 2023

Fernandeno Tataviam Band of Mission Indians
Jairo F. Avila, THPO
1019 Second St., Suite 1
San Fernando, CA 91340

Subject: Proposed Ware Malcomb Industrial Project

Dear Jairo F. Avila::

FirstCarbon Solutions (FCS) is preparing a Cultural Resources Assessment for the proposed Ware Malcomb Industrial Project located in Kern County. As part of the environmental review process, we are conducting a cultural analysis.

The project applicant, Seefried Industrial Properties, Inc., proposes to develop a 653,442-square-foot single warehouse and distribution facility and related improvements. The proposed facility has a footprint of approximately 629,186 square feet (including approximately 44,424 square feet of office space) that would primarily facilitate material handling equipment and warehouse uses. The remaining square footage is made up of a 24,256-square-foot mezzanine, which would contain material handling equipment conveyors with occasional maintenance and no storage. The proposed project would also include two guardhouses and one pumphouse

A Records Search map with a 0.5 mile buffer around the site is enclosed for your reference.

As part of the cultural resources assessment, FCS conducted a Sacred Lands File (SLF) search and California Historical Resource Information System (CHRIS). The results of the SLF records search was negative. The CHRIS search showed that there are no recorded resources within the project site. However, 4 cultural resources were recorded within a 0.5 mile radius of the project site. The CHRIS search showed there there are 15 reports recorded within a 0.5 mile radius of the project site, one of which intersects the project site. The Native American Heritage Commission (NAHC) suggested you might be able to provide further information. If you have any additional information regarding potential historic or cultural resources in proximity or relation to the proposed project area, we would greatly appreciate your input.

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Sincerely,

Stefanie Estelle Griffin, MA, Archaeologist
FirstCarbon Solutions
967 Kendall Drive # A-537
San Bernardino, CA 92407

Enc: Attachment A: Records Search Map

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FCS INTERNATIONAL, INC.

Attachment A:
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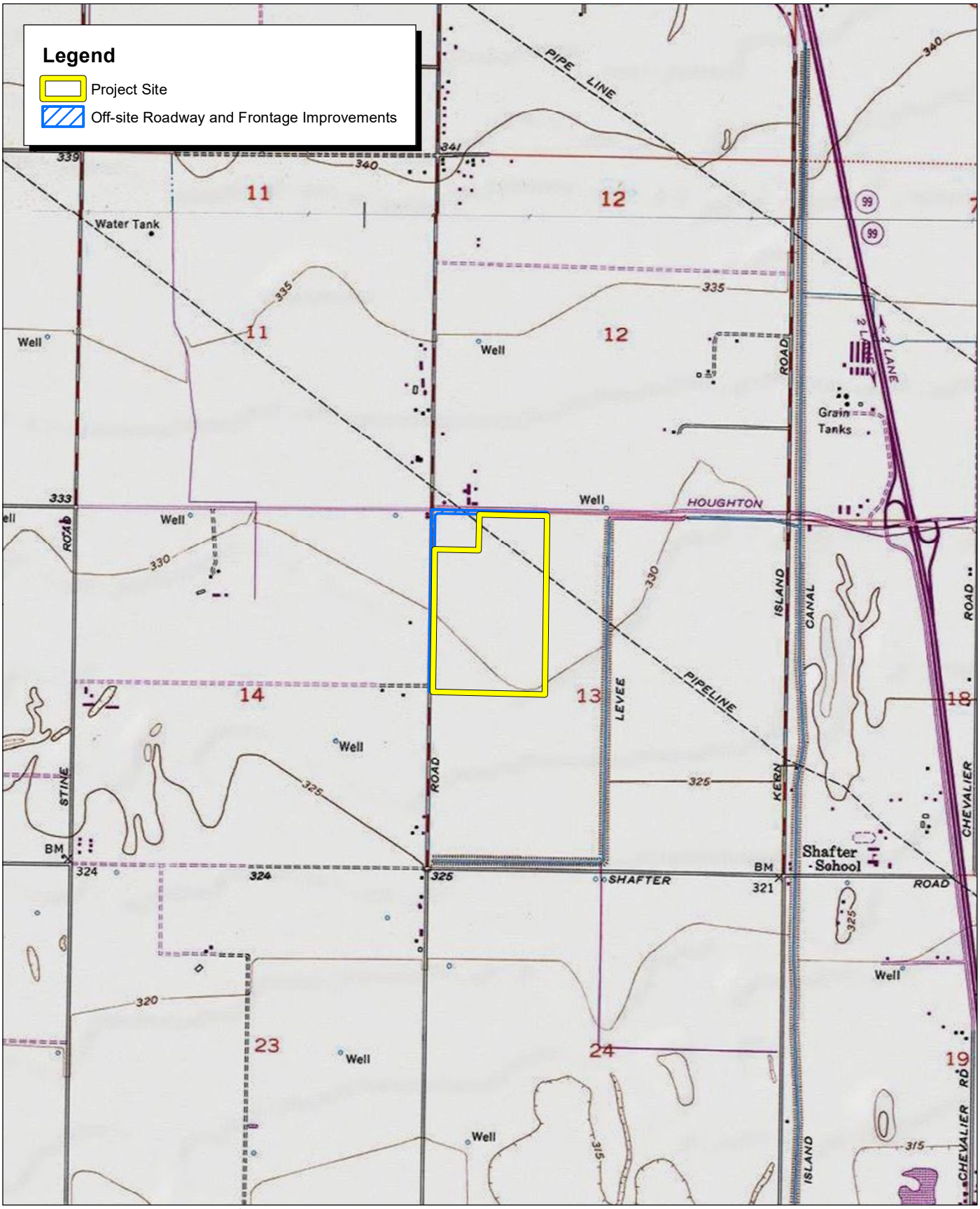

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Exhibit 2
Local Vicinity Map, Topographic Base

May 26, 2023

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

Subject: Proposed Ware Malcomb Industrial Project

Dear Brandy Kendricks:

FirstCarbon Solutions (FCS) is preparing a Cultural Resources Assessment for the proposed Ware Malcomb Industrial Project located in Kern County. As part of the environmental review process, we are conducting a cultural analysis.

The project applicant, Seefried Industrial Properties, Inc., proposes to develop a 653,442-square-foot single warehouse and distribution facility and related improvements. The proposed facility has a footprint of approximately 629,186 square feet (including approximately 44,424 square feet of office space) that would primarily facilitate material handling equipment and warehouse uses. The remaining square footage is made up of a 24,256-square-foot mezzanine, which would contain material handling equipment conveyors with occasional maintenance and no storage. The proposed project would also include two guardhouses and one pumphouse

A Records Search map with a 0.5 mile buffer around the site is enclosed for your reference.

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Enc: Attachment A: Records Search Map

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Attachment A:
Records Search Map

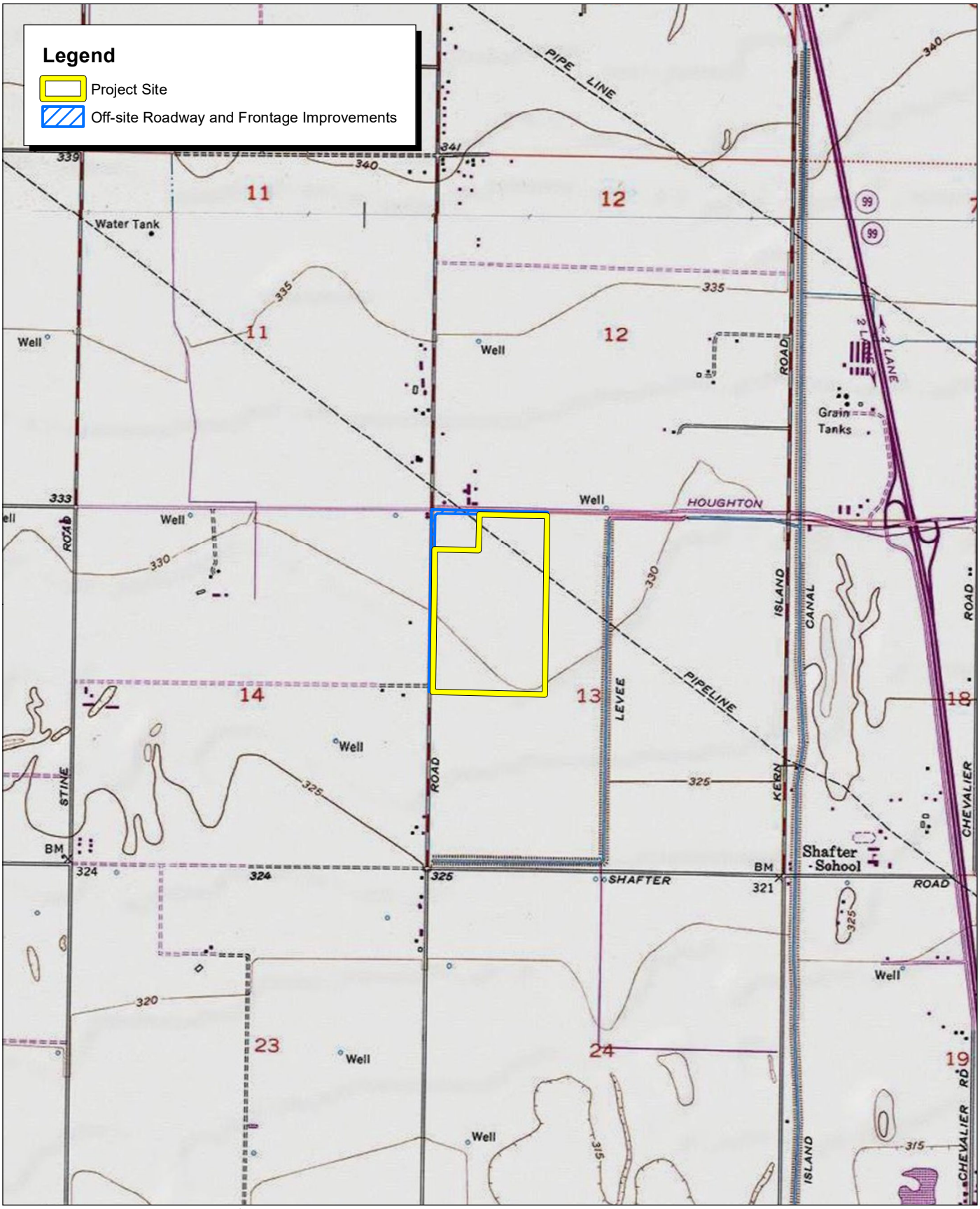

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Exhibit 2
Local Vicinity Map, Topographic Base

May 26, 2023

Kern Valley Indian Community
Robert Robinson, Chairperson
30741 Foxridge Court
Tehachapi, CA 93561

Subject: Proposed Ware Malcomb Industrial Project

Dear Chairperson Robinson:

FirstCarbon Solutions (FCS) is preparing a Cultural Resources Assessment for the proposed Ware Malcomb Industrial Project located in Kern County. As part of the environmental review process, we are conducting a cultural analysis.

The project applicant, Seefried Industrial Properties, Inc., proposes to develop a 653,442-square-foot single warehouse and distribution facility and related improvements. The proposed facility has a footprint of approximately 629,186 square feet (including approximately 44,424 square feet of office space) that would primarily facilitate material handling equipment and warehouse uses. The remaining square footage is made up of a 24,256-square-foot mezzanine, which would contain material handling equipment conveyors with occasional maintenance and no storage. The proposed project would also include two guardhouses and one pumphouse

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Enc: Attachment A: Records Search Map

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Attachment A:
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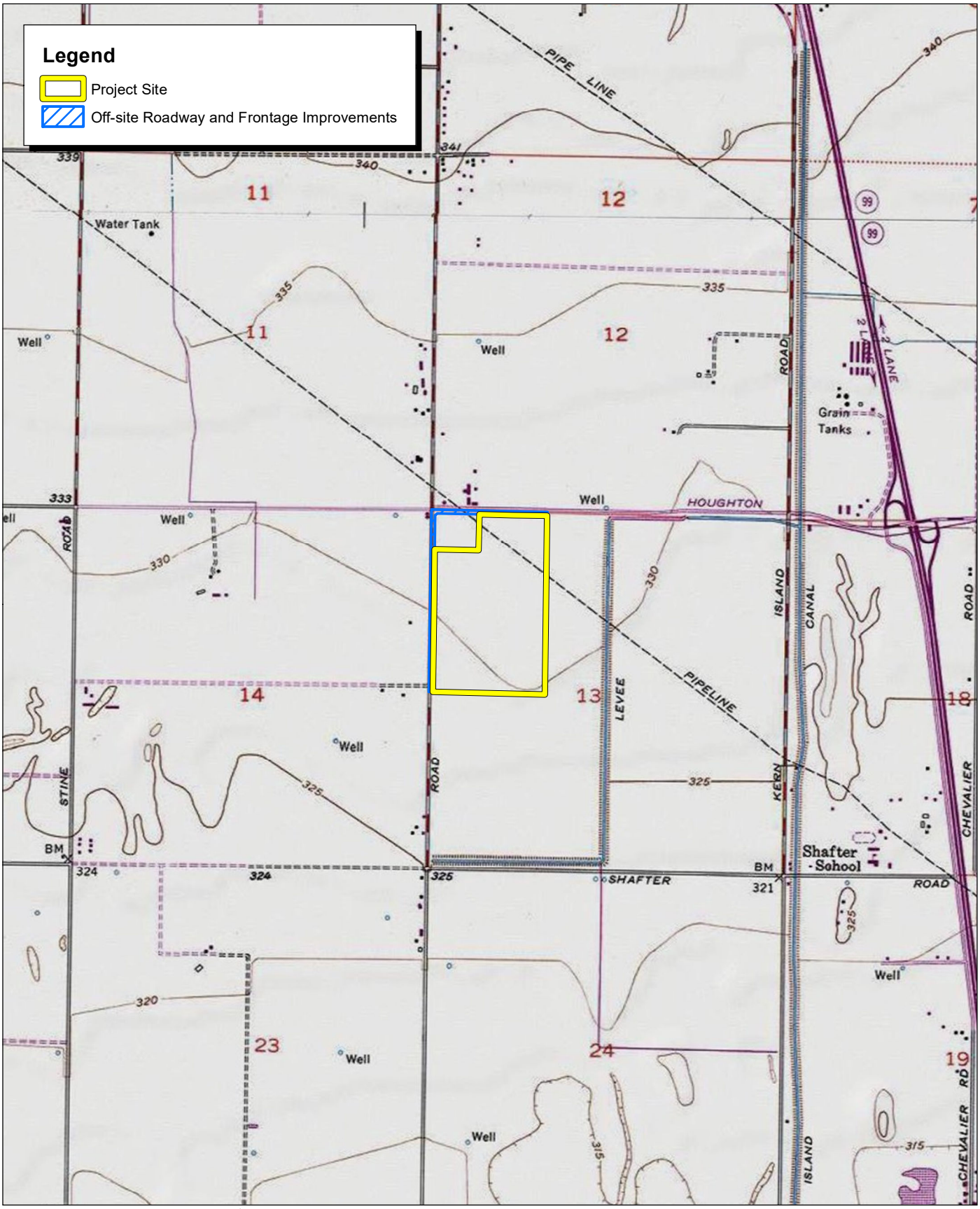

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Exhibit 2
Local Vicinity Map, Topographic Base

May 26, 2023

Kern Valley Indian Community
Julie Turner, Secretary
30741 Foxridge Court
Tehachapi, CA 93561

Subject: Proposed Ware Malcomb Industrial Project

Dear Secretary Turner:

FirstCarbon Solutions (FCS) is preparing a Cultural Resources Assessment for the proposed Ware Malcomb Industrial Project located in Kern County. As part of the environmental review process, we are conducting a cultural analysis.

The project applicant, Seefried Industrial Properties, Inc., proposes to develop a 653,442-square-foot single warehouse and distribution facility and related improvements. The proposed facility has a footprint of approximately 629,186 square feet (including approximately 44,424 square feet of office space) that would primarily facilitate material handling equipment and warehouse uses. The remaining square footage is made up of a 24,256-square-foot mezzanine, which would contain material handling equipment conveyors with occasional maintenance and no storage. The proposed project would also include two guardhouses and one pumphouse

A Records Search map with a 0.5 mile buffer around the site is enclosed for your reference.

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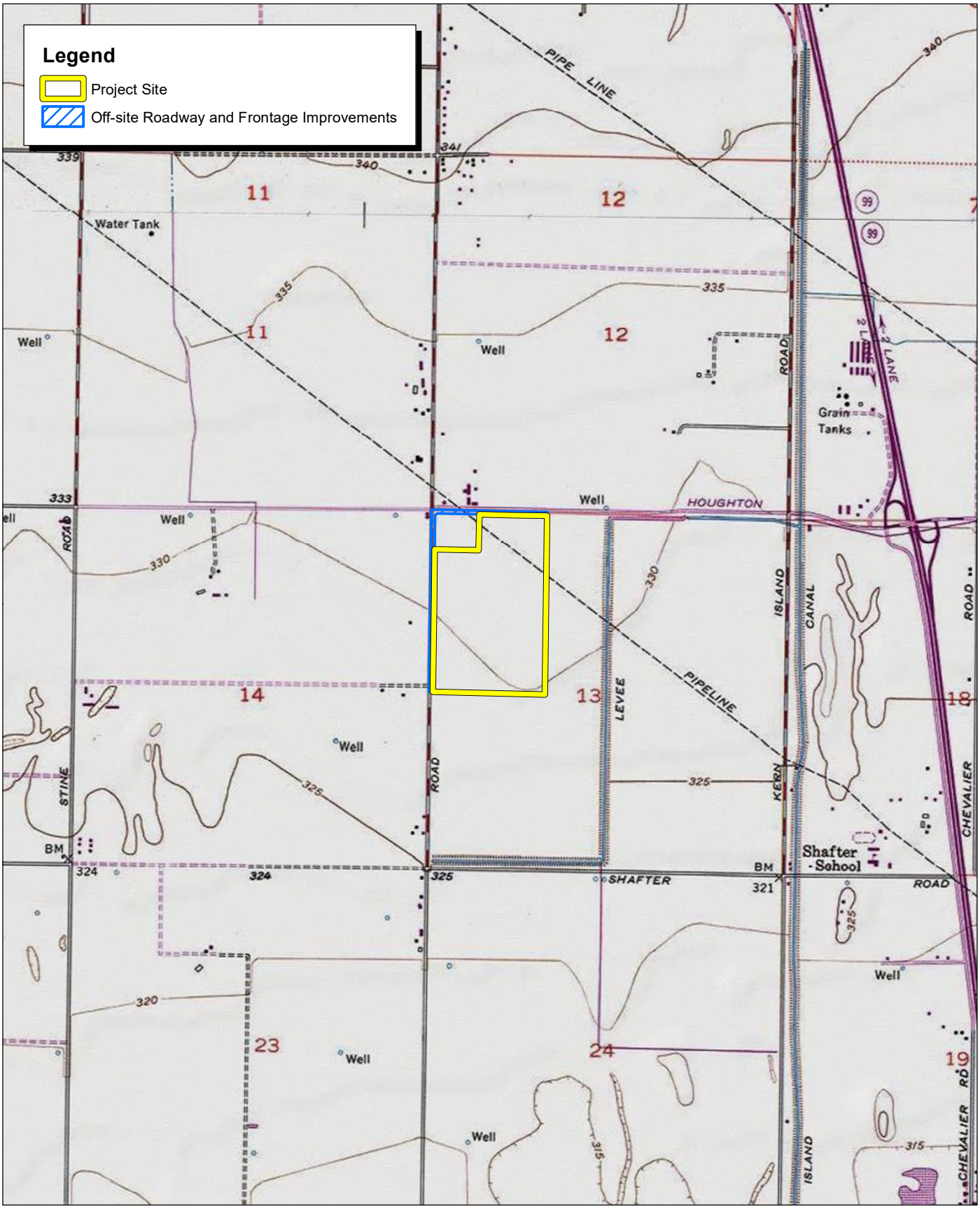

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Exhibit 2
Local Vicinity Map, Topographic Base

May 26, 2023

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

Subject: Proposed Ware Malcomb Industrial Project

Dear Chairperson Dominguez:

FirstCarbon Solutions (FCS) is preparing a Cultural Resources Assessment for the proposed Ware Malcomb Industrial Project located in Kern County. As part of the environmental review process, we are conducting a cultural analysis.

The project applicant, Seefried Industrial Properties, Inc., proposes to develop a 653,442-square-foot single warehouse and distribution facility and related improvements. The proposed facility has a footprint of approximately 629,186 square feet (including approximately 44,424 square feet of office space) that would primarily facilitate material handling equipment and warehouse uses. The remaining square footage is made up of a 24,256-square-foot mezzanine, which would contain material handling equipment conveyors with occasional maintenance and no storage. The proposed project would also include two guardhouses and one pumphouse

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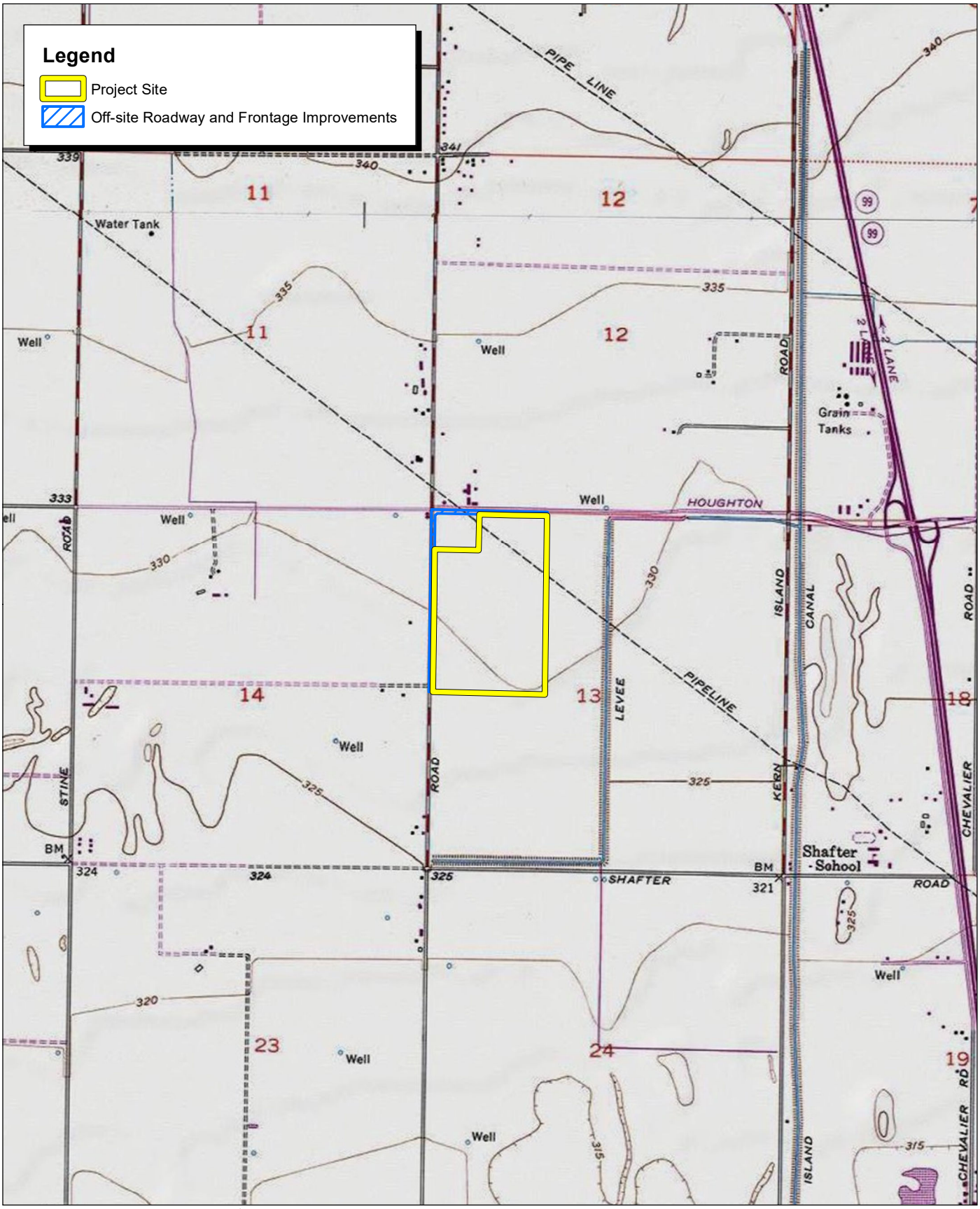

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Exhibit 2
Local Vicinity Map, Topographic Base

May 26, 2023

Quechan Tribe of the Fort Yuma Reservation
Jordan D. Joaquin, President
P.O.Box 1899
Yuma, AZ 85366

Subject: Proposed Ware Malcomb Industrial Project

Dear President Joaquin:

FirstCarbon Solutions (FCS) is preparing a Cultural Resources Assessment for the proposed Ware Malcomb Industrial Project located in Kern County. As part of the environmental review process, we are conducting a cultural analysis.

The project applicant, Seefried Industrial Properties, Inc., proposes to develop a 653,442-square-foot single warehouse and distribution facility and related improvements. The proposed facility has a footprint of approximately 629,186 square feet (including approximately 44,424 square feet of office space) that would primarily facilitate material handling equipment and warehouse uses. The remaining square footage is made up of a 24,256-square-foot mezzanine, which would contain material handling equipment conveyors with occasional maintenance and no storage. The proposed project would also include two guardhouses and one pumphouse

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Enc: Attachment A: Records Search Map

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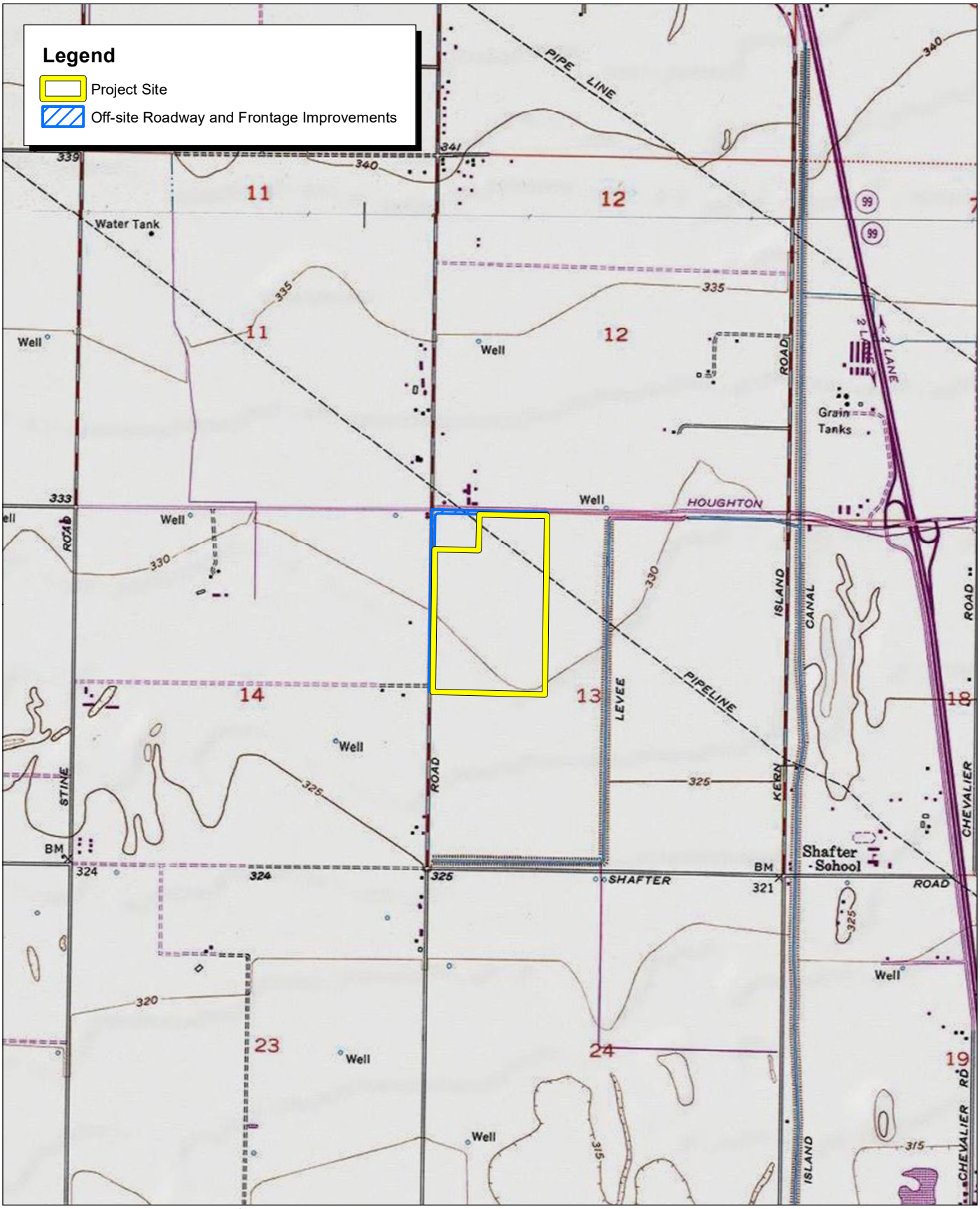

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Exhibit 2
Local Vicinity Map, Topographic Base

May 26, 2023

Quechan Tribe of the Fort Yuma Reservation
Jill McCormick, Historic Preservation Officer
P.O.Box 1899
Yuma, AZ 85366

Subject: Proposed Ware Malcomb Industrial Project

Dear Jill McCormick:

FirstCarbon Solutions (FCS) is preparing a Cultural Resources Assessment for the proposed Ware Malcomb Industrial Project located in Kern County. As part of the environmental review process, we are conducting a cultural analysis.

The project applicant, Seefried Industrial Properties, Inc., proposes to develop a 653,442-square-foot single warehouse and distribution facility and related improvements. The proposed facility has a footprint of approximately 629,186 square feet (including approximately 44,424 square feet of office space) that would primarily facilitate material handling equipment and warehouse uses. The remaining square footage is made up of a 24,256-square-foot mezzanine, which would contain material handling equipment conveyors with occasional maintenance and no storage. The proposed project would also include two guardhouses and one pumphouse

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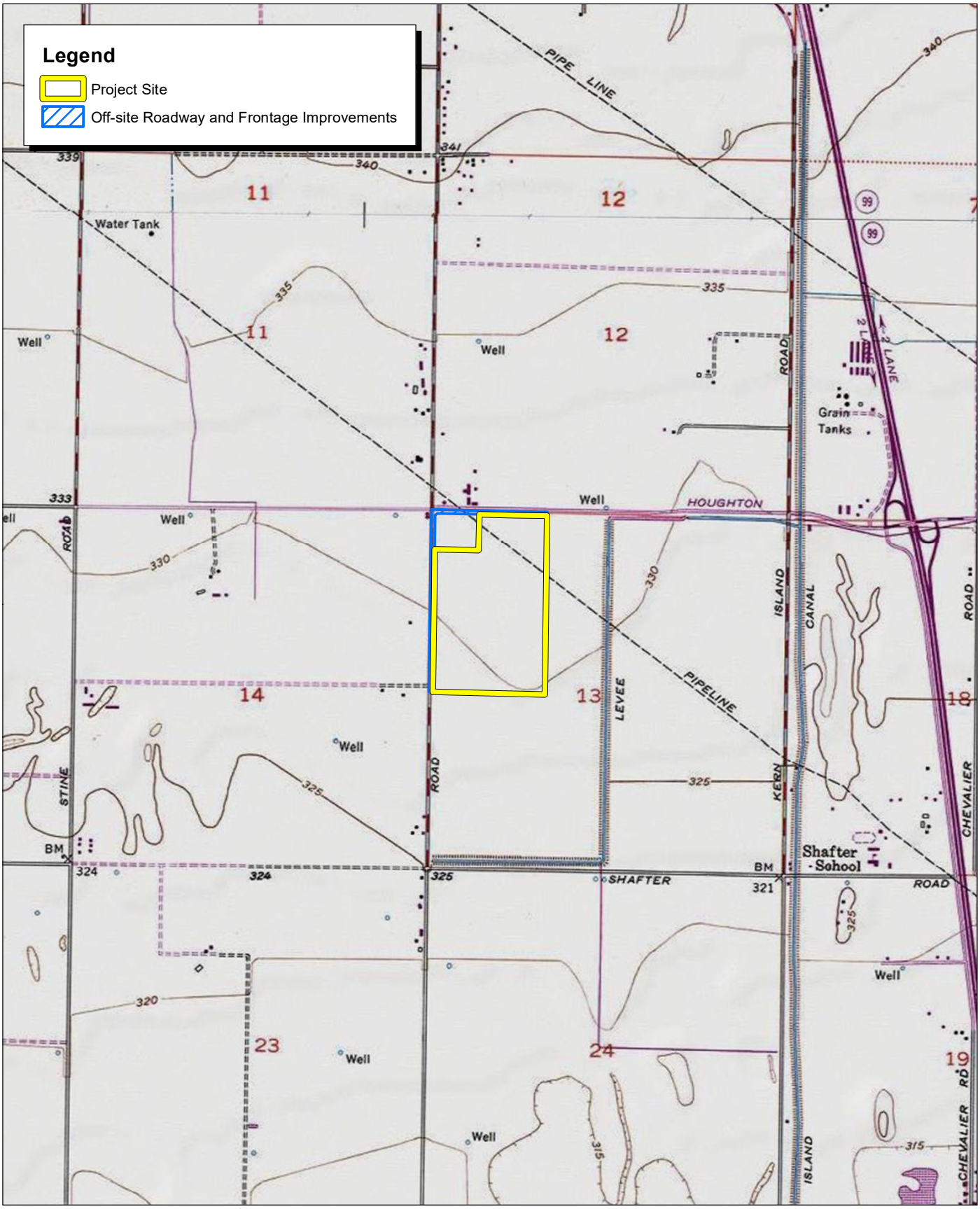

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May 26, 2023

Quechan Tribe of the Fort Yuma Reservation
Manfred Scott, Acting Chairman
P.O.Box 1899
Yuma, AZ 85366

Subject: Proposed Ware Malcomb Industrial Project

Dear Manfred Scott:

FirstCarbon Solutions (FCS) is preparing a Cultural Resources Assessment for the proposed Ware Malcomb Industrial Project located in Kern County. As part of the environmental review process, we are conducting a cultural analysis.

The project applicant, Seefried Industrial Properties, Inc., proposes to develop a 653,442-square-foot single warehouse and distribution facility and related improvements. The proposed facility has a footprint of approximately 629,186 square feet (including approximately 44,424 square feet of office space) that would primarily facilitate material handling equipment and warehouse uses. The remaining square footage is made up of a 24,256-square-foot mezzanine, which would contain material handling equipment conveyors with occasional maintenance and no storage. The proposed project would also include two guardhouses and one pumphouse

A Records Search map with a 0.5 mile buffer around the site is enclosed for your reference.

As part of the cultural resources assessment, FCS conducted a Sacred Lands File (SLF) search and California Historical Resource Information System (CHRIS). The results of the SLF records search was negative. The CHRIS search showed that there are no recorded resources within the project site. However, 4 cultural resources were recorded within a 0.5 mile radius of the project site. The CHRIS search showed there there are 15 reports recorded within a 0.5 mile radius of the project site, one of which intersects the project site. The Native American Heritage Commission (NAHC) suggested you might be able to provide further information. If you have any additional information regarding potential historic or cultural resources in proximity or relation to the proposed project area, we would greatly appreciate your input.

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Sincerely,

Stefanie Estelle Griffin, MA, Archaeologist
FirstCarbon Solutions
967 Kendall Drive # A-537
San Bernardino, CA 92407

Enc: Attachment A: Records Search Map

FIRSTCARBON
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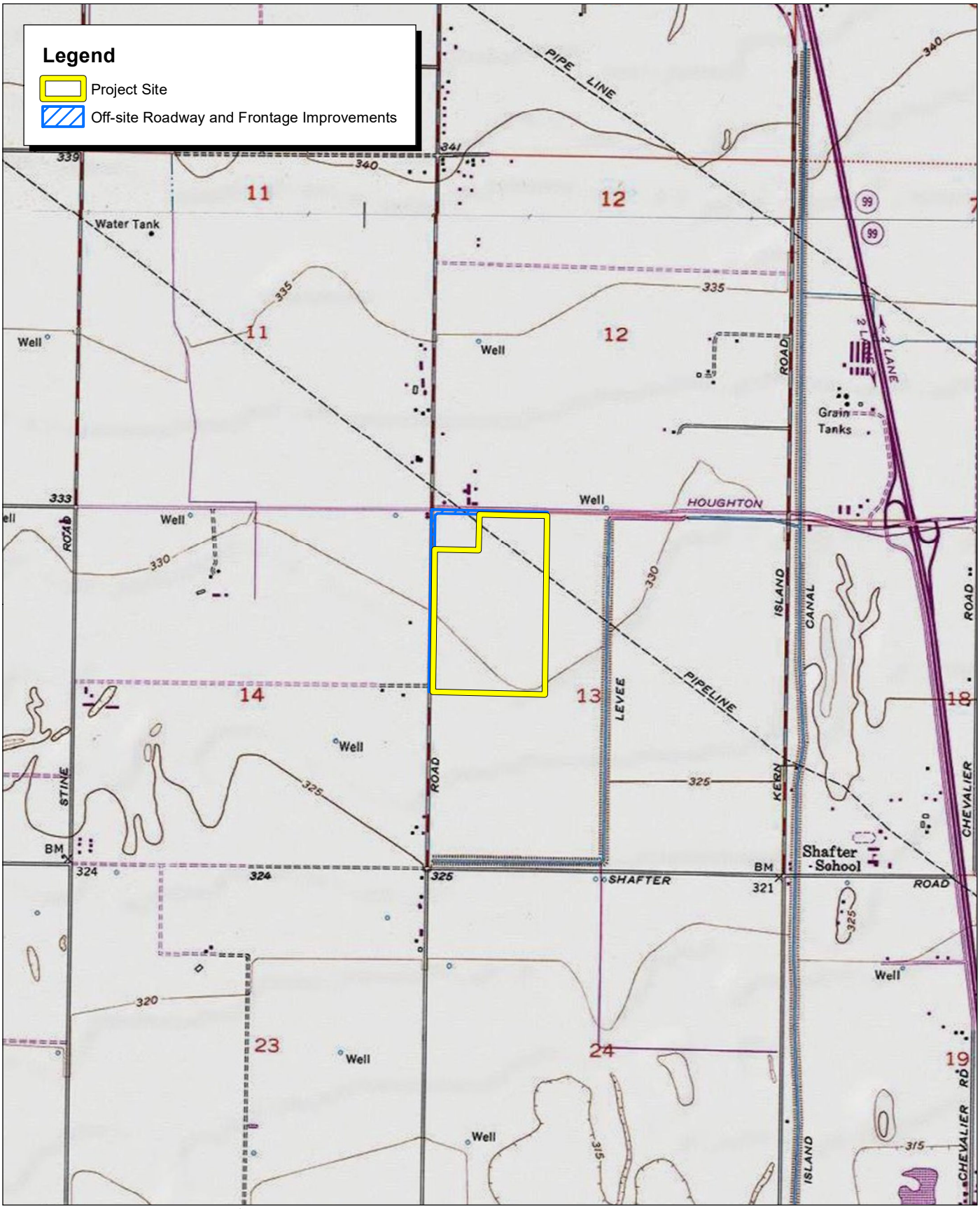
FCS INTERNATIONAL, INC.

Attachment A:
Records Search Map



Source: USGS Conner 7.5' Quadrangle / T31S,R27E,sec11,12,13,14.

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Exhibit 2
Local Vicinity Map, Topographic Base

May 26, 2023

Quechan Tribe of the Fort Yuma Reservation
Virgil S. Smith, Vice President
P.O.Box 1899
Yuma, AZ 85366

Subject: Proposed Ware Malcomb Industrial Project

Dear Vice President Smith:

FirstCarbon Solutions (FCS) is preparing a Cultural Resources Assessment for the proposed Ware Malcomb Industrial Project located in Kern County. As part of the environmental review process, we are conducting a cultural analysis.

The project applicant, Seefried Industrial Properties, Inc., proposes to develop a 653,442-square-foot single warehouse and distribution facility and related improvements. The proposed facility has a footprint of approximately 629,186 square feet (including approximately 44,424 square feet of office space) that would primarily facilitate material handling equipment and warehouse uses. The remaining square footage is made up of a 24,256-square-foot mezzanine, which would contain material handling equipment conveyors with occasional maintenance and no storage. The proposed project would also include two guardhouses and one pumphouse

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Enc: Attachment A: Records Search Map

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Attachment A:
Records Search Map

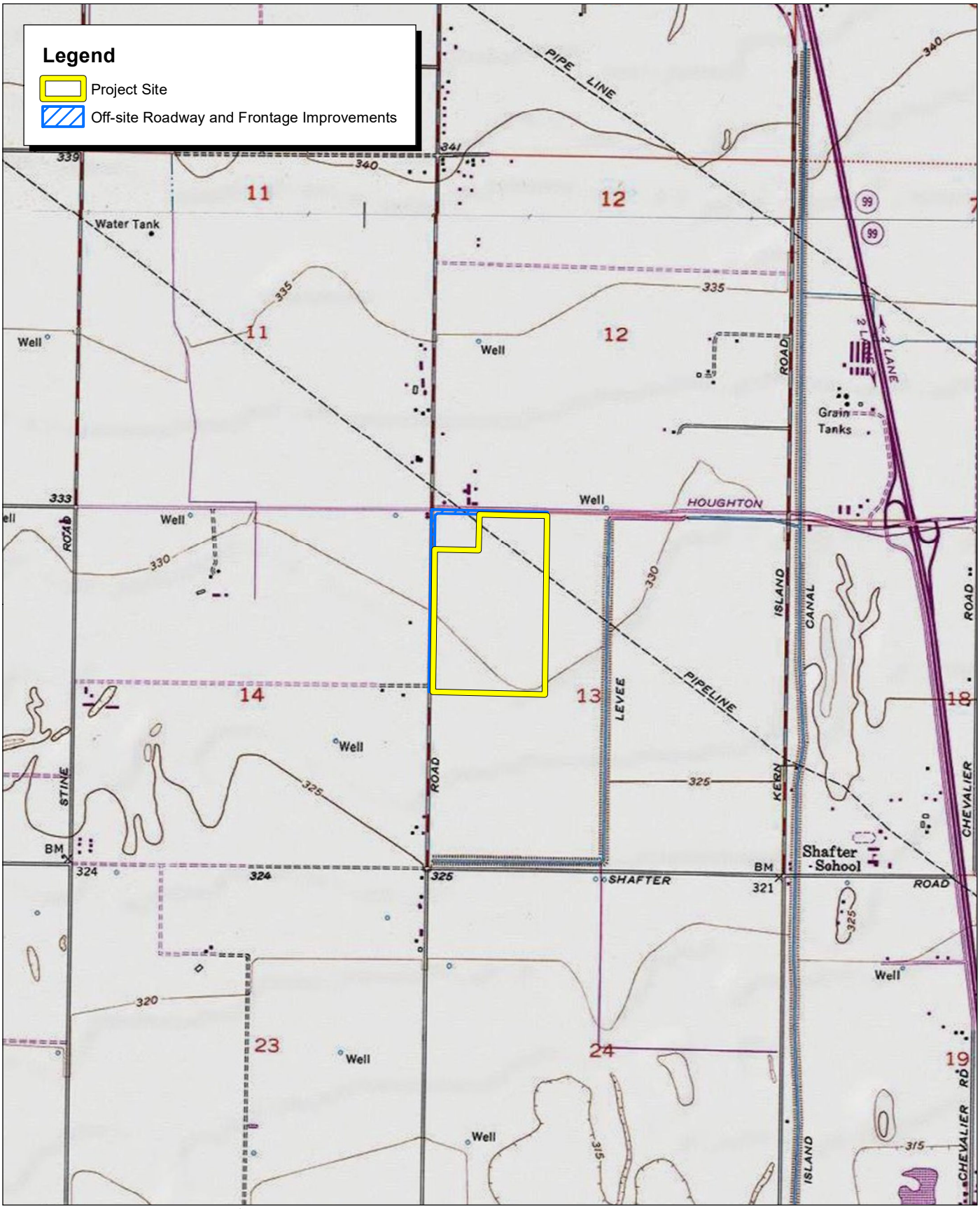

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Exhibit 2
Local Vicinity Map, Topographic Base

May 26, 2023

San Manuel Band of Mission Indians
Jessica Mauck, Director-CRM Dept.
26569 Community Center Drive
Highland, CA 92346

Subject: Proposed Ware Malcomb Industrial Project

Dear Jessica Mauck:

FirstCarbon Solutions (FCS) is preparing a Cultural Resources Assessment for the proposed Ware Malcomb Industrial Project located in Kern County. As part of the environmental review process, we are conducting a cultural analysis.

The project applicant, Seefried Industrial Properties, Inc., proposes to develop a 653,442-square-foot single warehouse and distribution facility and related improvements. The proposed facility has a footprint of approximately 629,186 square feet (including approximately 44,424 square feet of office space) that would primarily facilitate material handling equipment and warehouse uses. The remaining square footage is made up of a 24,256-square-foot mezzanine, which would contain material handling equipment conveyors with occasional maintenance and no storage. The proposed project would also include two guardhouses and one pumphouse

A Records Search map with a 0.5 mile buffer around the site is enclosed for your reference.

As part of the cultural resources assessment, FCS conducted a Sacred Lands File (SLF) search and California Historical Resource Information System (CHRIS). The results of the SLF records search was negative. The CHRIS search showed that there are no recorded resources within the project site. However, 4 cultural resources were recorded within a 0.5 mile radius of the project site. The CHRIS search showed there there are 15 reports recorded within a 0.5 mile radius of the project site, one of which intersects the project site. The Native American Heritage Commission (NAHC) suggested you might be able to provide further information. If you have any additional information regarding potential historic or cultural resources in proximity or relation to the proposed project area, we would greatly appreciate your input.

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FirstCarbon Solutions
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San Bernardino, CA 92407

Enc: Attachment A: Records Search Map

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Attachment A:
Records Search Map

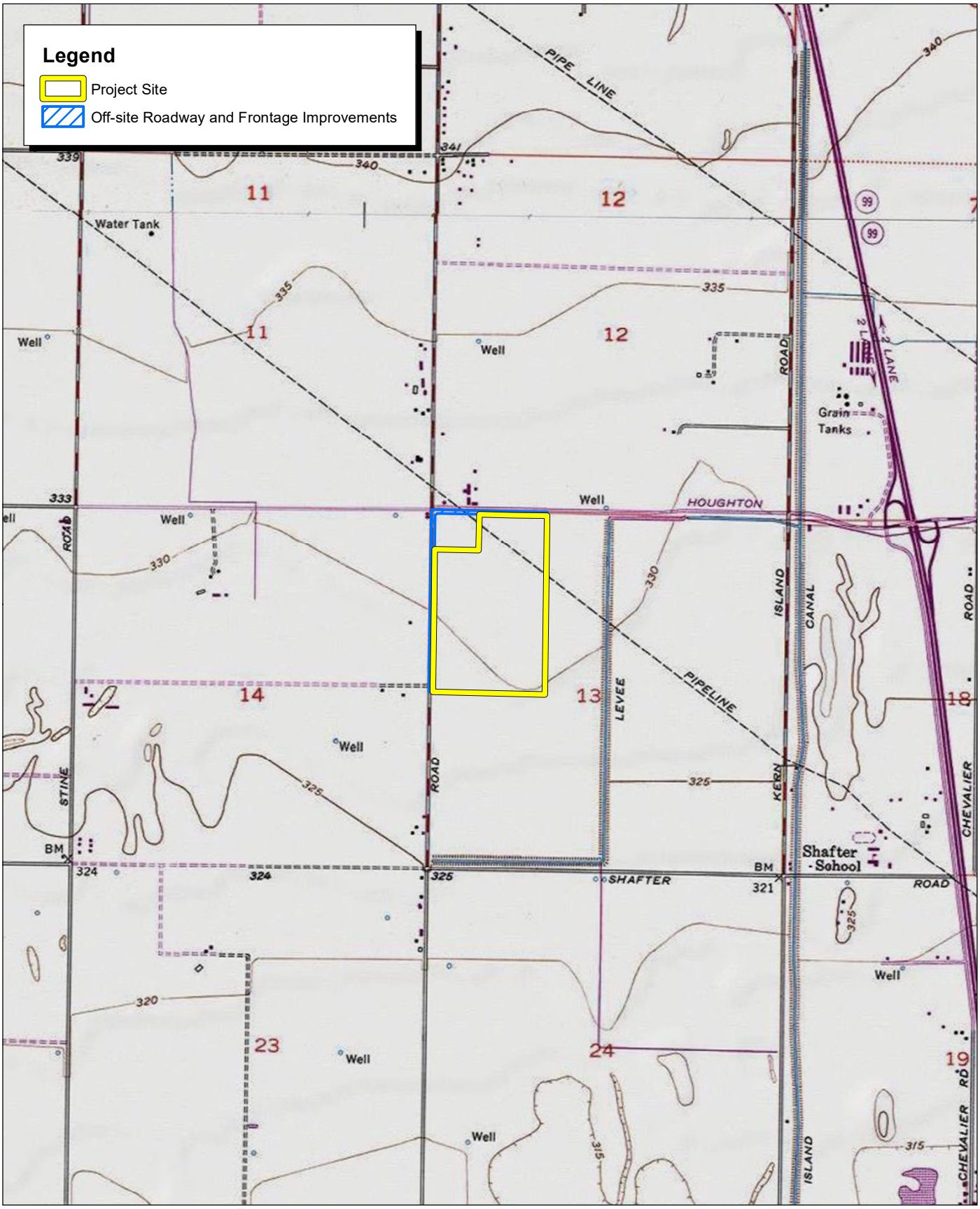

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Exhibit 2
Local Vicinity Map, Topographic Base

May 26, 2023

Santa Rosa Rancheria Tachi Yokut Tribe
Leo Sisco, Chairperson
P.O. Box 8
Lemoore, CA 93245

Subject: Proposed Ware Malcomb Industrial Project

Dear Chairperson Sisco:

FirstCarbon Solutions (FCS) is preparing a Cultural Resources Assessment for the proposed Ware Malcomb Industrial Project located in Kern County. As part of the environmental review process, we are conducting a cultural analysis.

The project applicant, Seefried Industrial Properties, Inc., proposes to develop a 653,442-square-foot single warehouse and distribution facility and related improvements. The proposed facility has a footprint of approximately 629,186 square feet (including approximately 44,424 square feet of office space) that would primarily facilitate material handling equipment and warehouse uses. The remaining square footage is made up of a 24,256-square-foot mezzanine, which would contain material handling equipment conveyors with occasional maintenance and no storage. The proposed project would also include two guardhouses and one pumphouse

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Stefanie Estelle Griffin, MA, Archaeologist
FirstCarbon Solutions
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San Bernardino, CA 92407

Enc: Attachment A: Records Search Map

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Attachment A:
Records Search Map

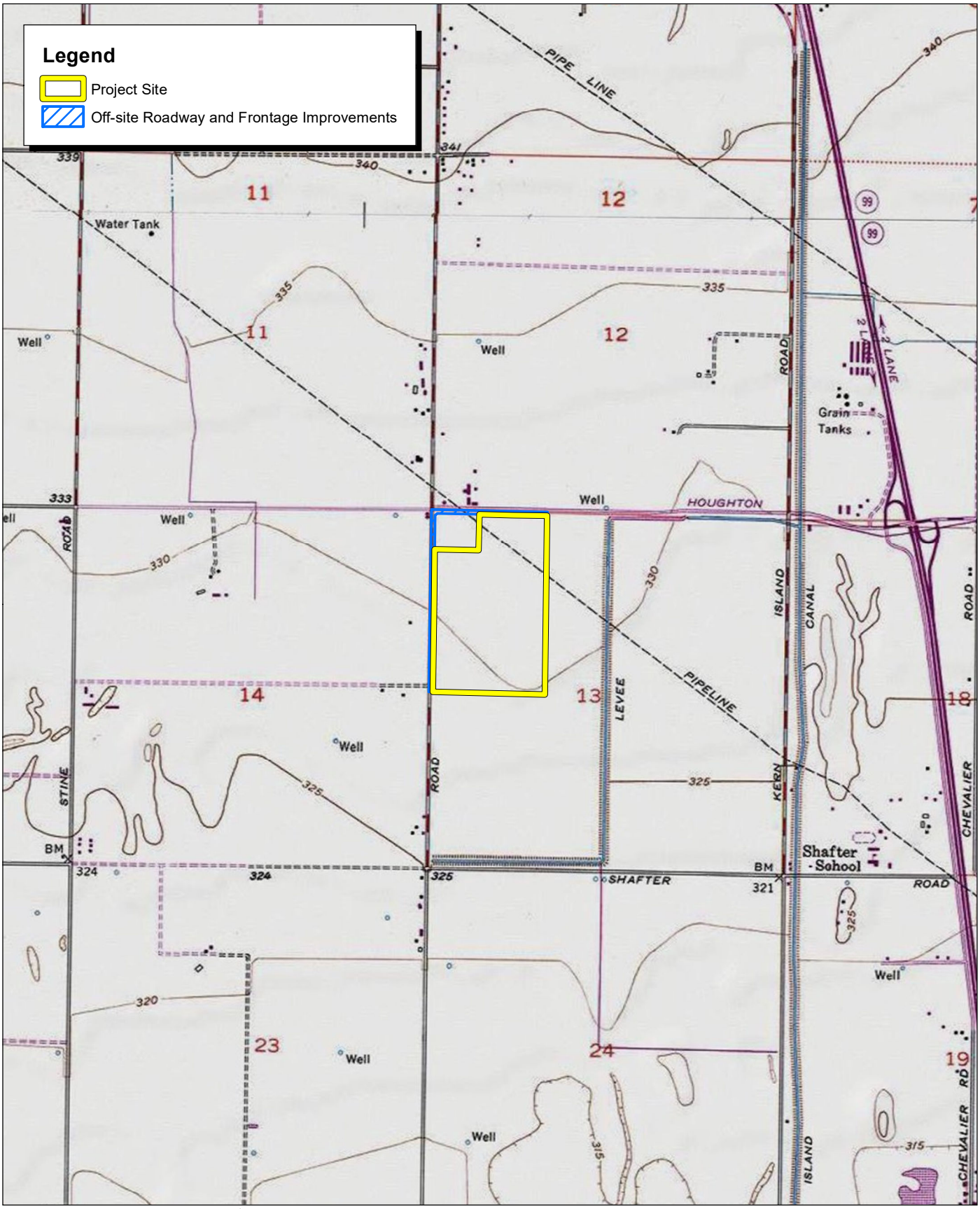

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Exhibit 2
Local Vicinity Map, Topographic Base

May 26, 2023

Santa Ynez Band of Chumash Indians
Kenneth Kahn, Chairperson
P.O. Box 517
Santa Ynez, CA 93460

Subject: Proposed Ware Malcomb Industrial Project

Dear Chairperson Kahn:

FirstCarbon Solutions (FCS) is preparing a Cultural Resources Assessment for the proposed Ware Malcomb Industrial Project located in Kern County. As part of the environmental review process, we are conducting a cultural analysis.

The project applicant, Seefried Industrial Properties, Inc., proposes to develop a 653,442-square-foot single warehouse and distribution facility and related improvements. The proposed facility has a footprint of approximately 629,186 square feet (including approximately 44,424 square feet of office space) that would primarily facilitate material handling equipment and warehouse uses. The remaining square footage is made up of a 24,256-square-foot mezzanine, which would contain material handling equipment conveyors with occasional maintenance and no storage. The proposed project would also include two guardhouses and one pumphouse

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Enc: Attachment A: Records Search Map

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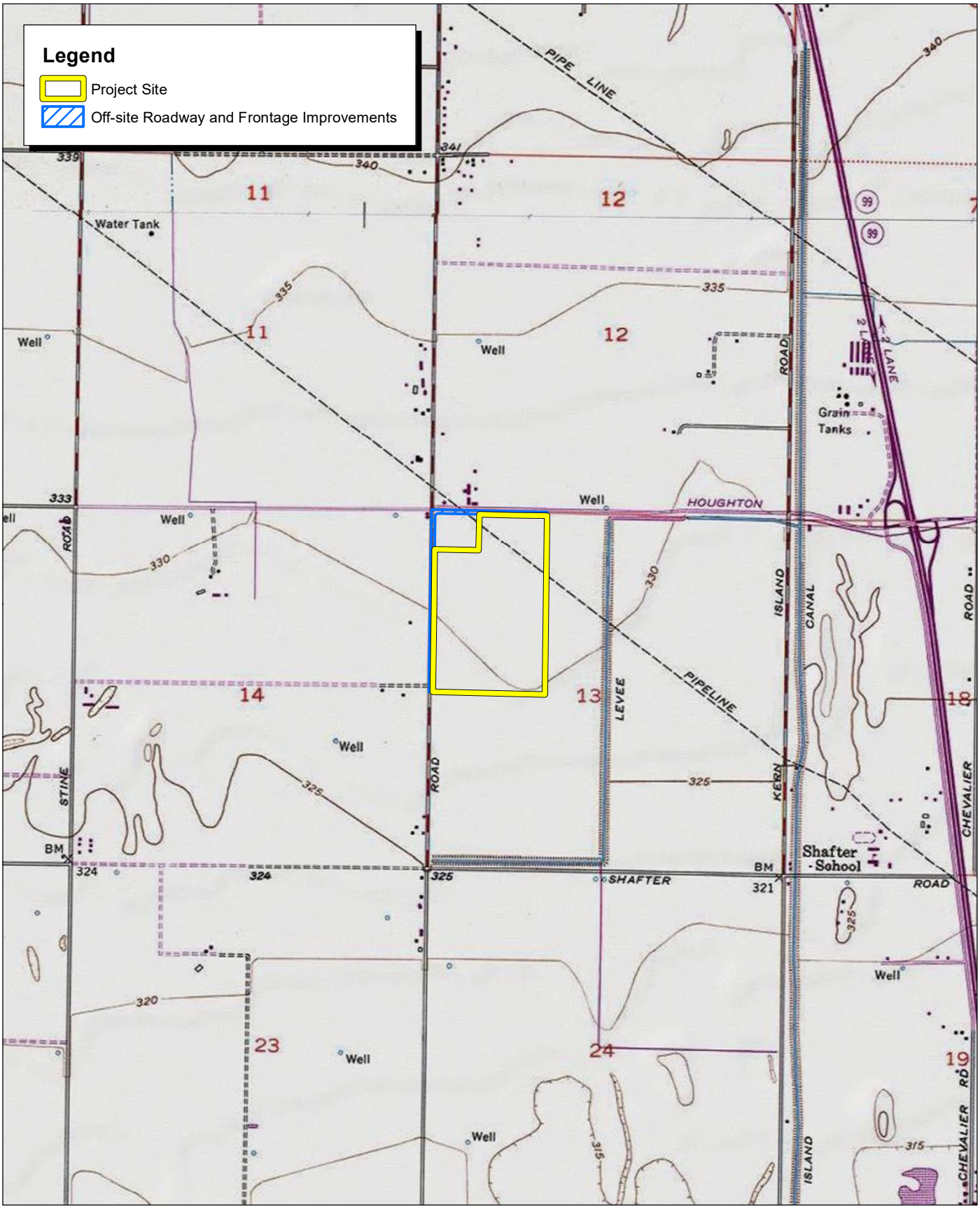

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Exhibit 2
Local Vicinity Map, Topographic Base

May 26, 2023

Tejon Indian Tribe
Octavio Escobedo III, Chairperson
P.O. Box 640
Arvin, CA 93203

Subject: Proposed Ware Malcomb Industrial Project

Dear Chairperson Escobedo:

FirstCarbon Solutions (FCS) is preparing a Cultural Resources Assessment for the proposed Ware Malcomb Industrial Project located in Kern County. As part of the environmental review process, we are conducting a cultural analysis.

The project applicant, Seefried Industrial Properties, Inc., proposes to develop a 653,442-square-foot single warehouse and distribution facility and related improvements. The proposed facility has a footprint of approximately 629,186 square feet (including approximately 44,424 square feet of office space) that would primarily facilitate material handling equipment and warehouse uses. The remaining square footage is made up of a 24,256-square-foot mezzanine, which would contain material handling equipment conveyors with occasional maintenance and no storage. The proposed project would also include two guardhouses and one pumphouse

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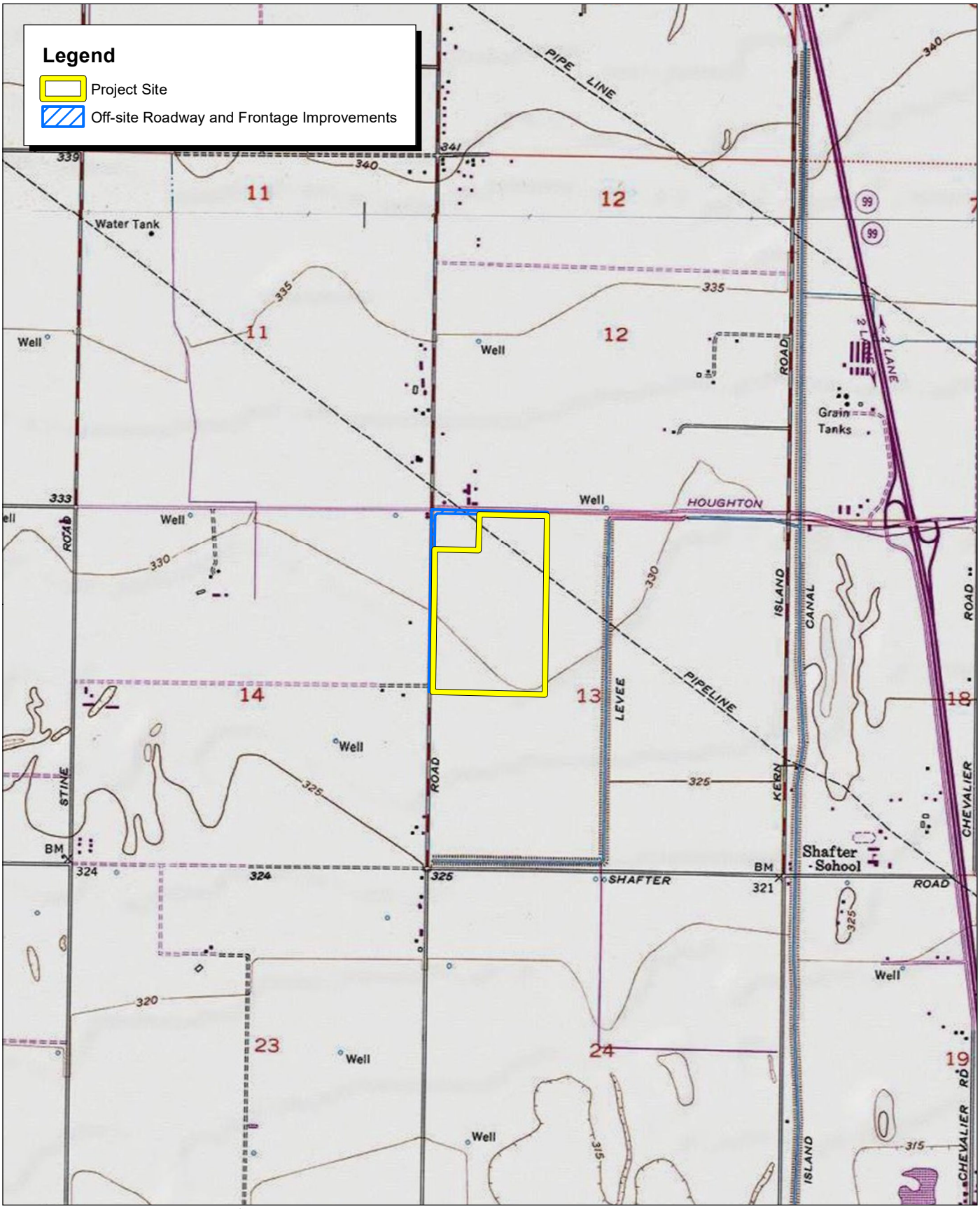

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Exhibit 2
Local Vicinity Map, Topographic Base

May 26, 2023

Tejon Indian Tribe
Colin Rambo, CRM Tech
P.O. Box 640
Arvin, CA 93203

Subject: Proposed Ware Malcomb Industrial Project

Dear Colin Rambo:

FirstCarbon Solutions (FCS) is preparing a Cultural Resources Assessment for the proposed Ware Malcomb Industrial Project located in Kern County. As part of the environmental review process, we are conducting a cultural analysis.

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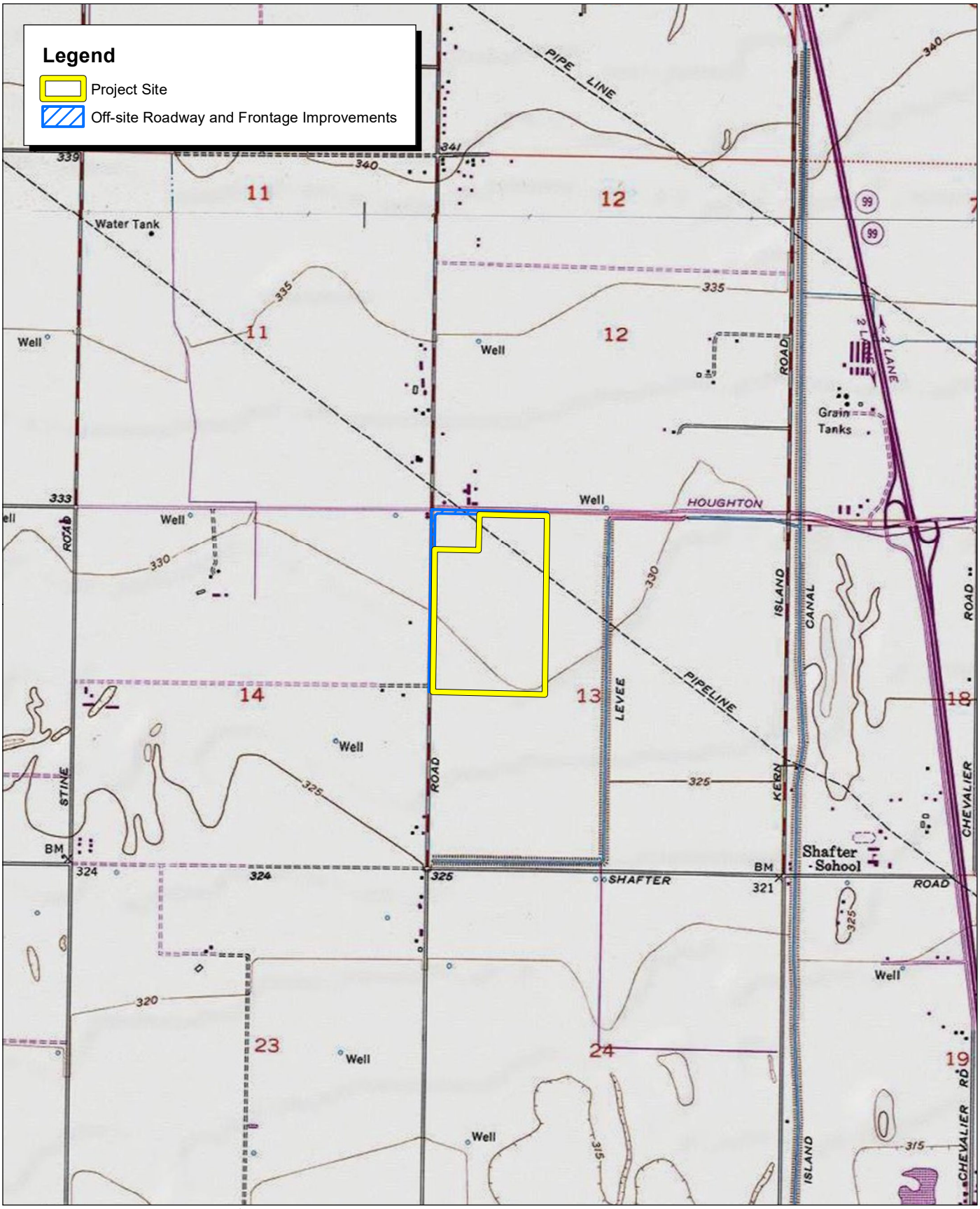

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Exhibit 2
Local Vicinity Map, Topographic Base

May 26, 2023

Tubatulabals of Kern Valley
Robert L. Gomez, Jr., Tribal Chairperson
P.O. Box 226
Lake Isabella, CA 93240

Subject: Proposed Ware Malcomb Industrial Project

Dear Chairperson Gomez:

FirstCarbon Solutions (FCS) is preparing a Cultural Resources Assessment for the proposed Ware Malcomb Industrial Project located in Kern County. As part of the environmental review process, we are conducting a cultural analysis.

The project applicant, Seefried Industrial Properties, Inc., proposes to develop a 653,442-square-foot single warehouse and distribution facility and related improvements. The proposed facility has a footprint of approximately 629,186 square feet (including approximately 44,424 square feet of office space) that would primarily facilitate material handling equipment and warehouse uses. The remaining square footage is made up of a 24,256-square-foot mezzanine, which would contain material handling equipment conveyors with occasional maintenance and no storage. The proposed project would also include two guardhouses and one pumphouse

A Records Search map with a 0.5 mile buffer around the site is enclosed for your reference.

As part of the cultural resources assessment, FCS conducted a Sacred Lands File (SLF) search and California Historical Resource Information System (CHRIS). The results of the SLF records search was negative. The CHRIS search showed that there are no recorded resources within the project site. However, 4 cultural resources were recorded within a 0.5 mile radius of the project site. The CHRIS search showed there there are 15 reports recorded within a 0.5 mile radius of the project site, one of which intersects the project site. The Native American Heritage Commission (NAHC) suggested you might be able to provide further information. If you have any additional information regarding potential historic or cultural resources in proximity or relation to the proposed project area, we would greatly appreciate your input.

UNITED STATES

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San Bernardino, CA 92407

Sacramento Valley
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Rocklin, CA 95765

Utah
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Suite 450
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New York
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Deposit, NY 13754

56 Broome Corporate Parkway
Conklin, NY 13748

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MALAYSIA

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Please note that this letter is a request for information pertaining to a cultural resources assessment and is not notification of a project under Senate Bill (SB) 18, Assembly Bill (AB) 52 or Section 106 of the National Historic Preservation Act. Designated lead agencies under CEQA and NEPA are handling project notification and consultation requirements. Please feel free to contact me at 209.608.0028 or via email at sgriffin@fcs-intl.com and thank you for your valuable assistance.
Sincerely,

Stefanie Estelle Griffin, MA, Archaeologist
FirstCarbon Solutions
967 Kendall Drive # A-537
San Bernardino, CA 92407

Enc: Attachment A: Records Search Map

FIRSTCARBON
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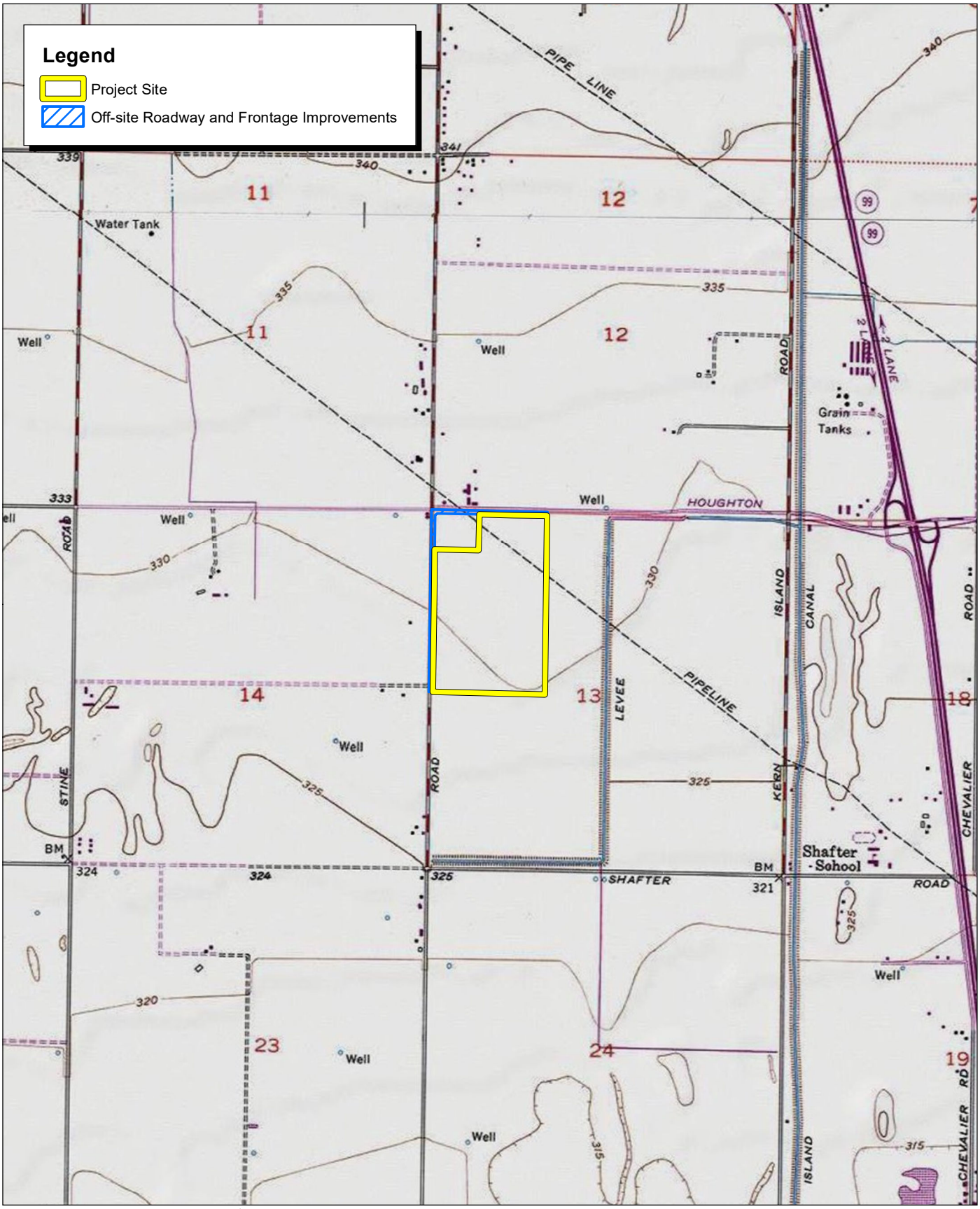
FCS INTERNATIONAL, INC.

Attachment A:
Records Search Map



Source: USGS Conner 7.5' Quadrangle / T31S,R27E,sec11,12,13,14.

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Exhibit 2
Local Vicinity Map, Topographic Base

May 26, 2023

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

Subject: Proposed Ware Malcomb Industrial Project

Dear Chairperson Neil Peyron:

FirstCarbon Solutions (FCS) is preparing a Cultural Resources Assessment for the proposed Ware Malcomb Industrial Project located in Kern County. As part of the environmental review process, we are conducting a cultural analysis.

The project applicant, Seefried Industrial Properties, Inc., proposes to develop a 653,442-square-foot single warehouse and distribution facility and related improvements. The proposed facility has a footprint of approximately 629,186 square feet (including approximately 44,424 square feet of office space) that would primarily facilitate material handling equipment and warehouse uses. The remaining square footage is made up of a 24,256-square-foot mezzanine, which would contain material handling equipment conveyors with occasional maintenance and no storage. The proposed project would also include two guardhouses and one pumphouse

A Records Search map with a 0.5 mile buffer around the site is enclosed for your reference.

As part of the cultural resources assessment, FCS conducted a Sacred Lands File (SLF) search and California Historical Resource Information System (CHRIS). The results of the SLF records search was negative. The CHRIS search showed that there are no recorded resources within the project site. However, 4 cultural resources were recorded within a 0.5 mile radius of the project site. The CHRIS search showed there there are 15 reports recorded within a 0.5 mile radius of the project site, one of which intersects the project site. The Native American Heritage Commission (NAHC) suggested you might be able to provide further information. If you have any additional information regarding potential historic or cultural resources in proximity or relation to the proposed project area, we would greatly appreciate your input.

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Sincerely,

Stefanie Estelle Griffin, MA, Archaeologist
FirstCarbon Solutions
967 Kendall Drive # A-537
San Bernardino, CA 92407

Enc: Attachment A: Records Search Map

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FCS INTERNATIONAL, INC.

Attachment A:
Records Search Map

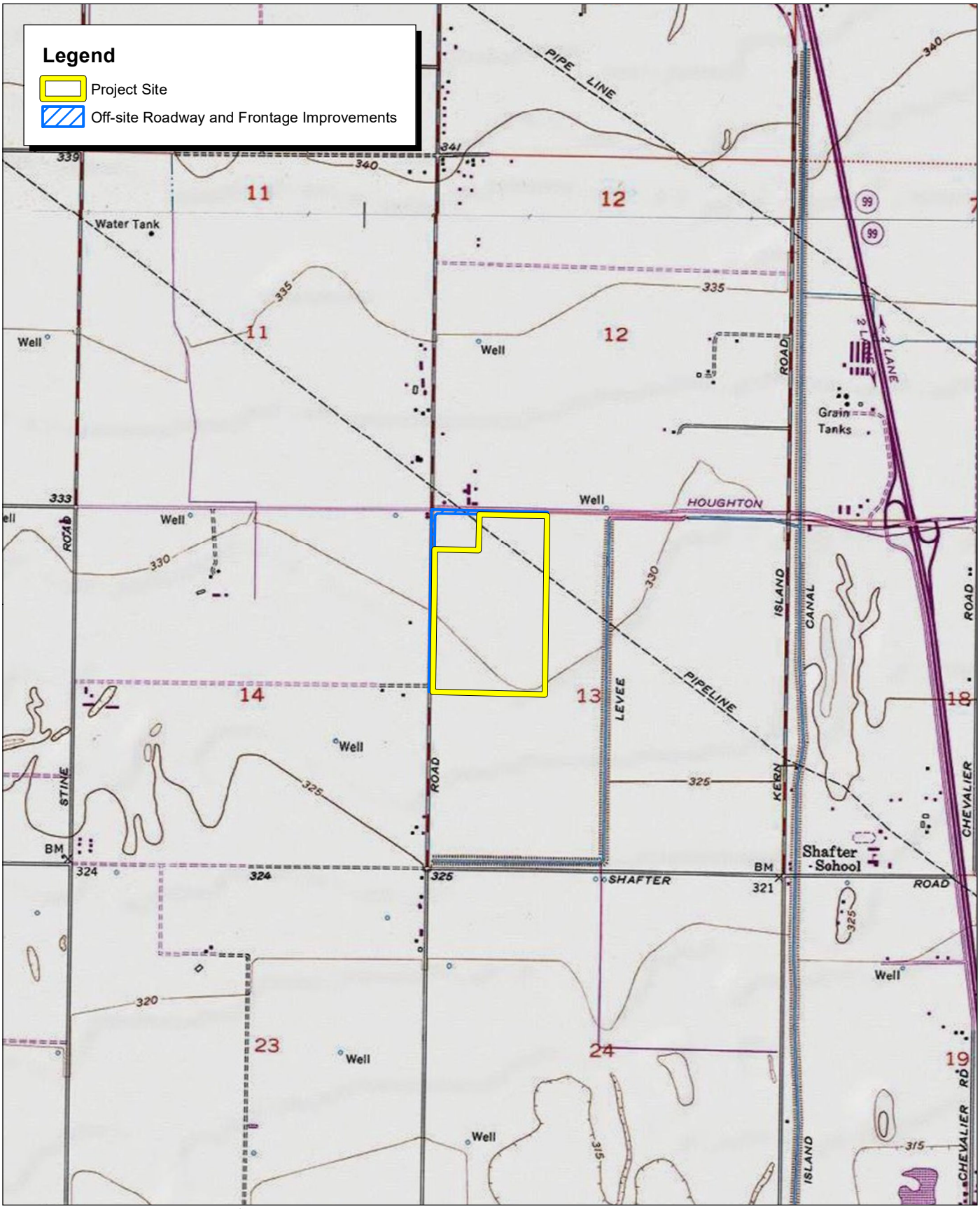

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Exhibit 2
Local Vicinity Map, Topographic Base

May 26, 2023

Xolon-Salinan Tribe
Karen White, Chairperson
P.O. Box 7045
Spreckels, CA 93962

Subject: Proposed Ware Malcomb Industrial Project

Dear Chairperson White:

FirstCarbon Solutions (FCS) is preparing a Cultural Resources Assessment for the proposed Ware Malcomb Industrial Project located in Kern County. As part of the environmental review process, we are conducting a cultural analysis.

The project applicant, Seefried Industrial Properties, Inc., proposes to develop a 653,442-square-foot single warehouse and distribution facility and related improvements. The proposed facility has a footprint of approximately 629,186 square feet (including approximately 44,424 square feet of office space) that would primarily facilitate material handling equipment and warehouse uses. The remaining square footage is made up of a 24,256-square-foot mezzanine, which would contain material handling equipment conveyors with occasional maintenance and no storage. The proposed project would also include two guardhouses and one pumphouse

A Records Search map with a 0.5 mile buffer around the site is enclosed for your reference.

As part of the cultural resources assessment, FCS conducted a Sacred Lands File (SLF) search and California Historical Resource Information System (CHRIS). The results of the SLF records search was negative. The CHRIS search showed that there are no recorded resources within the project site. However, 4 cultural resources were recorded within a 0.5 mile radius of the project site. The CHRIS search showed there there are 15 reports recorded within a 0.5 mile radius of the project site, one of which intersects the project site. The Native American Heritage Commission (NAHC) suggested you might be able to provide further information. If you have any additional information regarding potential historic or cultural resources in proximity or relation to the proposed project area, we would greatly appreciate your input.

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Sincerely,

Stefanie Estelle Griffin, MA, Archaeologist
FirstCarbon Solutions
967 Kendall Drive # A-537
San Bernardino, CA 92407

Enc: Attachment A: Records Search Map

FIRSTCARBON
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FCS INTERNATIONAL, INC.

Attachment A:
Records Search Map

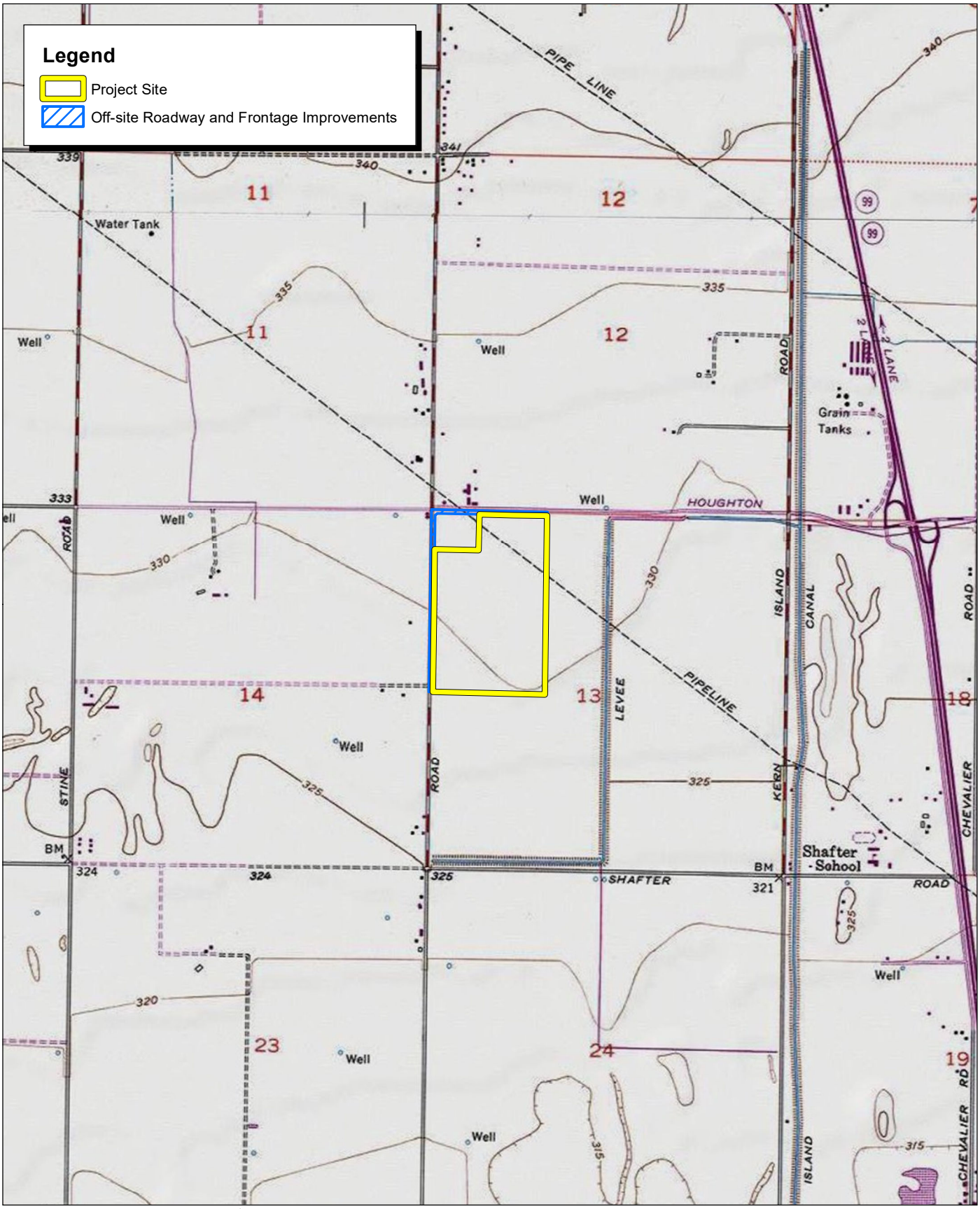

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Exhibit 2
Local Vicinity Map, Topographic Base

May 26, 2023

yak tityu tityu yak tiłhini - Northern Chumash Tribe
Mona Olivas Tucker, Chairwoman
660 Camino Del Rey
Arroyo Grande, CA 93420

Subject: Proposed Ware Malcomb Industrial Project

Dear Chairwoman Mona Olivas Tucker:

FirstCarbon Solutions (FCS) is preparing a Cultural Resources Assessment for the proposed Ware Malcomb Industrial Project located in Kern County. As part of the environmental review process, we are conducting a cultural analysis.

The project applicant, Seefried Industrial Properties, Inc., proposes to develop a 653,442-square-foot single warehouse and distribution facility and related improvements. The proposed facility has a footprint of approximately 629,186 square feet (including approximately 44,424 square feet of office space) that would primarily facilitate material handling equipment and warehouse uses. The remaining square footage is made up of a 24,256-square-foot mezzanine, which would contain material handling equipment conveyors with occasional maintenance and no storage. The proposed project would also include two guardhouses and one pumphouse

A Records Search map with a 0.5 mile buffer around the site is enclosed for your reference.

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Sincerely,

Stefanie Estelle Griffin, MA, Archaeologist
FirstCarbon Solutions
967 Kendall Drive # A-537
San Bernardino, CA 92407

Enc: Attachment A: Records Search Map

FIRSTCARBON
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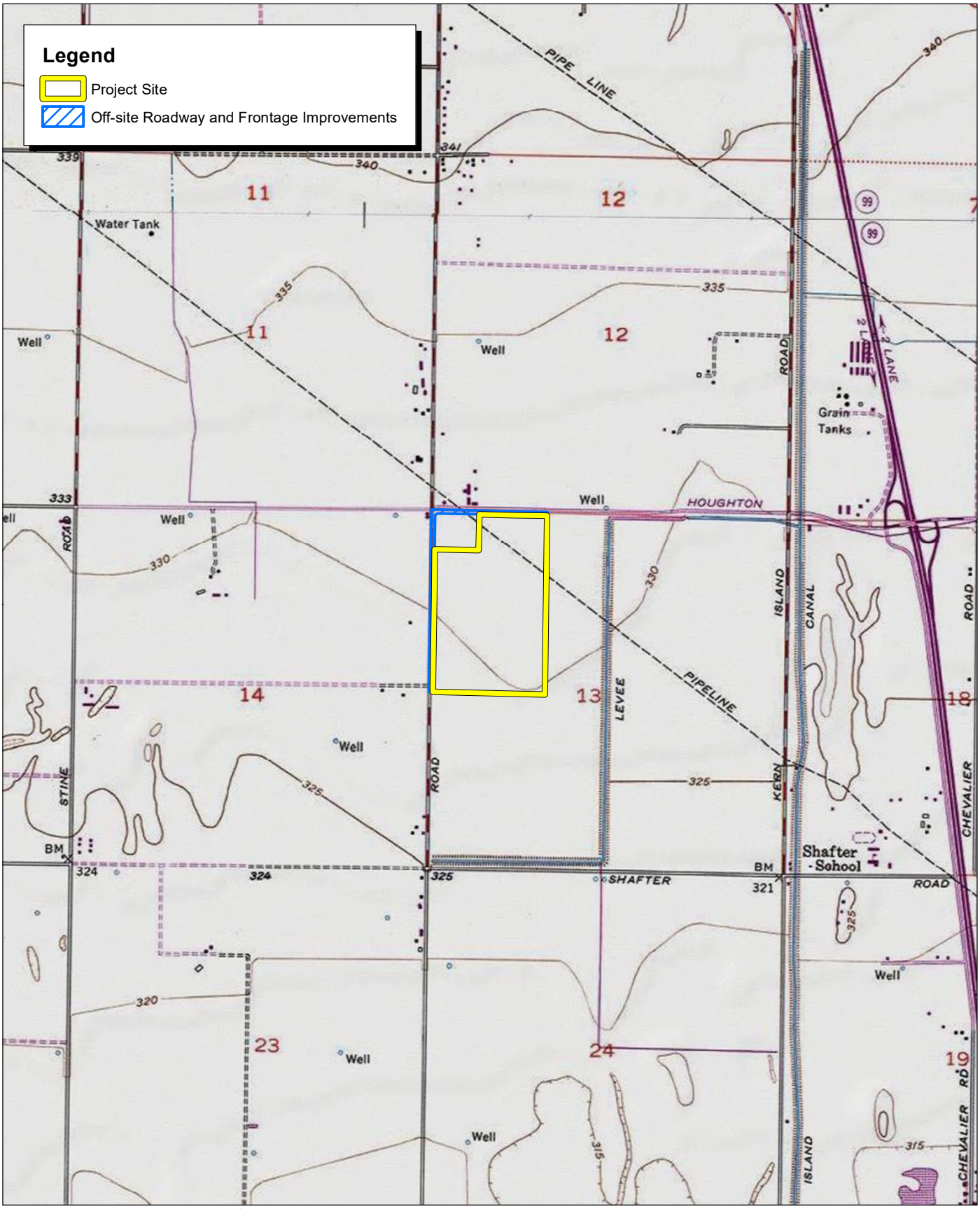
FCS INTERNATIONAL, INC.

Attachment A:
Records Search Map



Source: USGS Conner 7.5' Quadrangle / T31S,R27E,sec11,12,13,14.

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Exhibit 2
Local Vicinity Map, Topographic Base

From: Mona Tucker
To: Natalie Adame
Subject: Re: 4115.0044 Ware Malcomb
Date: Friday, May 26, 2023 5:21:19 PM

Hello Ms. Adame:

We appreciate that you are reaching out to Tribal communities for assistance. In this case, we defer to the tribes that are nearest to this project.

Regards,

Mona Olivas Tucker, Chair
yak titᵘ titᵘ yak tiłhini Northern Chumash Tribe
San Luis Obispo County and Region
yttnorthernchumashtribe.com/

On Fri, May 26, 2023 at 4:45 PM Natalie Adame <nadame@fcs-intl.com> wrote:

> Hello,
>
> Attached is a request for information pertaining to a cultural resources assessment of the proposed Ware Malcomb Industrial Project. Please feel free to contact Dana DePietro at sgriffin@fcs-intl.com if you would like to provide input. Thank you for your assistance.
>
> Natalie Adame
> **Archaeologist & Field Manager**
>
> **Office** +1.714.508.4100, Ext: 1408
> **Cell** +1.909.510.9976
>
> **FirstCarbon Solutions (FCS)**
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--

From: Jill McCormick
To: Natalie Adame
Subject: RE: [EXTERNAL]:4115.0044 Ware Malcomb
Date: Tuesday, May 30, 2023 3:56:23 PM

This email is to inform you that we do not wish to comment on this project. We defer to the more local Tribes and support their determinations on this matter.

Thank you,
H. Jill McCormick, M.A.

Quechan Indian Tribe
Historic Preservation Officer
P.O. Box 1899
Yuma, AZ 85366-1899
Office: 760-572-2423
Cell: 928-261-0254
E-mail: historicpreservation@quechantribe.com

From: Natalie Adame <nadame@fcs-intl.com>
Sent: Friday, May 26, 2023 4:37 PM
To: Jill McCormick <historicpreservation@quechantribe.com>
Subject: [EXTERNAL]:4115.0044 Ware Malcomb

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hello,

Attached is a request for information pertaining to a cultural resources assessment of the proposed Ware Malcomb Industrial Project. Please feel free to contact Dana DePietro at sgriffin@fcs-intl.com if you would like to provide input. Thank you for your assistance.

Natalie Adame
Archaeologist & Field Manager
Office +1.714.508.4100, Ext: 1408
Cell +1.909.510.9976

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Appendix D:
Project Site Photographs

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Photograph 1: Transect 1, view west from southeast corner

Photograph 2: Transect 1, view south from southeast corner

Photograph 3: Start of Transect 3 view west from eastern border.

Photograph 4: End of Transect 3 from western border. View east.

Photograph 5: Start of Transect 5 from eastern border. View west.

Photograph 6: End of Transect 5 from western border. View east.

Photograph 7: Start of Transect 7 from eastern border. View west.

Photograph 8: End of Transect 7 from western border. View east.

Photograph 9: Start of Transect 9 from eastern border. View west.

Photograph 10: End of Transect 9 from western border. View east.

Photograph 11: Start of Transect 10 from eastern border. View west

Photograph 12: Start of Transect 10 from northwestern border. View north.

Photograph 13: End of Transect 10 from western border. View east.

Photograph 14: End of Transect 10 from southeastern border. View north.

Photograph 15: View south from mid-split section of project area.

Photograph 16: View east from mid-split section of project area.

Photograph 17: End of Transect 1, view east from northeastern corner.

Photograph 18: End of Transect 1, view west from northeastern corner.

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Appendix E:
Cultural Resources Regulations and Evaluation Criteria

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CULTURAL RESOURCES REGULATIONS AND EVALUATION CRITERIA

Local, state, and federal government agencies have developed laws and regulations designed to protect significant cultural resources that may be affected by projects regulated, funded, or undertaken by the agency. Federal and state laws that govern the preservation of historic and archaeological resources of national, state, regional, and local significance include the National Environmental Policy Act (NEPA), the National Historic Preservation Act (NHPA), and California Environmental Quality Act (CEQA). In addition, laws specific to work conducted on federal lands include the Archaeological Resources Protection Act, the American Antiquities Act, and the Native American Graves Protection and Repatriation Act.

The following federal or CEQA criteria were used to evaluate the significance of potential impacts on cultural resources for the proposed project. An impact is considered significant if it would affect a resource eligible for listing in the National Register of Historic Places (NRHP) or the California Register of Historical Resources (CRHR) or if it is identified as a unique archaeological resource.

Federal-level Evaluations

National Historic Preservation Act

The National Historic Preservation Act of 1966 (NHPA), as amended, established the NRHP, which contains an inventory of the nation's significant prehistoric and historic properties. Under 36 Code of Federal Regulations 60, a property is recommended for possible inclusion on the NRHP if it is at least 50 years old, has integrity, and meets one of the following criteria:

- It is associated with significant events in history, or broad patterns of events;
- It is associated with significant people in the past;
- It embodies the distinctive characteristics of an architectural type, period, or method of construction; or it is the work of a master or possesses high artistic value; or it represents a significant and distinguishable entity whose components may lack individual distinction; or
- It has yielded, or may yield, information important in history or prehistory.

Certain types of properties are usually excluded from consideration for listing in the NRHP, but they can be considered if they meet special requirements in addition to meeting the criteria listed above. Such properties include religious sites, relocated properties, graves and cemeteries, reconstructed properties, commemorative properties, and properties that have achieved significance within the past 50 years.

Archaeological Resources Protection Act

The Archaeological Resources Protection Act (ARPA) amended the Antiquities Act of 1906 (16 United States Code [USC] §§ 431–433) and set a broad policy that archaeological resources are important to the nation and should be protected and required special permits before the excavation or removal of archaeological resources from public or Indian lands. The purpose of the ARPA was to secure, for the

present and future benefit of the American people, the protection of archaeological resources and sites that are on public lands and Indian lands and to foster increased cooperation and exchange of information between governmental authorities, the professional archaeological community, and private individuals having collections of archaeological resources and data that were obtained before October 31, 1979.

American Indian Religious Freedom Act

The American Indian Religious Freedom Act (AIRFA) established federal policy to protect and preserve the inherent rights of freedom for Native American groups to believe, express, and exercise their traditional religions. These rights include but are not limited to access to sites, use and possession of sacred objects, and freedom to worship through ceremonials and traditional rites.

Native American Graves Protection and Repatriation Act

The Native American Graves Protection and Repatriation Act of 1990 sets provisions for the intentional removal and inadvertent discovery of human remains and other cultural items from federal and tribal lands. It clarifies the ownership of human remains and sets forth a process for repatriation of human remains and associated funerary objects and sacred religious objects to the Native American groups claiming to be lineal descendants or culturally affiliated with the remains or objects. It requires any federally funded institution housing Native American remains or artifacts to compile an inventory of all cultural items within the museum or with its agency and to provide a summary to any Native American tribe claiming affiliation.

State Level Evaluation Processes

An archaeological site may be considered a historical resource if it is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California per Public Resources Code Section 5020.1(j) or if it meets the criteria for listing on the CRHR per the California Code of Regulations, Title 14, Section 4850.

The most recent amendments to the CEQA Guidelines direct lead agencies to first evaluate an archaeological site to determine whether it meets the criteria for listing in the CRHR. If an archaeological site is a historical resource, in that it is listed or eligible for listing in the CRHR, potential adverse impacts to it must be considered as stated in Public Resources Code Sections 21084.1 and 21083.2(l). If an archaeological site is considered not to be a historical resource, but meets the definition of a “unique archaeological resource” as defined in Public Resources Code Section 21083.2, then it would be treated in accordance with the provisions of that section.

With reference to Public Resources Code Section 21083.2, each site found within a project area will be evaluated to determine whether it is a unique archaeological resource. A unique archaeological resource is described as 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 one or more of the following criteria:

1. Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.

2. Has a special and particular quality such as being the oldest of its type or the best available example of its type.
3. Is directly associated with a scientifically recognized important prehistoric or historic event or person.

As used in this report, a "non-unique archaeological resource" means an archaeological artifact, object, or site that does not meet the criteria for eligibility for listing on the CRHR, as noted in subdivision (g) of Public Resources Code Section 21083.2. A non-unique archaeological resource requires no further consideration other than the simple recording of its components and features. Isolated artifacts are typically considered non-unique archaeological resources. Historic structures that have had their superstructures demolished or removed can be considered historic archaeological sites and are evaluated following the processes used for prehistoric sites. Finally, the California State Office of Historic Preservation recognizes an age threshold of 45 years. Cultural resources built less than 45 years ago may qualify for consideration, but only under the most extraordinary circumstances.

Title 14 of the California Code of Regulations, Chapter 3, Section 15064.5, is associated with determining the significance of impacts to archaeological and historical resources. Here, the term historical resource includes the following:

1. A resource listed in, or determined eligible by the State Historical Resources Commission, for listing in the CRHR (Public Resources Code [PRC] § 5024.1; Title 14 California Code of Regulations [CCR], § 4850, *et seq*.).
2. A resource included in a local register of historical resources, as defined in Public Resources Code Section 5020.1(k) or identified as significant in a historical resource survey meeting the Public Resources Code Section 5024.1(g) requirements, shall be presumed to be historically or culturally significant. Public agencies must treat any such resource as significant unless the preponderance of evidence demonstrates that it is not historically or culturally significant.
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 may be considered a historical resource, provided the lead agency's determination is supported by substantial evidence in light of the whole record. Generally, a resource shall be considered by the lead agency to be historically significant if the resource meets the criteria for listing on the California Register of Historical Resources (PRC § 5024.1; Title 14 CCR § 4852) including the following:
    A. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.
    B. Is associated with the lives of persons important in our past.
    C. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.
    D. Has yielded, or may be likely to yield, information important in prehistory or history.

Typically, archaeological sites exhibiting significant features qualify for the CRHR under Criterion D because such features have information important to the prehistory of California. A lead agency may determine that a resource may be a historical resource as defined in Public Resources Code Sections 5020.1(j) or 5024.1, even if it is:

- Not listed in or determined to be eligible for listing in the CRHR.
- Not included in a local register of historical resources pursuant to Public Resources Code Section 5020.1(k).
- Identified in a historical resources survey per Public Resources Code Section 5024.1(g).

California Register of Historical Resources

As defined by CEQA Guidelines Section 15064.5(a)(3)(A-D), a resource shall be considered historically significant if the resource meets the criteria for listing on the CRHR. The CRHR and many local preservation ordinances have employed the criteria for eligibility to the NRHP as a model, since the NRHP provides the highest standard for evaluating the significance of historic resources. A resource that meets the NRHP criteria is clearly significant. In addition, a resource that does not meet the NRHP standards may still be considered historically significant at a local or State level.

California Environmental Quality Act

The CEQA Guidelines state that a resource need not be listed on any register to be found historically significant. CEQA Guidelines direct lead agencies to evaluate archaeological sites to determine whether they meet the criteria for listing in the CRHR. If an archaeological site is a historical resource, in that it is listed or eligible for listing in the CRHR, potential adverse impacts to it must be considered. If an archaeological site is considered not to be a historical resource but meets the definition of a "unique archaeological resource" as defined in Public Resources Code Section 21083.2, then it would be treated in accordance with the provisions of that section.

Native American Heritage Commission Sacred Lands Inventory

Section 5097.91 of the Public Resources Code established 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. This inventory is referred to as the NAHC Sacred Lands File. Under Section 5097.9 of the Public Resources Code, a State policy of noninterference with the free expression or exercise of Native American religion was articulated along with a prohibition of severe or irreparable damage to Native American sanctified cemeteries, places of worship, religious or ceremonial sites or sacred shrines located on public property. Section 5097.98 of the Public Resources Code specifies a protocol to be followed when the NAHC receives notification of a discovery of Native American human remains from a County Coroner. Section 5097.5 defines as a misdemeanor the unauthorized disturbance or removal of archaeological, historic, or paleontological resources located on public lands.

California Assembly Bill 52—Effects on Tribal Cultural Resources

Assembly Bill (AB) 52 was signed into law on September 25, 2014, and provides that any public or private "project with an effect that may cause a substantial adverse change in the significance of a

tribal cultural resource is a project that may have a significant effect on the environment." Tribal Cultural Resources (TCRs) include "[s]ites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are eligible for inclusion in the California Register of Historical Resources or included in a local register of historical resources." Under prior law, TCRs were typically addressed under the umbrella of "cultural resources," as discussed above. AB 52 formally added the category of "tribal cultural resources" to CEQA and extended the consultation and confidentiality requirements to all projects, rather than just projects subject to Senate Bill (SB) 18 as discussed above.

The parties must consult in good faith, and consultation is deemed concluded when either: (1) the parties agree to measures to mitigate or avoid a significant effect on a tribal cultural resource (if such a significant effect exists); or (2) when a party concludes that mutual agreement cannot be reached. Mitigation measures agreed upon during consultation must be recommended for inclusion in the environmental document. AB 52 also identifies mitigation measures that may be considered to avoid significant impacts if there is no agreement on appropriate mitigation. Recommended measures include:

- Preservation in place.
- Protecting the cultural character and integrity of the resource.
- Protecting the traditional use of the resource.
- Protecting the confidentiality of the resource.
- Permanent conservation easements with culturally appropriate management criteria.

Thresholds of Significance

If a project will have a significant impact on a cultural resource, several steps must be taken to determine whether the cultural resource is a "unique archaeological resource" under CEQA. If analysis and/or testing determine that the resource is a unique archaeological resource and therefore subject to mitigation prior to development, a threshold of significance should be developed. The threshold of significance is a point where the qualities of significance are defined, and the resource is determined to be unique under CEQA. A significant impact is regarded as the physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of the resource will be reduced to a point that it no longer meets the significance criteria. Should analysis indicate that project development will destroy the unique elements of a resource; the resource must be mitigated for under CEQA regulations. The preferred form of mitigation is to preserve the resource in place, in an undisturbed state. However, as that is not always possible or feasible, appropriate mitigation measures may include but are not limited to:

1. Planning construction to avoid the resource.
2. Deeding conservation easements.
3. Capping the site prior to construction.

If a resource is determined to be a "non-unique archaeological resource," no further consideration of the resource by the lead agency is necessary.

Local Regulations

Metropolitan Bakersfield General Plan (Adopted December 3, 2002)

Policies

5	Provide for streetscape improvements, landscape, and signage which uniquely identify major and/or historic residential neighborhoods (I-8).
7	Provide for the retention of historic residential neighborhoods as identified in the Historical Resources Element if adopted by the City of Bakersfield (I-1, I-6, I-8).
27	Require that new commercial uses maintain visual compatibility with single-family residences in areas designated for historic preservation (I-1, I-6, I-8).
72	Promote the creation of both residential and commercial historic districts, and encourage the upgrading of historic structures (I-1, I-6, I-8).
104	As part of the environmental review procedure, an evaluation of the significance of paleontological, archaeological, and historical resources and the impact of proposed development on those resources shall be conducted and appropriate mitigation and monitoring included for development projects.
106	The preservation of significant historical resources as identified on Table 4.10-1 shall be encouraged by developing and implementing incentives such as building and planning application permit fee waivers, Mills Act contracts, grants and loans, implementing the State Historic Building Code and other incentives as identified in the City's Historic Preservation Ordinance.
107	The preservation of significant historical resources shall be promoted and other public agencies or private organizations shall be encouraged to assist in the purchase and/or relocation of sites, buildings, and structures deemed to be of historical significance.

Tribal Consultation

The following serves as an overview of the procedures and timeframes for the Tribal Consultation process. For the complete Tribal Consultation Guidelines, please refer to the State of California Office of Planning and Research website.

Prior to the amendment or adoption of general or specific plans, local governments must notify the appropriate tribes of the opportunity to conduct consultation 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 plan adoption or amendment. The tribal contacts for this list are maintained by the NAHC and are distinct from the Most Likely Descendant (MLD) list. It is suggested that local governments send written notice by certified mail with return receipt requested. The tribes have 90 days from the date they receive notification to request consultation. In addition, prior to adoption or amendment of a general or specific plan, local government must refer the proposed action to tribes on

the NAHC list that have traditional lands located within the city or county's jurisdiction. Notice must be sent regardless of prior consultation. The referral must allow a 45-day comment period.

In brief, notices from government to the tribes should include:

- A clear statement of purpose.
- A description of the proposed general or specific plan, the reason for the proposal, and the specific geographic areas affected.
- Detailed maps to accompany the description.
- Deadline date for the tribes to respond.
- Government representative(s) contact information.
- Contact information for project proponent/applicant, if applicable.

The basic schedule for this process is:

- **30 days:** time the NAHC has to provide tribal contact information to the local government; this is recommended, not mandatory.
- **90 days:** time the tribe has to respond indicating whether or not they want to consult. Note: tribes can agree to a shorter timeframe. In addition, consultation does not begin until/unless requested by the tribe within 90 days of receiving notice of the opportunity to consult. The consultation period, if requested, is open-ended. The tribes and local governments can discuss issues for as long as necessary, or productive, and need not result in agreement.
- **45 days:** time the local government has to refer proposed action, such as adoption or amendment to a general plan or specific plan, to agencies, including the tribes. Referral required even if there has been prior consultation. This opens the 45-day comment period.
- **10 days:** time the local government has to provide tribes of notice of public hearing.

California Assembly Bill 52—Effects on Tribal Cultural Resources

AB 52 amended the CEQA statute to identify an additional category of resource to be considered under CEQA, called "tribal cultural resources." It added Public Resources Code Section 21074, which defines "tribal cultural resources" as follows:

(a) "Tribal cultural resources" are either of 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 CRHR.
    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. In applying the criteria set forth in subdivision (c) of Section 5024.1 for the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American tribe.

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Appendix E:
Geology and Soils Supporting Information

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E-1: Geotechnical Evaluation

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Updated Geotechnical Evaluation
Warehouse Facility Project
Houghton Road and Wible Road
Bakersfield, California

Seefried Industrial Properties
2201 East Camelback Road | Phoenix, Arizona 85016

October 13, 2023 | Project No. 211696003

Geotechnical | Environmental | Construction Inspection & Testing | Forensic Engineering & Expert Witness

Geophysics | Engineering Geology | Laboratory Testing | Industrial Hygiene | Occupational Safety | Air Quality | GIS

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Updated Geotechnical Evaluation
Warehouse Facility Project
Houghton Road and Wible Road
Bakersfield, California

Mr. Sean Sheppard
Seefried Industrial Properties
2201 East Camelback Road | Phoenix, Arizona 85016

October 13, 2023 | Project No. 211696003

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1 INTRODUCTION

In accordance with your request and authorization, we have performed an updated geotechnical evaluation for the proposed warehouse facility to be located at the southeast corner of Wible Road and Houghton Road in Kern County, California (Figure 1). The purpose of our study was to evaluate the soil and geologic conditions at the project site in order to provide geotechnical recommendations for the design and construction of the project. In 2021, we prepared a report for the original design of the project (Ninyo & Moore, 2021b). However, the design and location of the building on the site have changed and we have prepared this updated report to address those design changes. In addition, we were requested to perform percolation (infiltration) testing on the site. The current report includes the results of additional borings, laboratory testing, and percolation (infiltration) testing. This report presents our updated findings, conclusions, and recommendations for design and construction of the currently proposed improvements.

2 SCOPE OF SERVICES

Our scope of services included the following:

- Project coordination, planning, and scheduling of the subsurface exploration.
- Review of readily available background materials, including published geologic maps and literature, in-house information, aerial photographs, and plans provided by the client.
- Site reconnaissance to observe the general site conditions, mark the proposed boring locations, and coordinate with Underground Service Alert for utility clearance.
- Acquisition of an encroachment permit from the County of Kern Public Works Department, Building and Development Division, for drilling borings within the County Right-of-Way on Houghton Road and Wible Road.
- Subsurface exploration consisting of drilling, logging, and sampling of thirty-two small-diameter, hollow-stem auger borings to depths of up to approximately 51.3 feet below the existing ground surface. The borings were logged by representatives of our firm and relatively undisturbed and bulk soil samples were collected at selected intervals for laboratory testing.
- Performing percolation testing in eight shallow borings.
- Laboratory testing of representative soil samples. Laboratory tests included evaluation of in-situ moisture content and dry density, percentage of particles finer than the No. 200 sieve, sieve analysis, Atterberg limits, consolidation characteristics, direct shear strength, Proctor density, R-value, and soil corrosivity.
- Data compilation and engineering analysis of the information obtained from our background review, subsurface exploration, and laboratory testing.

- Preparation of this report presenting our findings, conclusions, and geotechnical recommendations pertaining to the geotechnical aspects of the design and construction of the proposed improvements.

3 SITE DESCRIPTION

The site is located southeast of the intersection of Houghton Road and Wible Road in an unincorporated area of Kern County, approximately 1.5 miles south of the city limits of Bakersfield, California (Figure 1). The site consists of an approximately 93.74 acres of currently undeveloped land formerly used for agricultural purposes. The site is bounded on the northwest corner by another agricultural property, on the north by Houghton Road, on the west by Wible Road, and on the south and east by unpaved roads and agricultural properties. The existing ground surface at the site is tilled and covered with scattered dry grasses, hay, and/or old crop. Topographically, the project site is relatively flat with a ground surface elevation of approximately 330 feet above mean sea level (United States Geological Survey [USGS], 2018a).

4 PROJECT DESCRIPTION

The previous project design consisted of the design and construction of a new warehouse facility and included upgraded pavement sections for approximately 0.6 miles of Wible Road and approximately 1.3 miles of Houghton Road (Figures 2 and 3). The warehouse facility now includes a single-story tilt-up warehouse building with a footprint area of approximately 629,186 square feet. The proposed new location of the building is roughly 300 feet north-northwest of the previous proposed location. Large asphalt concrete-paved loading and parking areas will be located around the perimeter south, east, and west of the building (Ware Malcomb, 2023). The new warehouse design will include approximately 53 loading dock spaces on the north and east sides of the building. The paved parking areas will include approximately 292 trailer parking stalls on the east side of the facility and approximately 1,797 associate parking stalls on the west and south sides of the facility. Additional site improvements now include a wastewater substation at the northeastern corner of the site, three relatively large storm water retention basins, proposed to be located on the northern side of the property and near the southwest and southeast corners of the site, and new roads along the southern and eastern sides of the facility (Ware Malcomb, 2023). Grading for the project will generally include remedial grading, excavations for foundation and floor slab preparation, and utility installation via cut-and-cover trenching.

5 SUBSURFACE EVALUATION AND LABORATORY TESTING

Our previous subsurface exploration was performed on July 14, July 15, August 10, and August 11, 2021 (Ninyo & Moore, 2021), and consisted of drilling, logging, and sampling eighteen

(18) small diameter borings (B-1 through B-18). Our additional subsurface exploration was performed on August 23 and August 24, 2023 and consisted of drilling, logging, and sampling of an additional six (6) small-diameter borings (B-19 through B-24) and eight (8) percolation test borings (P-1 through P-8). The borings were drilled using a truck-mounted drill rig with 8-inch-diameter hollow-stem augers to depths ranging from approximately 10 to 51.3 feet below the ground surface. The approximate locations of the exploratory borings and percolation test sites are shown on Figures 2 and 3. The borings were logged by representatives from our firm and bulk and relatively undisturbed soil samples were obtained at selected depths for laboratory testing. The borings within the site boundary were backfilled with on-site soil, the borings within County streets were backfilled and patched per the encroachment permit from the County of Kern Public Works Department, Building and Development Division requirements. The logs of the exploratory borings are presented in Appendix A.

In-situ percolation testing was performed in borings P-1 through P-8 to evaluate the infiltration rates of the relatively shallow site soils. Details regarding the percolation testing are provided in the Field Percolation Testing Section of this Report.

Laboratory testing was performed on representative samples to evaluate in-situ moisture content and dry density, percentage of particles finer than the No. 200 sieve, sieve analysis, Atterberg limits, consolidation characteristics, direct shear strength, Proctor density, R-value, and corrosivity. The results of the in-situ moisture content and dry density tests are presented on the boring logs in Appendix A. The remaining laboratory test results are presented in Appendix B.

6 GEOLOGY AND SUBSURFACE CONDITIONS

6.1 Regional Geology

The project site is located on a broad, relatively flat southern portion of the Great Valley Geomorphic Province (Norris and Webb, 1990). The Great Valley extends nearly 500 miles north and south, separating the Sierra Nevada from the Coast Ranges by an average of 40 miles. The Great Valley surficial deposits generally consists of alluvial, flood, and delta plains of the Sacramento and San Joaquin Rivers and their tributaries. The Great Valley is divided into a northern segment, the Sacramento Valley, and a southern segment, the San Joaquin Valley. The project site, located within southern portion of the San Joaquin Valley, is underlain by silt, sand, and gravel alluvial fan deposits which are in turn underlain by a thick sedimentary sequence (Norris and Webb, 1990). Geologic mapping by Smith (1964) indicates that the site is underlain by Quaternary-aged alluvial fan deposits (Figure 4).

6.2 Subsurface Conditions

Materials encountered during our subsurface exploration consisted of asphalt concrete (AC) pavement sections underlain by shallow fill soils and alluvium. Asphalt concrete (AC) was encountered in borings B-1 through B-5 and B-14. Borings B-6 through B-13 and B-15 through B-24 were located on unpaved surfaces. The AC ranged in thickness from approximately 5 to 7 inches. The AC was underlain by approximately 2 inches of aggregate base (AB) in boring B-14 and generally consisted of moist, dense, silty sand with gravel.

Fill was encountered below the pavement sections in borings B-1 through B-5 and B-14 and at the ground surface in borings B-6 through B-13 and B-15 through B-18, to depths of approximately 1 to 2 feet below the ground surface. Fill was not encountered in borings B-19 through B-24. The fill material generally consisted of disturbed/tilled, moist, loose to medium dense, sandy silt, silty sand, and poorly graded sand.

Alluvium/alluvial fan deposits were encountered in our borings below the fill to the total explored depths of up to approximately 51.3 feet. The alluvium generally consisted of interbedded, moist, loose to very dense, sandy silt, clayey sand, silty sand, poorly graded sand with silt, and poorly graded sand, and moist, firm to very stiff, lean clay. Detailed descriptions of the materials encountered in our borings are presented on the boring logs in Appendix A.

7 FIELD PERCOLATION TESTING

Shallow percolation testing was performed on August 24, August 25, and August 28, 2023, at eight locations, P-1 through P-8, in general accordance with the County of Riverside's Design Handbook for Low Impact Development Best Management Practices (Riverside County, 2011). Based on our experience and understanding that established guidelines have not been prepared by Kern County regarding percolation testing for infiltration basins, it is our opinion that the guidelines established by the County of Riverside should be implemented for this project. The testing was performed to evaluate the infiltration rate of the near-surface site soils for use in design of on-site stormwater infiltration Best Management Practices by others.

The eight locations were excavated with an 8-inch-diameter hollow-stem auger to depths of approximately 10 feet below the ground surface and presoaked to the surface. A 2-inch-diameter slotted polyvinyl chloride (PVC) pipe was placed in the borehole and the annulus between the borehole wall and pipe was backfilled with clean gravel to avoid caving in the test zone. The depth of the infiltration zone was between approximately 5 and 10 feet below the ground surface in each boring. In accordance with the Riverside County guidelines, each test hole was filled to a depth that is equal to or greater than five times the hole's radius. In sandy conditions, the test was

conducted over a minimum of one hour with measurements being recorded every ten minutes, until a stabilized rate was obtained. A stabilized rate is defined when the highest and lowest reading of three consecutive readings are within 10 percent of each other. The test infiltration rate was calculated by using the Porchet Method's conversion formula provided in the County of Riverside guidelines. Based on the converted infiltration rates and a safety factor of 4, design infiltration rates ranging from approximately 0.03 to 34.4 inches per hour were calculated for the site. A summary of our test results and infiltration rates are provided in Table 1 below.

Table 1 – Percolation Test Results

Boring Location	Depth Interval (ft)	Soil Type at Test Interval (USCS Classification)	Design Infiltration Rate (in/hr)
P-1	5.0-10.0	Alluvium (SP-SM)	1.4
P-2	5.0-10.0	Alluvium (SM/CL)	0.09
P-3	5.0-10.0	Alluvium (SM/SP-SM)	2.8
P-4	5.0-10.0	Alluvium (SC)	0.3
P-5	5.0-10.0	Alluvium (SM)	0.3
P-6	5.0-10.0	Alluvium (SM/SC)	0.03
P-7	5.0-10.0	Alluvium (SP/SP-SM)	1.3
P-8	5.0-10.0	Alluvium (SP-SM/SP)	34.4

Notes:
ft – feet
in/hr – inches per hour

8 GROUNDWATER

Groundwater was not encountered in our borings at the time of drilling. Groundwater monitoring well data from the State of California Water Resources Control Board's GeoTracker website (2021) indicates that the depth to groundwater at a monitoring well located approximately 2.2 miles southeast of the site ranges from approximately 22.5 to 34 feet below the ground surface. An additional groundwater monitoring well, located approximately 3.2 miles northeast of the site, indicates that the depth to groundwater ranges from approximately 141 to 145 feet below the ground surface. Fluctuations in groundwater levels may occur due to variations in precipitation, ground surface topography, subsurface stratification, irrigation, groundwater pumping, and other factors that may not have been evident at the time of our field evaluation.

9 FLOOD HAZARDS

Based on review of the Kern Master Environmental Assessment Resource's Flood Plain and Dam Inundation Areas Map (Kern Council of Governments, 2004b), the site is located within a mapped dam inundation area for the Lake Isabella reservoir. Areas in the Lake Isabella inundation area would be subject to approximately 1 to 2 feet of sheet flooding. Based on our review of flood insurance rate maps for the project area (Federal Emergency Management Agency [FEMA],

2009), the project site is located within FEMA's designated Other Areas - Zone X, which includes areas assigned to be outside the 500-year floodplain.

10 FAULTING, SEISMICITY, AND GEOLOGIC HAZARDS

The project site is located in a seismically active area, as is the majority of central and southern California. The numerous faults in California include active, potentially active, and inactive faults. As defined by the California Geological Survey (CGS), active faults are faults that have ruptured within Holocene time, or within approximately the last 11,000 years. Potentially active faults are those that show evidence of movement during Quaternary time (approximately the last 1.6 million years) but for which evidence of Holocene movement has not been established. Inactive faults have not ruptured in the last approximately 1.6 million years. The approximate locations of major active faults in the region and their geographic relationship to the project sites are shown on Figure 5.

Based on our review of seismic hazard maps, geologic literature, and geologic maps, the site is not located within a State of California Earthquake Fault Zone (formerly known as Alquist-Priolo Special Studies Zone), and no active faults are known to cross the subject site. The principal seismic and geologic hazards evaluated at the subject site are surface ground rupture, ground motion, liquefaction, and regional subsidence. A brief description of these hazards and the potential for their occurrences on site are discussed in the following sections.

10.1 Surface Ground Rupture

Based on our review of the referenced literature and our site reconnaissance, no active faults are known to cross the project site. Therefore, the probability of damage from surface fault rupture is considered to be low. However, lurching or cracking of the ground surface as a result of nearby seismic events is possible.

10.2 Site-Specific Seismic Ground Motion

Considering the proximity of the site to active faults capable of producing a maximum moment magnitude of 6.0 or more, the project area has a high potential for experiencing strong ground motion. The 2022 California Building Code (CBC) specifies that the risk-targeted maximum considered earthquake (MCE_R) ground motion response accelerations be used to evaluate seismic loads for design of buildings and other structures. Per the 2022 CBC, a site-specific ground motion hazard analysis shall be performed for structures on Site Class D with a mapped MCE_R, 5 percent damped, spectral response acceleration parameter at a period of 1 second (S_1) greater than or equal to 0.2g in accordance with Sections 21.2 and 21.3 of the American Society

of Civil Engineers (ASCE) Publication 7-16 (2016) for the Minimum Design Loads and Associated Criteria for Building and Other Structures. We calculated that the S_1 for the site is equal to 0.392g using the 2022 Applied Technology Council (ATC) seismic design tool (web-based); therefore, a site-specific ground motion hazard analysis was performed for the project area.

The site-specific ground motion hazard analysis consisted of the review of available seismologic information for nearby faults and performance of probabilistic seismic hazard analysis (PSHA) and deterministic seismic hazard analysis (DSHA) to develop acceleration response spectrum curves corresponding to the MCE_R for 5 percent damping. Prior to the site-specific ground motion hazard analysis, we obtained the mapped seismic ground motion values and developed the general MCE_R response spectrum for 5 percent damping in accordance with Section 11.4 of ASCE 7-16 (ATC, 2022). The average shear wave velocity (V_S) for the upper 30 meters of soil (V_{S30}) is reported to be 228 meters per second (m/s) (Wills et al., 2015) and the depths to V_S = 1,000 m/s and V_S = 2,500 m/s are assumed to be 90 meters and 5,800 meters, respectively (Southern California Earthquake Center Community Velocity Model).

The 2014 new generation attenuation (NGA) West-2 relationships were used to evaluate the site-specific ground motions. The NGA relationships that we used for developing the probabilistic and deterministic response spectra are by Chiou and Youngs (2014), Campbell and Bozorgnia (2014), Boore, Stewart, Seyhan, and Atkinson (2014), and Abrahamson, Silva, and Kamai (2014). The Open Seismic Hazard Analysis software developed by United States Geological Survey (USGS, 2020) was used for performing the PSHA. The Calculation of Weighted Average 2014 NGA Models spreadsheet by the Pacific Earthquake Engineering Research Center was used for performing the DSHA (Seyhan, 2014).

PSHA was performed for earthquake hazards having a 2 percent chance of being exceeded in 50 years multiplied by the risk coefficients per ASCE 7-16. The maximum rotated components of ground motions were considered in PSHA with 5 percent damping. For the DSHA, we analyzed accelerations from characteristic earthquakes on active faults within the region using the hazard curves and deaggregation plots at the site obtained from the USGS Unified Hazard Tool application (USGS, 2022b). A magnitude 8.1 event on the San Andreas Fault with a rupture distance of 43.4 kilometers from the site was evaluated to be the controlling earthquake. Hence, the deterministic seismic hazard analysis was performed for the site using this event and corrections were made to the spectral accelerations for the 84th percentile of the maximum rotated component of ground motion with 5 percent damping.

The site-specific MCE_R response spectrum was taken as the lesser of the spectral response acceleration at any period from the PSHA and DSHA, and the site-specific general response spectrum was determined by taking two-thirds of the MCE_R response spectrum with some conditions in accordance with Section 21.3 of ASCE 7-16. Figure 7 presents the site-specific MCE_R response spectrum and the site-specific design response spectrum. The general mapped design response spectrum calculated in accordance with Section 11.4 of ASCE 7-16 is also presented on Figure 7 for comparison. The site-specific spectral response acceleration parameters, consistent with the 2022 CBC, are provided in Section 12.2 for the evaluation of seismic loads on buildings and other structures. The site-specific maximum considered earthquake geometric mean (MCE_G) peak ground acceleration, PGA_M, was calculated as 0.550g.

10.3 Liquefaction Potential

Liquefaction is the phenomenon in which loosely deposited granular soils and non-plastic silts located below the water table undergo rapid loss of shear strength when subjected to strong earthquake-induced ground shaking. Ground shaking of sufficient duration results in the loss of grain-to-grain contact due to a rapid rise in pore water pressure, and causes the soil to behave as a fluid for a short period of time. Liquefaction is known generally to occur in saturated or near-saturated cohesionless soils at depths shallower than 50 feet below the ground surface. Liquefaction is also known to occur in relatively fine-grained soils (i.e., sandy silt and clayey silt) with a plasticity index (PI) of less than 12 and an in-place moisture content more than 85 percent of the liquid limit (LL) and sensitive silts and clays with a PI more than 18. Factors known to influence liquefaction potential include composition and thickness of soil layers, grain size, relative density, groundwater level, degree of saturation, and both intensity and duration of ground shaking.

The project site is not located in an area mapped as being in a liquefaction hazard zone (CalOES, 2022). In addition, groundwater was not encountered in our borings to the explored depths of up to approximately 51.3 feet. Accordingly, it is our opinion that liquefaction and liquefaction-related seismic hazards (e.g., dynamic settlement and/or lateral spreading) are not design considerations for the project.

10.4 Regional Subsidence

Subsidence is characterized as a sinking of the ground surface relative to surrounding areas, and can generally occur where deep, unconsolidated soil deposits are present. Regional land subsidence is typically associated with regional groundwater withdrawal, oil and/or natural gas withdrawal, hydro-compaction, or oxidation and compaction of peat soils following drainage of

marshland (Faunt, 2009). Subsidence can result in the development of ground surface cracks, larger scale ground failures, such as surface faulting and/or earth fissuring, ground surface drainage problems due to permanent subsurface aquifer compaction, increased incidences of flooding, and sinkholes, differential settlement, and damaged wells in the vicinity of the groundwater removal equipment areas (Baum et al., 2008).

According to the USGS, the San Joaquin Valley where the project site is located, has been subject to historical subsidence due to groundwater pumping with some areas experiencing as much as 28 feet of historical ground subsidence (USGS, 2018b). In general, current groundwater practices have improved over the years to help reduce land subsidence due to groundwater pumping. Management strategies are used by governing agencies to store water for future use in an effort to meet water demands reliably. However, periods of drought and/or reduced surface water availability have the potential to cause renewed groundwater pumping and subsidence in the San Joaquin Valley.

11 CONCLUSIONS

Based on the results of our evaluation, it is our opinion that construction of the proposed project improvements is feasible from a geotechnical perspective, provided that the following recommendations are incorporated into the design and construction of the project. In general, the following conclusions were made:

- The site is generally underlain by moist, loose to very dense, sandy silts, clayey sands, silty sands, poorly graded sand with silt and poorly graded sand with some scattered inter-beds of moist, stiff to very stiff, lean clay. Excavations during site grading should be feasible with earthmoving equipment in good working order.

- The on-site sandy soils should be suitable for re-use as compacted fill once moisture-conditioned to near the optimum moisture content. Oversize materials with a diameter of 4 inches or more are not considered to be suitable for use as fill.

- Granular alluvial soils encountered at the site may be subject to caving. These soils should be considered as Type C soils in accordance with Occupational Safety and Health Administration (OSHA) regulations.

- Groundwater was not encountered during our subsurface exploration. Groundwater levels in the vicinity of the site range from approximately 22.5 to 145 feet below the ground surface. Fluctuations in groundwater levels may occur due to variations in precipitation, ground surface topography, subsurface stratification, irrigation, groundwater pumping, and other factors which may not have been evident at the time of our field evaluation.

- The site soils are not considered susceptible to significant dynamic settlements due to earthquake-induced liquefaction.

- The subject site is not located within a State of California Earthquake Fault Zone. Based on our review of published geologic maps and aerial photographs, there are no known active faults that underlie the site. The potential for surface fault rupture at the site is considered to be low.
- The design PGA_M was calculated as 0.550g for the site.
- Our limited laboratory corrosivity testing indicates that the on-site materials can be classified as corrosive based on the California Department of Transportation (Caltrans, 2021) corrosion guidelines.

12 RECOMMENDATIONS

The following sections provide our geotechnical recommendations for the design and construction of the proposed warehouse building and associated improvements. These recommendations are based on our evaluation of the site geotechnical conditions and our understanding of the planned construction, including anticipated foundation loads. The proposed work should be performed in conformance with the recommendations presented in this report, project specifications, and appropriate agency standards.

12.1 Earthwork

Earthwork at the site is anticipated to consist of remedial grading of the near-surface soils, fill placement, foundation excavations, trenching and backfilling for new utilities, pavement construction, and finish grading for establishment of site drainage. Earthwork operations should be performed in accordance with the requirements of the applicable governing agencies and the recommendations presented in the following sections of this report.

12.1.1 Pre-Construction Conference

We recommend that a pre-construction conference be held. The owner and/or their representative, the governing agencies' representatives, the civil engineer, Ninyo & Moore, and the contractor should be in attendance to discuss the work plan and project schedule and earthwork requirements.

12.1.2 Site Preparation

Prior to performing excavations or other earthwork, the site should be cleared of surface obstructions, deleterious materials, and vegetation, as well as surface soils containing organic materials. Existing utilities within the project limits (if any) should be re-routed or protected from damage by construction activities. Obstructions that extend below the finished grade should be removed and the resulting holes filled with compacted soil. Materials

generated from the clearing operations should be removed from the project site and disposed of at a legal dump site.

12.1.3 Excavation Characteristics

Based on our field exploration, we anticipate that excavations within alluvial materials at the site may be accomplished with conventional earthmoving equipment in good working condition. Based on our site reconnaissance and review of geologic literature, we anticipate that the materials encountered will be comprised predominantly of sandy silts, clayey sand, silty sands, poorly graded sand with silt, and poorly graded sand with some scattered inter-beds of lean clay. Oversize materials including cobbles and boulders, if encountered during excavation operations, may not be suitable for backfill and should be disposed of off-site. Contractors should make their own independent evaluation of the excavatability of the on-site materials prior to submitting their bids.

Temporary near-vertical excavations not exceeding a depth of approximately 4 feet should be feasible. Excavations that are unstable or deeper than 4 feet should be laid back to slope inclinations of approximately 1½:1 (horizontal to vertical) or flatter. Where temporary slopes are not possible, shoring will be needed. Excavations should be performed in accordance with OSHA's regulations. On-site soils should be considered as Type C soils in accordance with OSHA guidelines.

12.1.4 Treatment of Near-Surface Soils

In order to provide suitable support for the proposed building we recommend that the building pad be overexcavated to a depth of approximately 7 feet below the existing ground surface or 5 feet beneath the bottom of the footings, whichever is deeper. The over-excavation should remove existing loose surficial soils and should expose relatively dense alluvial deposits. Additional overexcavation of loose, soft, and/or wet areas, and/or undocumented fill may be appropriate. The limits of the excavation should extend laterally so that the overexcavation is approximately 10 feet beyond the perimeter of the building or a distance equal to the depth of the overexcavation, whichever is greater. The excavation bottom should be evaluated by our representative during the excavation work. The exposed subgrade should be scarified to a depth of approximately 8 inches, moisture-conditioned, and compacted prior to the placement of fill.

In areas of pavements subject to vehicle traffic and exterior flatwork, the near-surface soils should be removed to a depth of approximately 2 feet below the pavement or flatwork subgrade. The actual depths of overexcavation should be evaluated by our representative

based on the materials exposed at the time of construction. The limits of overexcavation should extend laterally beyond the improvements to a distance equal to the depth of over-excavation. The subgrade at the bottoms of the overexcavation should be scarified to a depth of 8 inches, moisture-conditioned to slightly above the laboratory optimum moisture content, and compacted to a relative compaction of 90 percent or more. The overexcavated areas should be backfilled to the finished grade with the on-site soils with very low to low expansion potential and compacted to a relative compaction of 90 percent or more.

12.1.5 Fill Material

In general, the on-site granular soils should be suitable for re-use as fill, structural fill, and trench backfill provided they are free of trash, debris, roots, vegetation, or other deleterious materials. Fill should generally be free of rocks or solid lumps of material in excess of 4 inches in diameter. Rocks or solid lumps larger than approximately 4 inches in diameter should be broken into smaller pieces or should be removed from the site. On-site soils used as fill will involve moisture-conditioning to achieve appropriate moisture content for compaction.

Imported materials, if used, should consist of clean, non-expansive, granular material that conforms to the latest edition of “Greenbook” Standard Specifications for Public Works Construction for structure backfill in accordance with ASTM International (ASTM) D 4829 (CBC, 2022). Soil should also be tested for corrosive properties prior to importing. We recommend that the imported materials comply with the Caltrans (2021) criteria for non-corrosive soils (i.e., soils having a chloride concentration of 500 parts per million (ppm) or less, a soluble sulfate content of approximately 0.15 percent (1,500 ppm) or less, a pH value of 5.5 or higher, or an electrical resistivity of 1,500 ohm-centimeters [ohm-cm] or more). Materials for use as fill should be evaluated by the geotechnical consultant prior to importing. The contractor should be responsible for the uniformity of import material brought to the site.

12.1.6 Fill Placement and Compaction

Fill placed for support of the new warehouse building or other miscellaneous improvements should be compacted in horizontal lifts to a relative compaction of 90 percent or more as evaluated by ASTM D 1557. Fill soils should be placed at slightly above the optimum moisture content as evaluated by ASTM D 1557. The optimum lift thickness of fill will depend on the type of compaction equipment used but generally should not exceed 8 inches in loose thickness. Placement and compaction of the fill soils should be in general accordance with appropriate governing agency grading ordinances and good construction practice.

12.2 Site-Specific Seismic Design Considerations

Design of the proposed improvements should be performed in accordance with the requirements of the governing jurisdictions and applicable building codes. Table 2 presents the site-specific spectral response acceleration parameters in accordance with the CBC (2022) guidelines.

Table 2 – 2022 California Building Code Seismic Design Criteria

Site Coefficients and Spectral Response Acceleration Parameters	Values
Site Class	D
Mapped Spectral Response Acceleration at 0.2-second Period, S_S	1.080 g
Mapped Spectral Response Acceleration at 1.0-second Period, S_1	0.392 g
Site-Specific Spectral Response Acceleration at 0.2-second Period, S_{MS}	1.350 g
Site-Specific Spectral Response Acceleration at 1.0-second Period, S_{M1}	0.982 g
Site-Specific Design Spectral Response Acceleration at 0.2-second Period, S_{DS}	0.900 g
Site-Specific Design Spectral Response Acceleration at 1.0-second Period, S_{D1}	0.655 g
Site-Specific Maximum Considered Earthquake Geometric Mean (MCE_G) Peak Ground Acceleration, PGA_M	0.550 g

12.3 Foundations

The proposed warehouse facility and wastewater substation may be supported on shallow, spread footings bearing on engineered fill compacted in accordance with the recommendations presented in Section 12.1 of this report. Foundations should be designed in accordance with structural considerations and the following recommendations. In addition, requirements of the appropriate governing jurisdictions and applicable building codes should be considered in the design of the structures.

12.3.1 Footings

Footings should extend 24 inches or more below the lowest adjacent finished grade. Continuous footings should have a width of 24 inches or more. Isolated pad footings should have a width of 36 inches or more and extend 24 inches or more below the lowest adjacent finish grade. Spread footings should be reinforced with a minimum of two No. 4 steel reinforcing bars, one placed near the top and one placed near the bottom of the footings, and further detailed in accordance with the recommendations of the structural engineer.

Footings, as described above and bearing on compacted fill soils with very low to low expansion potential, may be designed using a net allowable bearing capacity of 2,500 pounds per square foot (psf). The bearing capacity may be increased by 250 psf and 500 psf for every additional foot of increase in width and depth, respectively, up to a value of 3,500 psf.

Total and differential settlements for footings designed and constructed in accordance with the above recommendations are estimated to be less than approximately 1 inch and ½ inch over a horizontal span of 40 feet, respectively.

Footings bearing on compacted fill may be designed using a coefficient of friction of 0.35, where the total frictional resistance equals the coefficient of friction times the dead load. Footings may be designed using a passive resistance of 350 psf per foot of depth for level ground condition up to a value of 3,500 psf. The allowable lateral resistance can be taken as the sum of the frictional resistance and passive resistance provided the passive resistance does not exceed one-half of the total allowable resistance. The passive resistance may be increased by one-third when considering loads of short duration such as wind or seismic forces.

12.3.2 Building Floor Slabs

Building floor slabs should be designed by the project structural engineer based on the anticipated loading conditions. Building floor slabs should be underlain by compacted soil prepared in accordance with the recommendations presented in this report. We recommend that slabs be, at a minimum, 5 inches thick and reinforced with No. 3 steel reinforcing bars placed 18 inches on-center (each way) placed near the mid-height of the slab. The placement of the reinforcement in the slab is vital for satisfactory performance. The floor slab and foundations should be tied together by extending the slab reinforcement into the foundations. The slab should be underlain by a 4-inch-thick capillary break (consisting of either sand or crushed rock) overlain by a polyethylene vapor retarder (with a thickness of 10 mils or more). The steel reinforcements for the floor slab shall be placed on the vapor retarder using chairs, as appropriate. The vapor retarder is recommended in areas where moisture-sensitive floor coverings are anticipated. Soils underlying the slabs should be moisture-conditioned and compacted in accordance with the recommendations presented in this report prior to concrete placement. Joints should be constructed at intervals designed by the structural engineer to help reduce random cracking of the slab.

12.4 Exterior Flatwork

Exterior flatwork should be supported on subgrade soils prepared in accordance with the remedial recommendations presented in Section 12.1 of this report. Exterior flatwork should have a thickness of 4 inches or more. The flatwork should be reinforced with No. 3 steel reinforcing bars placed 24 inches on-center (each way) near the mid-height of the slab.

To reduce the potential for distress to exterior concrete flatwork due to movement of the underlying soil, we recommend that flatwork be installed with crack-control joints at appropriate spacing as designed by the structural engineer. Exterior flatwork should be underlain by 4 inches of clean sand. Positive drainage should be established and maintained adjacent to flatwork.

12.5 Underground Utilities

We anticipate that utility pipelines will be supported on compacted fill or native alluvium. The depths of the pipelines are not known; however, we anticipate that the pipe invert depths will not exceed 10 feet.

12.5.1 Pipe Bedding

We recommend that pipelines be supported on 6 inches or more of granular bedding material such as sand with a sand equivalent (SE) value of 30 or more. Bedding material should be placed and compacted around the pipe, and 12 inches or more above the top of the pipe in accordance with the current “Greenbook” Standard Specifications for Public Works. We do not recommend the use of crushed rock for bedding material. It has been our experience that the voids within a crushed rock material are sufficiently large enough to allow fines to migrate into the voids, thereby creating the potential for sinkholes and depressions to develop at the ground surface.

Special care should be taken not to allow voids beneath and around the pipe. Bedding material and compaction requirements should be in accordance with the recommendations of this report, the project specifications, and applicable requirements of the appropriate agencies. Compaction of the bedding material and backfill should proceed along both sides of the pipe concurrently and be compacted to 90 percent or more relative compaction as evaluated by ASTM D 1557.

12.5.2 Modulus of Soil Reaction

The modulus of soil reaction is used to characterize the stiffness of soil backfill placed on the sides of buried flexible pipelines for the purpose of evaluating lateral deflection caused by the weight of the backfill above the pipe. We recommend that a modulus of soil reaction of 1,200 pounds per square inch (psi) be used for design, provided that granular bedding material is placed adjacent to the pipe, as recommended in this report.

12.6 Pavement Recommendations

Installing pavements for Wible Road and Houghton Road, paved access roads, and parking stalls will be part of the proposed improvements for this project. Accordingly, the pavement sections were designed based on the subgrade soil conditions and our laboratory testing. Laboratory testing of a representative soil sample was performed and indicated an R-value of approximately 61 for the on-site subgrade soils. However, considering the variability in density and strength of near-surface soils across the site and in accordance with the Caltrans criteria, an R-value of 50 was used for the pavement design. We have evaluated pavement structural sections for Traffic Indices (TI) of 4.0, 6.0, 8.0, and 10.0. Our pavement analysis was performed using the methodology outlined in the Caltrans Highway Design Manual (Caltrans, 2019b). The analysis assumes a 20-year design life for the new pavements. Based on the design R-value and TI, our preliminary estimates of pavement structural sections are provided below in Table 3.

Table 3 – Preliminary Structural Pavement Sections

Traffic Index	AC over CAB or AC over CMB (inches)	Full Depth AC (inches)	Full Depth PCC (inches)
≤4	2.5 over 4.5	4.5	5.0
6	3.0 over 4.5	6.0	6.5
8	5.0 over 5.5	8.0	9.5
10	6.0 over 8.0	10.0	12.5

Notes:
AC – Asphalt Concrete
CAB – Crushed Aggregate Base
CMB – Crushed Miscellaneous Base
PCC – Portland Cement Concrete with a 28-day compressive strength of 2,500 psi

Pavements should be supported on subgrade soils prepared in accordance with the remedial recommendations presented in Section 12.1 of this report. Base material should be placed at a relative compaction of 95 percent or more as evaluated by ASTM D 1557. If a full depth AC pavement is selected, the subgrade soil should be compacted to 95 percent relative compaction.

Aggregate base material should conform to the latest specifications in Section 200 2.2 for crushed aggregate base or Section 200 2.4 for crushed miscellaneous base of the Greenbook and should be compacted to a relative compaction of 95 percent in accordance with ASTM D 1557. AC should conform to Section 203.6 of the Greenbook and should be compacted to a relative compaction of 95 percent in accordance with ASTM D 1557.

12.7 Soil Corrosivity and Concrete

Limited testing for corrosion potential of the site soils was performed by Ninyo & Moore using the results of a selected, representative near-surface samples obtained from borings B-5, B-20, and B-21. Laboratory testing was performed to evaluate pH, minimum electrical resistivity, soluble

sulfate, and chloride content. Soluble sulfate content is addressed in the following section of this report. The soil pH and minimum resistivity tests were performed in accordance with California Test Method (CT) 643. The test for chloride content of the soils was performed using CT 422. Sulfate testing was performed in general accordance with CT 417. The laboratory test results are presented in Appendix B.

The chloride content of the samples tested ranged from approximately 20 to 110 ppm. The sulfate content ranged from approximately 20 to 170 ppm. The soil pH of the samples ranged from 7.1 to 8.1, and the electrical resistivity measured in the laboratory ranged from approximately 762 to 2,982 ohm-cm. Based on the laboratory test results and Caltrans (2021) criteria, the project site can be classified as a corrosive site, which is defined as having earth materials with more than 500 ppm chlorides, more than 1,500 ppm of sulfates, a pH of 5.5 or less, or an electrical resistivity of less than 1,500 ohm-cm. The results of the corrosivity tests are presented in Appendix B.

12.8 Concrete

Concrete in contact with soil or water that contains high concentrations of water-soluble sulfates can be subject to premature chemical and/or physical deterioration. Based on the American Concrete Institute (ACI) criteria (2016), the potential for sulfate attack is negligible for water-soluble sulfate contents in soil ranging from 0.00 to 0.10 percent by weight and moderate for water-soluble sulfate contents ranging from 0.10 to 0.20 percent by weight. The potential for sulfate attack is severe for water-soluble sulfate contents ranging from 0.20 to 2.00 percent by weight and very severe for water-soluble sulfate contents over 2.00 percent by weight. The samples tested during this evaluation indicated water-soluble sulfate contents of approximately 0.002 to 0.017 percent by weight (i.e., about 20 to 170 ppm). Accordingly, the on-site soils are considered to have a negligible potential for sulfate attack. Per ACI (2016), Type II cement is appropriate for the site improvements. However, due to the potential variability of soils on site, consideration should be given to using Type II/V cement for the project.

In order to reduce the potential for shrinkage cracks in the concrete during curing, we recommend that the concrete for the proposed structures be placed with a slump of 4 inches based on ASTM C 143. The slump should be checked periodically at the site prior to concrete placement. We further recommend that concrete cover over reinforcing steel for foundations be provided in accordance with CBC (2022). The structural engineer should be consulted for additional concrete specifications.

12.9 Drainage

Positive surface drainage is imperative for satisfactory performance of the site. Positive drainage should be provided and maintained to direct surface water away from foundations and offsite. Positive drainage is defined as a slope of 2 percent or more for a distance of 5 feet or more away from foundations and other site improvements. Runoff should then be directed by the use of swales or pipes into a collective drainage system. Surface waters should not be allowed to pond adjacent to footings or on pavements. Concentrated runoff should not be allowed to flow over pavement as this can result in early deterioration of the pavement. We recommend that the top level of the structures have roof drains and downspouts installed to collect runoff. Area drains for landscaped and paved areas are recommended.

13 CONSTRUCTION OBSERVATION

The recommendations provided in this report are based on our understanding of the proposed project and our evaluation of the data collected based on subsurface conditions observed in our exploratory borings. It is imperative that the geotechnical consultant checks the subsurface conditions during construction.

During construction, we recommend that the duties of the geotechnical consultant include, but not be limited to:

- Observing clearing, grubbing, and removals.
- Observing excavation, placement, and compaction of fill, including trench backfill.
- Evaluating on-site soil for suitability of its use as engineered fill/structural backfill prior to placement.
- Evaluating imported materials prior to their use as fill, if any.
- Performing field tests to evaluate fill compaction.
- Observing foundation excavations for bearing material prior to placement of reinforcing steel or concrete.

The recommendations provided in this report are based on the assumption that Ninyo & Moore will provide geotechnical observation and testing services during construction. In the event that the services of Ninyo & Moore are not used during construction, we request that the selected consultant provide the owner with a letter (with a copy to Ninyo & Moore) indicating that they fully understand Ninyo & Moore's recommendations and that they are in full agreement with the design parameters and recommendations contained in this report.

14 LIMITATIONS

The field evaluation, laboratory testing, and geotechnical analyses presented in this geotechnical report have been conducted in general accordance with current practice and the standard of care exercised by geotechnical consultants performing similar tasks in the project area. No warranty, expressed or implied, is made regarding the conclusions, recommendations, and opinions presented in this report. There is no evaluation detailed enough to reveal every subsurface condition. Variations may exist and conditions not observed or described in this report may be encountered during construction. Uncertainties relative to subsurface conditions can be reduced through additional subsurface exploration. Additional subsurface evaluation will be performed upon request.

This document is intended to be used only in its entirety. No portion of the document, by itself, is designed to completely represent any aspect of the project described herein. Ninyo & Moore should be contacted if the reader requires additional information or has questions regarding the content, interpretations presented, or completeness of this document.

This report is intended for design purposes only. It does not provide sufficient data to prepare an accurate bid by contractors. It is suggested that the bidders and their geotechnical consultant perform an independent evaluation of the subsurface conditions in the project areas. The independent evaluations may include, but not be limited to, review of other geotechnical reports prepared for the adjacent areas, site reconnaissance, and additional exploration and laboratory testing.

Our conclusions, recommendations, and opinions are based on an analysis of the observed site conditions. If geotechnical conditions different from those described in this report are encountered, our office should be notified, and additional recommendations, if warranted, will be provided upon request. It should be understood that the conditions of a site could change with time as a result of natural processes or the activities of man at the subject site or nearby sites. In addition, changes to the applicable laws, regulations, codes, and standards of practice may occur due to government action or the broadening of knowledge. The findings of this report may, therefore, be invalidated over time, in part or in whole, by changes over which Ninyo & Moore has no control.

This report is intended exclusively for use by the client. Any use or reuse of the findings, conclusions, and/or recommendations of this report by parties other than the client is undertaken at said parties' sole risk.

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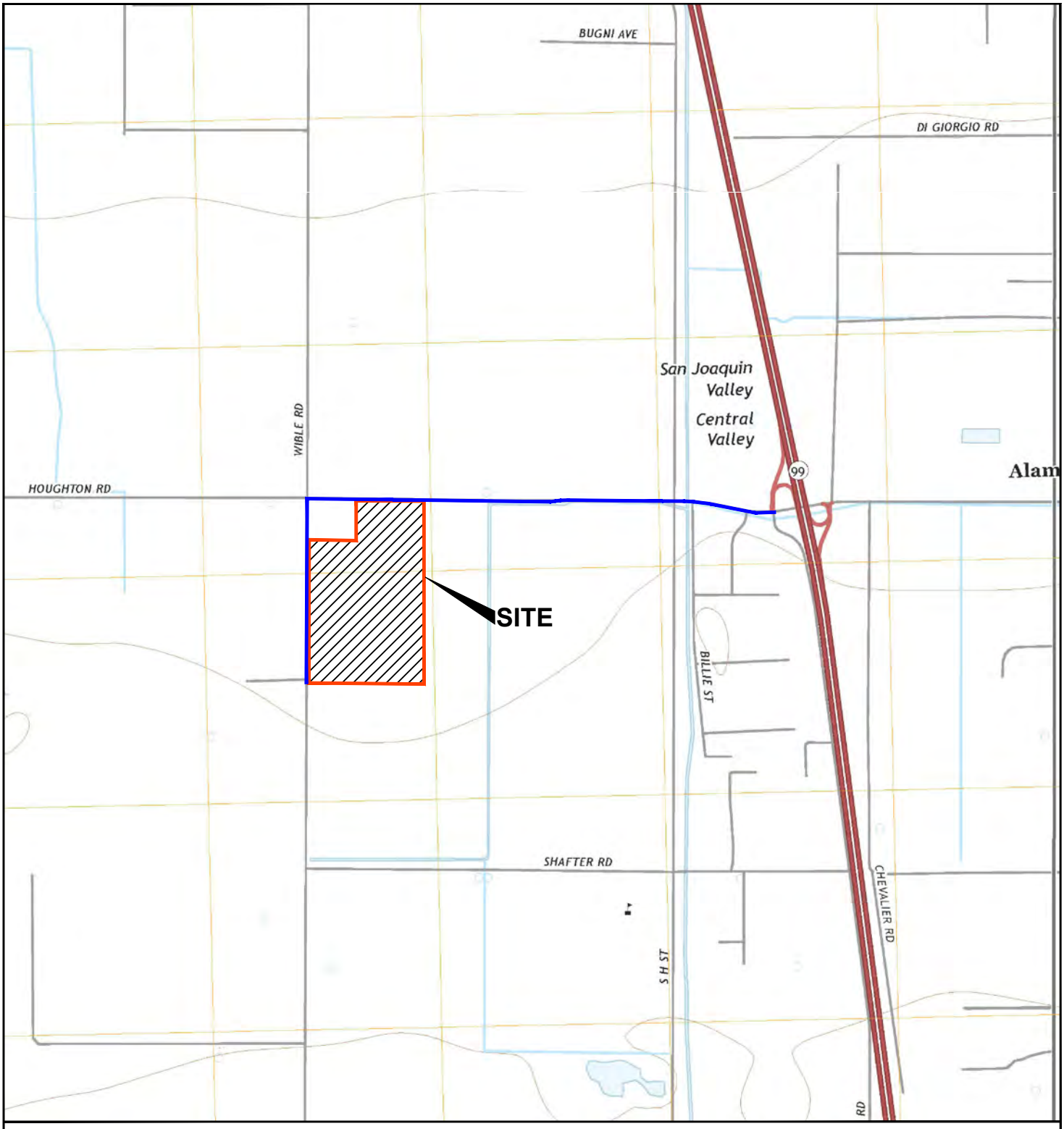
FIGURES



LEGEND

PROPOSED STREET IMPROVEMENTS

NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE. I REFERENCE: USGS, 2018.

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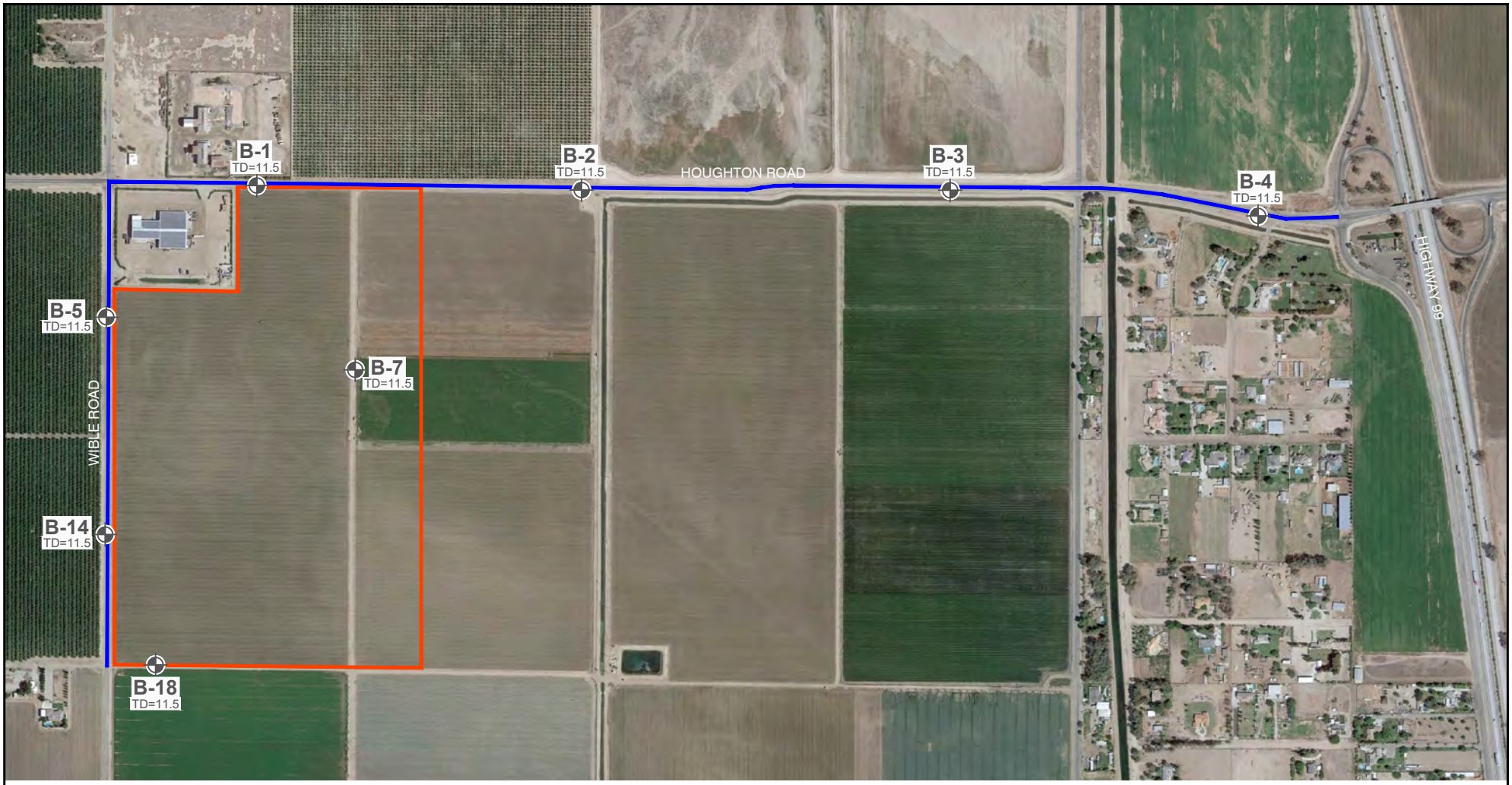
FIGURE 1

SITE LOCATION

BAKERSFIELD WAREHOUSE FACILITY
BAKERSFIELD, CALIFORNIA

211696003 I 10/23

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants



LEGEND

SITE BOUNDARY

PROPOSED STREET IMPROVEMENTS

B-18 TD=11.5 — BORING (NINYO & MOORE, 2021); TD=TOTAL DEPTH IN FEET

NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE. I REFERENCE: GOOGLE EARTH, 2021.

N

FEET

0 800 1,600

211696001_SA.dwg 11/14/2023 GK, JDP

FIGURE 2

SITE AERIAL AND STREET BORING LOCATIONS

BAKERSFIELD WAREHOUSE FACILITY
BAKERSFIELD, CALIFORNIA

211696003 I 10/23

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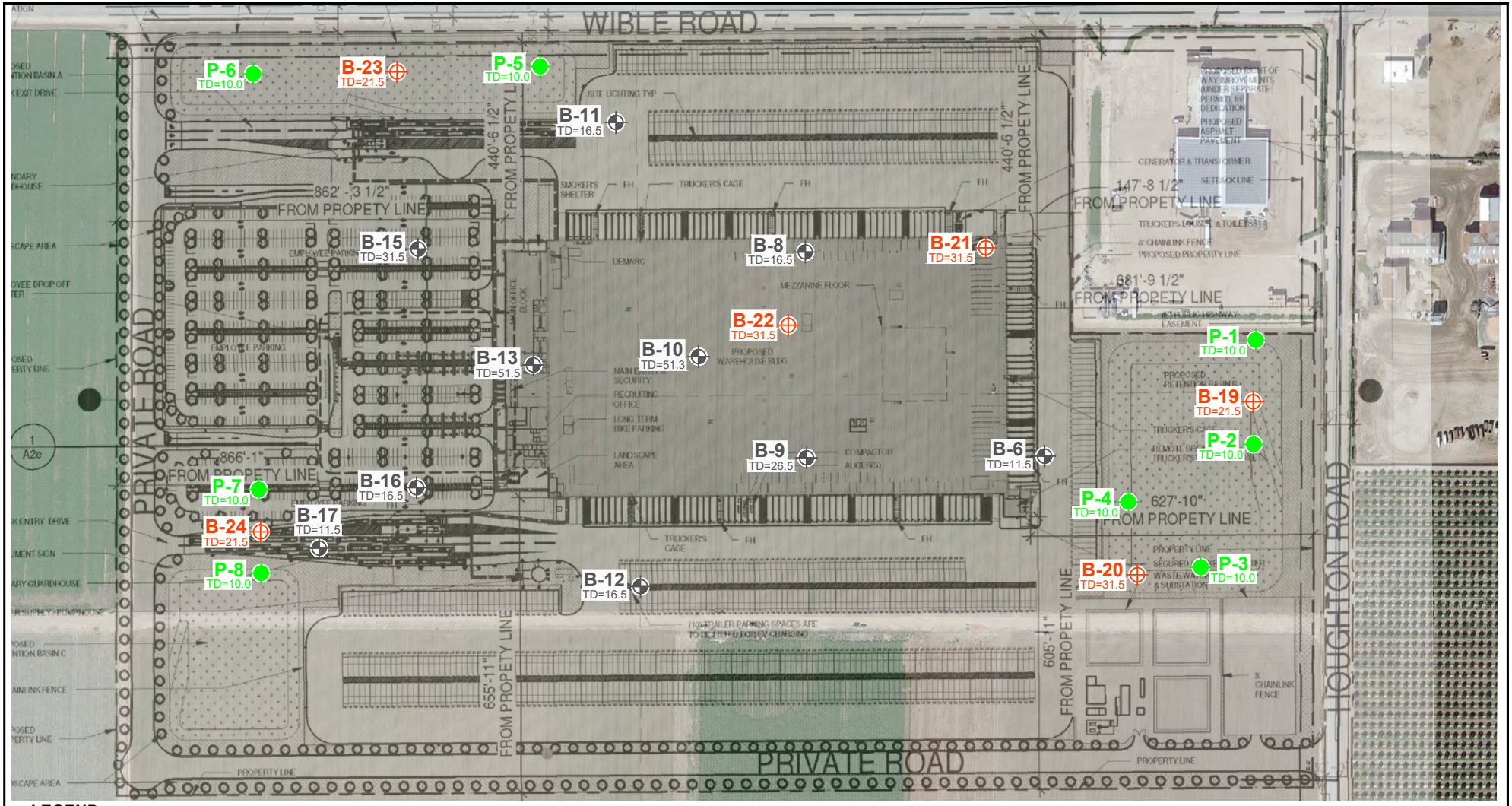

LEGEND

- SITE BOUNDARY
- B-17 TD=11.5 — BORING (NINYO & MOORE, 2021); TD=TOTAL DEPTH IN FEET
- B-24 TD=21.5 — BORING (NINYO & MOORE, 2023); TD=TOTAL DEPTH IN FEET
- P-8 TD=10.0 — PERCOLATION TEST; TD=TOTAL DEPTH IN FEET

NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE. I REFERENCE: GOOGLE EARTH, 2021.

N

FEET
0 320 640

211696001_SP.dwg 11/14/2023 JDP

FIGURE 3

SITE PLAN AND BORING LOCATIONS

BAKERSFIELD WAREHOUSE FACILITY
BAKERSFIELD, CALIFORNIA

211696003 I 10/23

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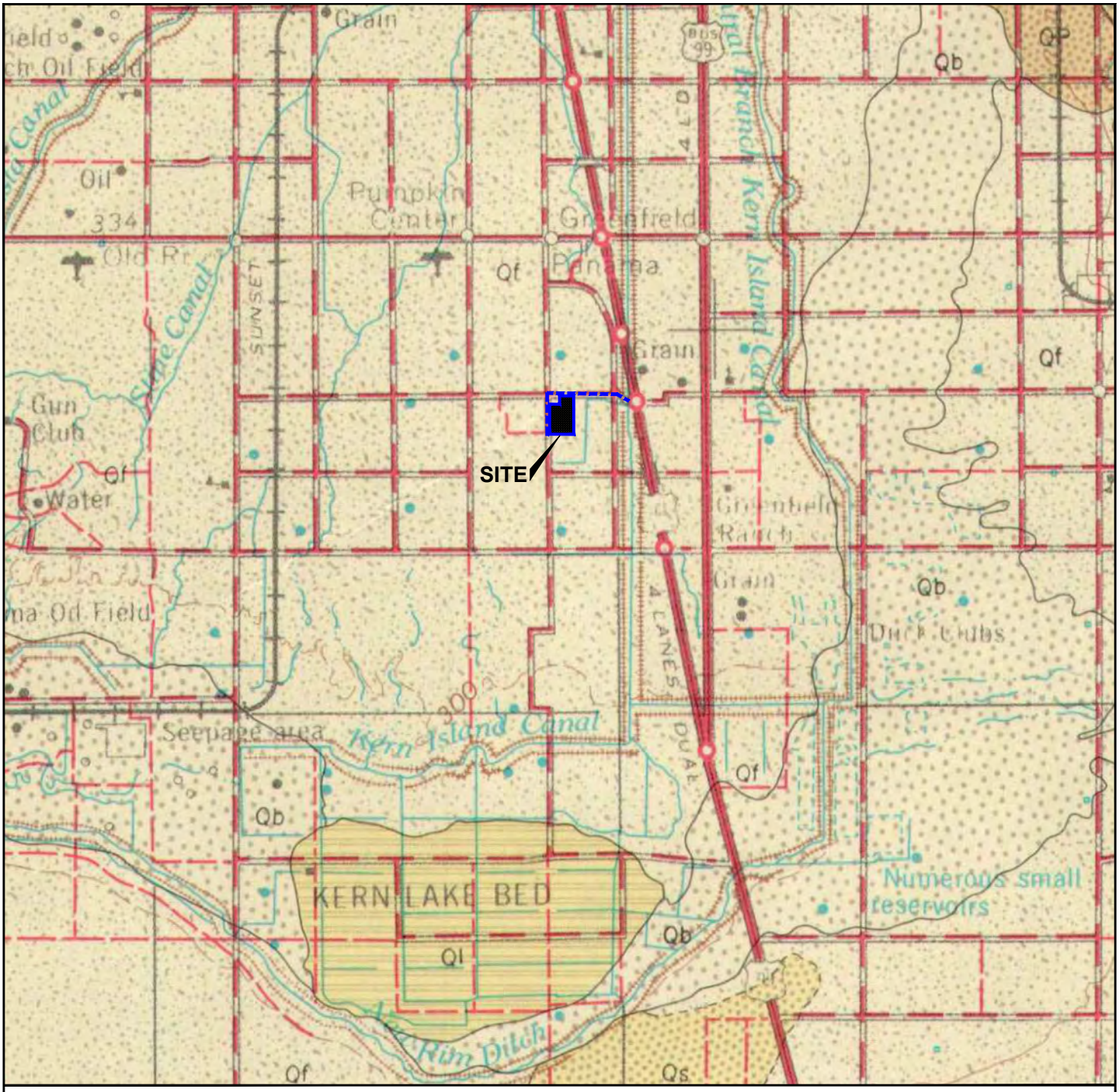
Geotechnical & Environmental Sciences Consultants



LEGEND

Qf	FAN DEPOSITS (QUATERNARY)		GEOLOGIC CONTACT
Qs	DUNE SAND DEPOSITS (QUATERNARY)		FAULT
Ql	LAKE DEPOSITS (QUATERNARY)		PROPOSED STREET IMPROVEMENTS

NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE. I REFERENCE: ARTHUR R. SMITH, 1964.

N

FEET

0 10,000 20,000

211696001_RG.dwg 11/14/2023 GK

FIGURE 4

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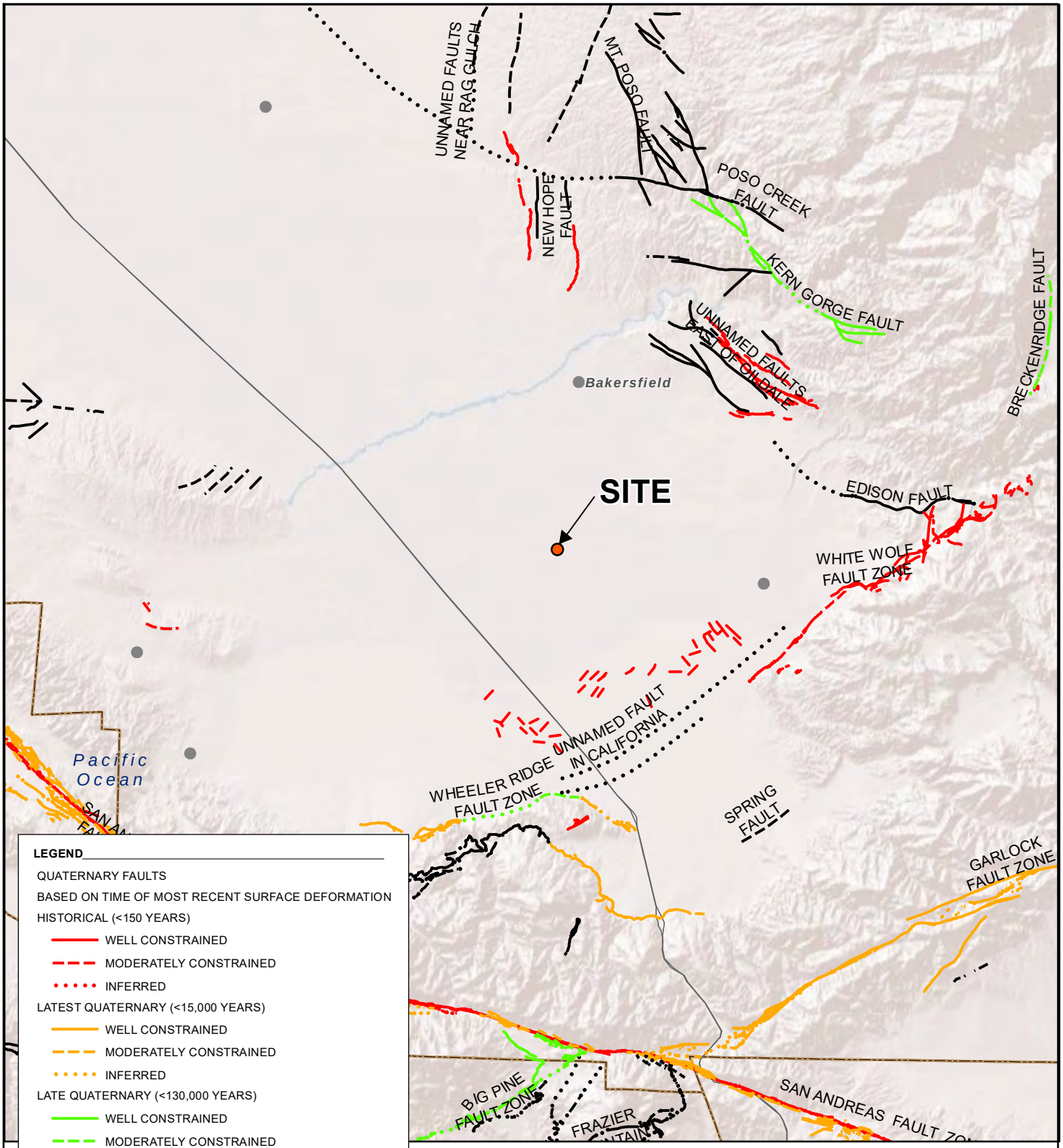
REGIONAL GEOLOGY

BAKERSFIELD WAREHOUSE FACILITY
BAKERSFIELD, CALIFORNIA

211696003 I 10/23



SOURCES: CALIFORNIA GEOLOGICAL SURVEY, ACCESSED AUGUST 23, 2021, AT: https://www.usgs.gov/natural-hazards/earthquake-hazards/faults; ESRI, 2021.

NOTE: DIRECTIONS, DIMENSIONS AND LOCATIONS ARE APPROXIMATE.

211696001_FL.mxd 9/5/2021 JDP

FIGURE 5

FAULT LOCATIONS

BAKERSFIELD WAREHOUSE FACILITY
BAKERSFIELD, CALIFORNIA

211696003 | 10/23

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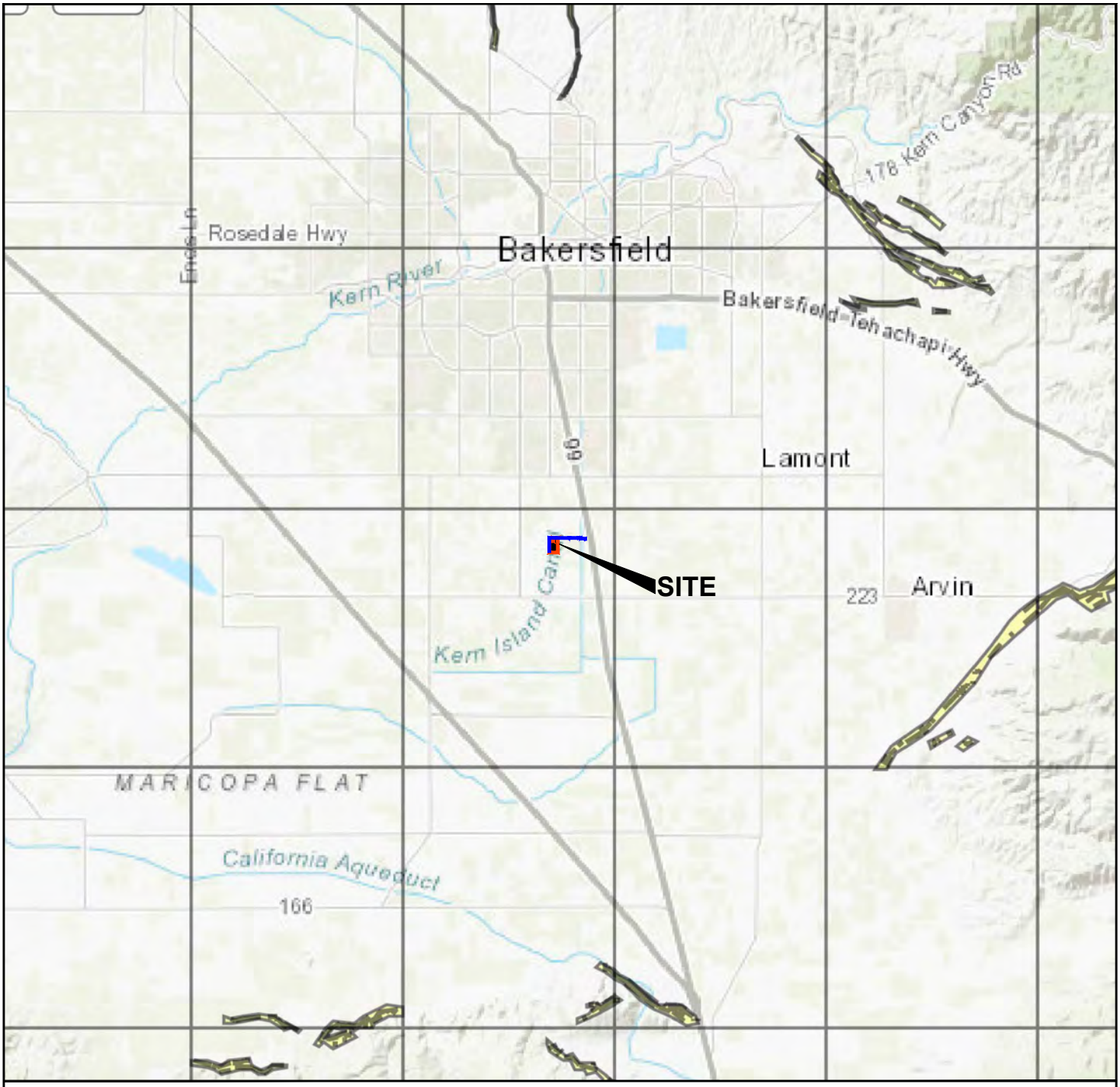

LEGEND

HISTORIC QUATERNARY FAULT

EARTHQUAKE FAULT ZONE OF REQUIRED INVESTIGATION

NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE. I REFERENCE: CGS, 2023.

N

MILES

0 5 10

211696001_SHZ.dwg 11/14/2023 JDP

FIGURE 6

SEISMIC HAZARD ZONES

BAKERSFIELD WAREHOUSE FACILITY
BAKERSFIELD, CALIFORNIA

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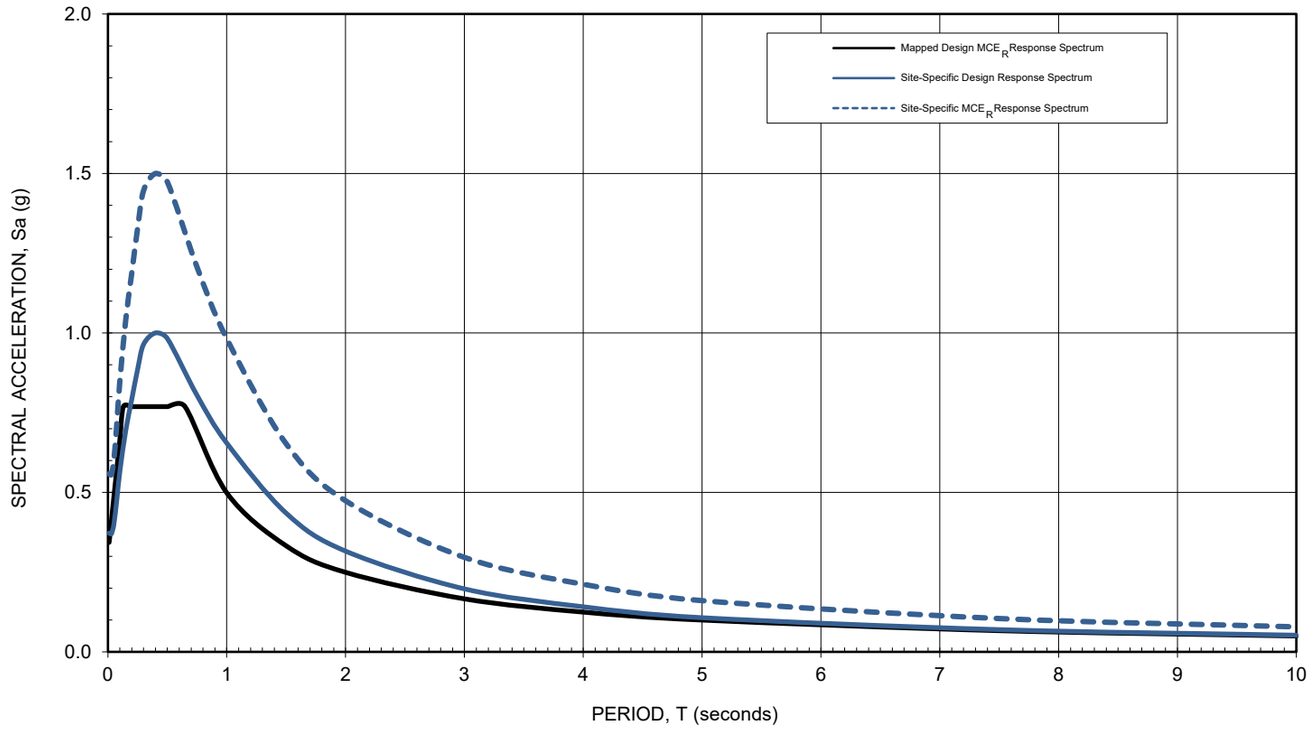
PERIOD (seconds)	SITE-SPECIFIC MCE_R RESPONSE SPECTRUM Sa (g)	SITE-SPECIFIC DESIGN RESPONSE SPECTRUM Sa (g)
0.010	0.558	0.372
0.020	0.555	0.370
0.030	0.556	0.371
0.050	0.600	0.400
0.075	0.717	0.478
0.100	0.848	0.565
0.150	1.042	0.695
0.200	1.186	0.791
0.250	1.329	0.886
0.300	1.446	0.964
0.400	1.500	1.000

PERIOD (seconds)	SITE-SPECIFIC MCE_R RESPONSE SPECTRUM Sa (g)	SITE-SPECIFIC DESIGN RESPONSE SPECTRUM Sa (g)
0.500	1.473	0.982
0.750	1.206	0.804
1.000	0.982	0.655
1.500	0.652	0.435
2.000	0.474	0.316
3.000	0.296	0.197
4.000	0.212	0.141
5.000	0.161	0.107
7.500	0.105	0.070
10.000	0.078	0.052

S_{DS} =	0.900 g	S_{D1} =	0.655 g	S_{MS} =	1.350 g	S_{M1} =	0.982 g	PGA_M =	0.550 g



NOTES:

1 The probabilistic ground motion spectral response accelerations are based on the risk-targeted Maximum Considered Earthquake (MCE_R) having a 2% probability of exceedance in 50 years in the maximum direction using the Chiou & Youngs (2014), Campbell & Bozorgnia (2014), Boore et al. (2014), and Abrahamson et al. (2014) attenuation relationships and the risk coefficients.

2 The deterministic ground motion spectral response accelerations are for the 84th percentile of the geometric mean values in the maximum direction using the Chiou & Youngs (2014), Campbell & Bozorgnia (2014), Boore et al. (2014), and Abrahamson et al. (2014) attenuation relationships for deep soil sites considering a Mw 8.1 event on the San Andreas fault zone located 43.4 kilometers from the site. It conforms with the lower bound limit per ASCE 7-16 Section 21.2.2.

3 The Site-Specific MCE_R Response Spectrum is the lesser of spectral ordinates of deterministic and probabilistic accelerations at each period per ASCE 7-16 Section 21.2.3. The Site-Specific Design Response Spectrum conforms with lower bound limit per ASCE 7-16 Section 21.3.

4 The Mapped Design MCE_R Response Spectrum is computed from mapped spectral ordinates modified for Site Class D (stiff soil profile) per ASCE 7-16 Section 11.4. It is presented for the sake of comparison.

FIGURE 7

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ACCELERATION RESPONSE SPECTRA

BAKERSFIELD WAREHOUSE FACILITY
BAKERSFIELD, CALIFORNIA

APPENDIX A

Boring Logs

APPENDIX A

BORING LOGS

Field Procedure for the Collection of Disturbed Samples
Disturbed soil samples were obtained in the field using the following method.

Bulk Samples
Bulk samples of representative earth materials were obtained from the exploratory borings. The samples were bagged and transported to the laboratory for testing.

The Standard Penetration Test (SPT) Sampler
Disturbed drive samples of earth materials were obtained by means of a Standard Penetration Test sampler. The sampler is composed of a split barrel with an external diameter of 2 inches and an unlined internal diameter of 13/8 inches. The sampler was driven into the ground 12 to 18 inches with a 140-pound hammer falling freely from a height of 30 inches in general accordance with ASTM D 1586. The blow counts were recorded for every 6 inches of penetration; the blow counts reported on the logs are those for the last 12 inches of penetration. Soil samples were observed and removed from the sampler, bagged, sealed and transported to the laboratory for testing.

Undisturbed Samples
Relatively undisturbed soil samples were obtained in the field using the following method.

The Modified Split-Barrel Drive Sampler
The sampler, with an external diameter of 3 inches, was lined with 1-inch-long, thin brass rings with inside diameters of approximately 2.4 inches. The sample barrel was driven into the ground with the weight of a hammer in general accordance with ASTM D 3550. The driving weight was permitted to fall freely. The approximate length of the fall, the weight of the hammer, and the number of blows per foot of driving are presented on the boring logs as an index to the relative resistance of the materials sampled. The samples were removed from the sample barrel in the brass rings, sealed, and transported to the laboratory for testing.

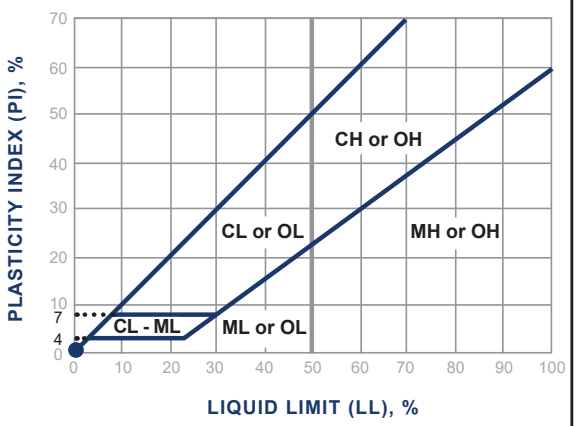
Soil Classification Chart Per ASTM D 2488

Primary Divisions			Secondary Divisions	
			Group Symbol	Group Name
COARSE-GRAINED SOILS more than 50% retained on No. 200 sieve	**GRAVEL** more than 50% of coarse fraction retained on No. 4 sieve	CLEAN GRAVEL less than 5% fines	GW	well-graded GRAVEL
			GP	poorly graded GRAVEL
		GRAVEL with DUAL CLASSIFICATIONS 5% to 12% fines	GW-GM	well-graded GRAVEL with silt
			GP-GM	poorly graded GRAVEL with silt
			GW-GC	well-graded GRAVEL with clay
			GP-GC	poorly graded GRAVEL with clay
		GRAVEL with FINES more than 12% fines	GM	silty GRAVEL
			GC	clayey GRAVEL
			GC-GM	silty, clayey GRAVEL
	SAND 50% or more of coarse fraction passes No. 4 sieve	CLEAN SAND less than 5% fines	SW	well-graded SAND
			SP	poorly graded SAND
		SAND with DUAL CLASSIFICATIONS 5% to 12% fines	SW-SM	well-graded SAND with silt
			SP-SM	poorly graded SAND with silt
			SW-SC	well-graded SAND with clay
			SP-SC	poorly graded SAND with clay
		SAND with FINES more than 12% fines	SM	silty SAND
			SC	clayey SAND
			SC-SM	silty, clayey SAND
FINE-GRAINED SOILS 50% or more passes No. 200 sieve	**SILT and CLAY** liquid limit less than 50%	INORGANIC	CL	lean CLAY
			ML	SILT
			CL-ML	silty CLAY
		ORGANIC	OL (PI > 4)	organic CLAY
			OL (PI < 4)	organic SILT
	SILT and CLAY liquid limit 50% or more	INORGANIC	CH	fat CLAY
			MH	elastic SILT
		ORGANIC	OH (plots on or above "A"-line)	organic CLAY
			OH (plots below "A"-line)	organic SILT
	Highly Organic Soils		PT	Peat

Grain Size

Description		Sieve Size	Grain Size	Approximate Size
Boulders		> 12"	> 12"	Larger than basketball-sized
Cobbles		3 - 12"	3 - 12"	Fist-sized to basketball-sized
Gravel	Coarse	3/4 - 3"	3/4 - 3"	Thumb-sized to fist-sized
	Fine	#4 - 3/4"	0.19 - 0.75"	Pea-sized to thumb-sized
Sand	Coarse	#10 - #4	0.079 - 0.19"	Rock-salt-sized to pea-sized
	Medium	#40 - #10	0.017 - 0.079"	Sugar-sized to rock-salt-sized
	Fine	#200 - #40	0.0029 - 0.017"	Flour-sized to sugar-sized
Fines		Passing #200	< 0.0029"	Flour-sized and smaller

Plasticity Chart



Apparent Density - Coarse-Grained Soil

Apparent Density	Spooling Cable or Cathead		Automatic Trip Hammer	
	SPT (blows/foot)	Modified Split Barrel (blows/foot)	SPT (blows/foot)	Modified Split Barrel (blows/foot)
Very Loose	≤ 4	≤ 8	≤ 3	≤ 5
Loose	5 - 10	9 - 21	4 - 7	6 - 14
Medium Dense	11 - 30	22 - 63	8 - 20	15 - 42
Dense	31 - 50	64 - 105	21 - 33	43 - 70
Very Dense	> 50	> 105	> 33	> 70

Consistency - Fine-Grained Soil

Consis-tency	Spooling Cable or Cathead		Automatic Trip Hammer	
	SPT (blows/foot)	Modified Split Barrel (blows/foot)	SPT (blows/foot)	Modified Split Barrel (blows/foot)
Very Soft	< 2	< 3	< 1	< 2
Soft	2 - 4	3 - 5	1 - 3	2 - 3
Firm	5 - 8	6 - 10	4 - 5	4 - 6
Stiff	9 - 15	11 - 20	6 - 10	7 - 13
Very Stiff	16 - 30	21 - 39	11 - 20	14 - 26
Hard	> 30	> 39	> 20	> 26

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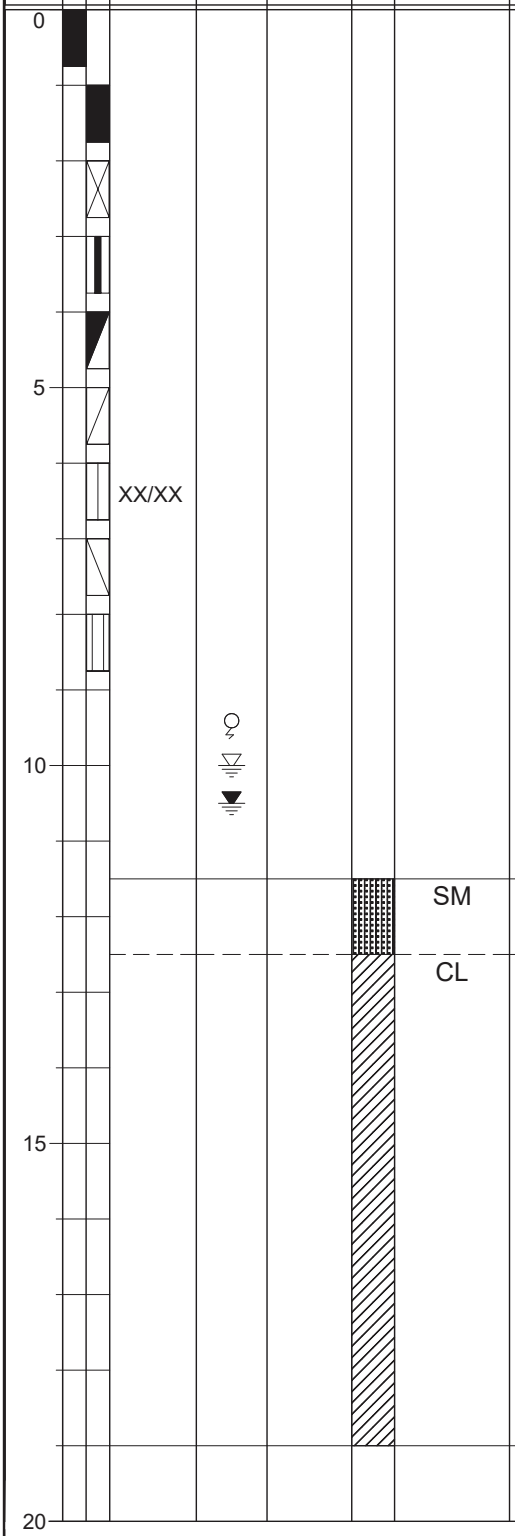
USCS METHOD OF SOIL CLASSIFICATION

BORING LOG EXPLANATION SHEET



Bulk sample.

Modified split-barrel drive sampler.

No recovery with modified split-barrel drive sampler.

Sample retained by others.

Standard Penetration Test (SPT).

No recovery with a SPT.

Shelby tube sample. Distance pushed in inches/length of sample recovered in inches.

No recovery with Shelby tube sampler.

Continuous Push Sample.

Seepage.

Groundwater encountered during drilling.

Groundwater measured after drilling.

SM

MAJOR MATERIAL TYPE (SOIL):

Solid line denotes unit change.

CL

Dashed line denotes material change.

Attitudes: Strike/Dip
b: Bedding
c: Contact
j: Joint
f: Fracture
F: Fault
cs: Clay Seam
s: Shear
bss: Basal Slide Surface
sf: Shear Fracture
sz: Shear Zone
sbs: Shear Bedding Surface

The total depth line is a solid line that is drawn at the bottom of the boring.

DATE DRILLED 7/15/21 BORING NO. B-1

GROUND ELEVATION 330' ± (MSL) SHEET 1 OF 1

METHOD OF DRILLING 8" Hollow-Stem Auger (2R Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 18"

SAMPLED BY VAM LOGGED BY VAM REVIEWED BY SG

DEPTH (feet)	SAMPLES Bulk	SAMPLES Driven	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0								ASPHALT CONCRETE: Approximately 5 inches thick.
							SM	FILL: Light brown, moist, loose, silty SAND.
							SM	ALLUVIUM: Dark brown, moist, loose, silty SAND.
			12	6.6	106.4			Brown.
10			18					Light brown; medium dense.
								Total Depth = 11.5 feet. Groundwater not encountered during drilling. Backfilled with two-sack cement grout and patched with hot asphalt on 7/19/21. Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report. The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.
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40								

FIGURE A- 1

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BAKERSFIELD WAREHOUSE FACILITY
BAKERSFIELD, CALIFORNIA

DATE DRILLED 7/15/21 BORING NO. B-2

GROUND ELEVATION 330' ± (MSL) SHEET 1 OF 1

METHOD OF DRILLING 8" Hollow-Stem Auger (2R Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 18"

SAMPLED BY VAM LOGGED BY VAM REVIEWED BY SG

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0							ASPHALT CONCRETE:
						SM	Approximately 6 inches thick.
						SM	FILL:
							Brown, moist, loose, silty SAND.
							ALLUVIUM:
							Brown, moist, loose, silty SAND; iron oxide staining.
		14	4.2	106.5			
10							
		11				ML	Dark brown, moist, loose, sandy SILT.
							Total Depth = 11.5 feet.
							Groundwater not encountered during drilling.
							Backfilled with two-sack cement grout and patched with hot asphalt on 7/19/21.
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Notes:
Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.

The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.

DATE DRILLED 7/15/21 BORING NO. B-3

GROUND ELEVATION 330' ± (MSL) SHEET 1 OF 1

METHOD OF DRILLING 8" Hollow-Stem Auger (2R Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 18"

SAMPLED BY VAM LOGGED BY VAM REVIEWED BY SG

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0						SM	ASPHALT CONCRETE: Approximately 6 inches thick.
						ML	FILL: Light brown, moist, medium dense, silty SAND.
						SM	ALLUVIUM: Brown, moist, medium dense, sandy SILT.
		19	3.3	104.1			Brown, moist, medium dense, silty SAND. Light brown.
						ML	Brown, moist, medium dense, sandy SILT.
10		22				SM	Brown, moist, medium dense, silty SAND.
							Total Depth = 11.5 feet. Groundwater not encountered during drilling. Backfilled with two-sack cement grout and patched with hot asphalt on 7/19/21.
20							Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report. The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.
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FIGURE A- 3

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BAKERSFIELD WAREHOUSE FACILITY
BAKERSFIELD, CALIFORNIA

DATE DRILLED 7/15/21 BORING NO. B-4

GROUND ELEVATION 330' ± (MSL) SHEET 1 OF 1

METHOD OF DRILLING 8" Hollow-Stem Auger (2R Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 18"

SAMPLED BY VAM LOGGED BY VAM REVIEWED BY SG

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0							ASPHALT CONCRETE: Approximately 7 inches thick.
						SM	FILL: Brown, moist, medium dense, silty SAND; sandy silt interlayers.
						SM	ALLUVIUM: Brown, moist, medium dense, silty SAND.
		15					
10		15	23.0	98.5			Caliche veins.
							Total Depth = 11.5 feet. Groundwater not encountered during drilling. Backfilled with two-sack cement grout and patched with hot asphalt on 7/19/21.
							Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.
							The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.
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DATE DRILLED 7/14/21 BORING NO. B-5

GROUND ELEVATION 330' ± (MSL) SHEET 1 OF 1

METHOD OF DRILLING 8" Hollow-Stem Auger (2R Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 18"

SAMPLED BY VAM LOGGED BY VAM REVIEWED BY SG

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0							ASPHALT CONCRETE:
						SM	Approximately 5 inches thick.
							FILL:
						SM	Reddish brown, moist, loose, silty SAND.
							ALLUVIUM:
							Reddish brown, moist, loose, silty SAND.
		12	21.8	105.0			
						SC	Brown, moist, loose, clayey SAND.
10		12					
							Total Depth = 11.5 feet.
							Groundwater not encountered during drilling.
							Backfilled with two-sack cement grout and patched with hot asphalt on 7/19/21.
							Notes:
							Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.
							The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.
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FIGURE A- 5

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BAKERSFIELD WAREHOUSE FACILITY
BAKERSFIELD, CALIFORNIA

DATE DRILLED 8/11/21 BORING NO. B-6

GROUND ELEVATION 330' ± (MSL) SHEET 1 OF 1

METHOD OF DRILLING 8" Hollow-Stem Auger (2R Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY GM LOGGED BY GM REVIEWED BY SG

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0						SM	FILL (TILLED SOIL): Grayish brown, moist, medium dense, silty SAND.
		15	10.7	108.8		SM	ALLUVIUM: Grayish brown, moist, medium dense, silty SAND.
10		20					
							Total Depth = 11.5 feet. Groundwater not encountered during drilling. Backfilled with on-site soil on 8/11/21. Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report. The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.
20							
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DATE DRILLED 7/15/21 BORING NO. B-7

GROUND ELEVATION 330' ± (MSL) SHEET 1 OF 1

METHOD OF DRILLING 8" Hollow-Stem Auger (2R Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 18"

SAMPLED BY VAM LOGGED BY VAM REVIEWED BY SG

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0						SM	FILL: Brown, moist, loose, silty SAND.
						SM	ALLUVIUM: Brown, moist, loose, silty SAND.
						ML	Dark brown, moist, loose, sandy SILT.
		9				SM	Dark brown, moist, loose, silty SAND.
10		13					
							Total Depth = 11.5 feet. Groundwater not encountered during drilling. Backfilled with on-site soil on 7/15/21.
							Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.
							The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.
20							
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DATE DRILLED 8/10/21 BORING NO. B-8

GROUND ELEVATION 330' ± (MSL) SHEET 1 OF 1

METHOD OF DRILLING 8" Hollow-Stem Auger (2R Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY GM LOGGED BY GM REVIEWED BY SG

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0						SM	FILL (TILLED SOIL): Olive brown, moist, medium dense, silty SAND; trace rootlets.
						SP	ALLUVIUM: Grayish brown, moist, medium dense, poorly graded SAND.
		15	20.4	102.3		ML	Reddish brown, moist, medium dense, sandy SILT.
10		14				SC	Reddish brown, moist, loose, clayey SAND.
		13				SM	Reddish brown, moist, medium dense, silty SAND.
20							Total Depth = 16.5 feet. Groundwater not encountered during drilling. Backfilled with on-site oil on 8/10/21. Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report. The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.
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40							

FIGURE A- 8

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BAKERSFIELD WAREHOUSE FACILITY
BAKERSFIELD, CALIFORNIA

DATE DRILLED 8/10/21 BORING NO. B-9

GROUND ELEVATION 330' ± (MSL) SHEET 1 OF 1

METHOD OF DRILLING 8" Hollow-Stem Auger (2R Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY GM LOGGED BY GM REVIEWED BY SG

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0						SM	FILL (TILLED SOIL): Olive brown, moist, medium dense, silty SAND; trace rootlets.
						SM	ALLUVIUM: Olive brown, moist, loose, silty SAND.
						SP	Olive brown, moist, loose, poorly graded SAND.
		14				SM	Olive brown, moist, loose, silty SAND.
10		11	20.9	99.3			
		13					
20		16					Medium dense.
						CL	Olive brown, moist, very stiff, lean CLAY.
						SM	Olive brown, moist, medium dense, silty SAND.
		39					
30							Total Depth = 26.5 feet. Groundwater not encountered during drilling. Backfilled with on-site soil on 8/10/21. Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report. The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.
40							

FIGURE A- 9

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BAKERSFIELD WAREHOUSE FACILITY
BAKERSFIELD, CALIFORNIA

DATE DRILLED 8/10/21 BORING NO. B-10

GROUND ELEVATION 330' ± (MSL) SHEET 1 OF 2

METHOD OF DRILLING 8" Hollow-Stem Auger (2R Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY GM LOGGED BY GM REVIEWED BY SG

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0						SM	FILL (TILLED SOIL): Grayish brown, moist, medium dense, silty SAND; trace rootlets.
						SM	ALLUVIUM: Grayish brown, moist, medium dense, silty SAND.
		18	6.1	104.0			
10		14					Loose.
		12					Medium dense.
						SP-SM	Grayish brown, moist, medium dense, poorly graded SAND with silt.
						SM	Grayish brown, moist, medium dense, silty SAND.
20		32					
						CL	Olive brown, moist, firm, lean CLAY.
		5				SM	Olive brown, moist, loose, silty SAND.
						SP	Grayish brown, moist, very dense, poorly graded SAND.
30		78					
		18					Medium dense.
40							

FIGURE A- 10

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BAKERSFIELD, CALIFORNIA

211696003 | 10/23

DATE DRILLED 8/10/21 BORING NO. B-10

GROUND ELEVATION 330' ± (MSL) SHEET 2 OF 2

METHOD OF DRILLING 8" Hollow-Stem Auger (2R Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY GM LOGGED BY GM REVIEWED BY SG

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
40		74/11"				SP	ALLUVIUM: (Continued) Very light gray, moist, very dense, poorly graded SAND.
		33					Dense.
50		87/9"					Very dense.
							Total Depth = 51.3 feet. Groundwater not encountered during drilling. Backfilled with on-site soil on 8/10/21. Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report. The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.
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80							

FIGURE A- 11

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BAKERSFIELD, CALIFORNIA

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DATE DRILLED 8/10/21 BORING NO. B-11

GROUND ELEVATION 330' ± (MSL) SHEET 1 OF 1

METHOD OF DRILLING 8" Hollow-Stem Auger (2R Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY GM LOGGED BY GM REVIEWED BY SG

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0						SP	FILL (TILLED SOIL): Olive brown, moist, medium dense, poorly graded SAND; trace rootlets.
		18				SP	ALLUVIUM: Olive brown, moist, medium dense, poorly graded SAND.
10		16	3.2	89.4			
		10					
20							Total Depth = 16.5 feet. Groundwater not encountered during drilling. Backfilled with on-site soil on 8/10/21. Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report. The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.
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DATE DRILLED 8/11/21 BORING NO. B-12

GROUND ELEVATION 330' ± (MSL) SHEET 1 OF 1

METHOD OF DRILLING 8" Hollow-Stem Auger (2R Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY GM LOGGED BY GM REVIEWED BY SG

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0						SM	FILL (TILLED SOIL): Grayish brown, moist, medium dense, silty SAND.
		12	6.4	111.2		SM	ALLUVIUM: Grayish brown, moist, loose, silty SAND.
10		11					
		10				SC	Grayish brown, moist, medium dense, clayey SAND.
20							Total Depth = 16.5 feet. Groundwater not encountered during drilling. Backfilled with on-site soil on 8/11/21. Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report. The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.
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DATE DRILLED 8/11/21 BORING NO. B-13

GROUND ELEVATION 330' ± (MSL) SHEET 1 OF 2

METHOD OF DRILLING 8" Hollow-Stem Auger (2R Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY GM LOGGED BY GM REVIEWED BY SG

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0						SM	FILL (TILLED SOIL): Grayish brown, moist, medium dense, silty SAND.
						SM	ALLUVIUM: Grayish brown, moist, medium dense, silty SAND.
		15	11.9	109.3			
10		14					Loose.
		13	19.8	106.4		ML	Grayish brown, moist, loose, sandy SILT.
20		7					
						CL	Olive brown, moist, stiff, lean CLAY.
		30				SM	Yellowish brown, moist, medium dense, silty SAND.
						SP	Yellowish brown, moist, dense, poorly graded SAND.
30		23					
						SM	Gray, moist, dense, silty SAND.
		43				SP	Yellowish brown, moist, dense, poorly graded SAND.
40							

FIGURE A- 14

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BAKERSFIELD, CALIFORNIA

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DATE DRILLED 8/11/21 BORING NO. B-13

GROUND ELEVATION 330' ± (MSL) SHEET 2 OF 2

METHOD OF DRILLING 8" Hollow-Stem Auger (2R Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY GM LOGGED BY GM REVIEWED BY SG

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
40		32				SP	ALLUVIUM: (Continued) Gray, moist, dense, poorly graded SAND.
		50/6"					Very dense.
50		36					
							Total Depth = 51.5 feet. Groundwater not encountered during drilling. Backfilled with on-site soil on 8/11/21. Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report. The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.
60							
70							
80							

DATE DRILLED 7/15/21 BORING NO. B-14

GROUND ELEVATION 330' ± (MSL) SHEET 1 OF 1

METHOD OF DRILLING 8" Hollow-Stem Auger (2R Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 18"

SAMPLED BY VAM LOGGED BY VAM REVIEWED BY SG

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0						SM	ASPHALT CONCRETE: Approximately 5 inches thick.
						ML	AGGREGATE BASE: Dark brown, moist, dense, silty SAND with gravel; approximately 2 inches thick.
						SM	FILL: Dark brown, moist, loose, sandy SILT.
		13					ALLUVIUM: Dark brown, moist, loose, silty SAND.
10						ML	Brown, moist, loose, sandy SILT.
		15				SM	Brown, moist, medium dense, silty SAND.
20							Total Depth = 11.5 feet. Groundwater not encountered during drilling. Backfilled with two-sack cement grout and patched with hot asphalt on 7/19/21.
30							Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.
40							The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.

DATE DRILLED 8/10/21 BORING NO. B-15

GROUND ELEVATION 330' ± (MSL) SHEET 1 OF 1

METHOD OF DRILLING 8" Hollow-Stem Auger (2R Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY GM LOGGED BY GM REVIEWED BY SG

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0						SM	FILL (TILLED SOIL): Olive brown, moist, loose, silty SAND.
						SM	ALLUVIUM: Olive brown, moist, loose, silty SAND.
		14					
10		10	21.5	103.8			
		9				ML	Olive brown, moist, medium dense, sandy SILT.
						CL	Olive brown, moist, stiff, lean CLAY.
20		12				SM	Olive brown, moist, loose, silty SAND.
		7				CL	Olive brown, moist, stiff, lean CLAY.
						SP	Yellowish brown, moist, dense, poorly graded SAND.
30		63					Total Depth = 31.5 feet. Groundwater not encountered during drilling. Backfilled with on-site soil on 8/10/21.
40							

Notes:
Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.

The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.

DATE DRILLED 8/10/21 BORING NO. B-16

GROUND ELEVATION 330' ± (MSL) SHEET 1 OF 1

METHOD OF DRILLING 8" Hollow-Stem Auger (2R Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY GM LOGGED BY GM REVIEWED BY SG

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0						SP	FILL (TILLED SOIL): Olive brown, moist, medium dense, poorly graded SAND.
		15	4.3	94.7		SP	ALLUVIUM: Olive brown, moist, medium dense, poorly graded SAND.
10		17					
		8					
20							Total Depth = 16.5 feet. Groundwater not encountered during drilling. Backfilled with on-site soil on 8/10/21. Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report. The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.
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40							

DATE DRILLED 8/10/21 BORING NO. B-17

GROUND ELEVATION 330' ± (MSL) SHEET 1 OF 1

METHOD OF DRILLING 8" Hollow-Stem Auger (2R Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY GM LOGGED BY GM REVIEWED BY SG

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0						SP	FILL (TILLED SOIL): Olive brown, moist, medium dense, poorly graded SAND.
		17				SP	ALLUVIUM: Olive brown, moist, medium dense, poorly graded SAND.
10		13	4.3	96.3			Loose.
							Total Depth = 11.5 feet. Groundwater not encountered during drilling. Backfilled with on-site soil on 8/10/21. Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report. The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.
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30							
40							

FIGURE A- 19

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BAKERSFIELD, CALIFORNIA

DATE DRILLED 7/14/21 BORING NO. B-18

GROUND ELEVATION 330' ± (MSL) SHEET 1 OF 1

METHOD OF DRILLING 8" Hollow-Stem Auger (2R Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 18"

SAMPLED BY VAM LOGGED BY VAM REVIEWED BY SG

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0						SM	FILL: Dark brown, moist, loose, silty SAND.
						SM	ALLUVIUM: Dark brown, moist, loose, silty SAND.
		12	16.8	109.4		CL	Brown, moist, stiff, lean CLAY.
						SM	Brown, moist, loose, silty SAND.
10		11					
							Total Depth = 11.5 feet. Groundwater not encountered during drilling. Backfilled with on-site soil on 7/14/21. Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report. The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.
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40							

FIGURE A- 20

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BAKERSFIELD WAREHOUSE FACILITY
BAKERSFIELD, CALIFORNIA

DATE DRILLED 8/23/23 BORING NO. B-19

GROUND ELEVATION 330' ± (MSL) SHEET 1 OF 1

METHOD OF DRILLING 8" Hollow-Stem Auger (MR Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY RAF LOGGED BY RAF REVIEWED BY RDH

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0						SM	ALLUVIUM: Brown, moist, loose, silty SAND; silt content varies; bands of oxidation.
		4				SP-SM	Light brown, moist, loose, poorly graded SAND with silt.
						SM	Brown, moist, loose to medium dense, silty SAND.
		8				SP-SM	Brown, moist, medium dense, poorly graded SAND with silt.
10		8					
		5				SP-SC	Brown to dark brown, moist, loose, poorly graded SAND with clay; thin clay bands.
		14				SP-SM	Light brown, moist, medium dense, poorly graded SAND with silt.
		13				SM	Brown, moist, medium dense, silty SAND.
20		14					Decrease in silt content.
							Total Depth = 21.5 feet. Groundwater not encountered during drilling. Backfilled with on-site soil on 8/23/23.
30							Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report. The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.
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DATE DRILLED 8/24/23 BORING NO. B-20

GROUND ELEVATION 330' ± (MSL) SHEET 1 OF 1

METHOD OF DRILLING 8" Hollow-Stem Auger (MR Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY RAF LOGGED BY RAF REVIEWED BY RDH

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0						SM	ALLUVIUM: Brown, moist, loose, silty SAND; interbedded silt layers.
		6					
		5				CL	Brown, moist, firm, sandy lean CLAY.
10		4				SM	Brown, moist, loose, silty SAND.
		5				CL	Brown, moist, firm, sandy lean CLAY.
		11					Stiff.
		16				SC	Brown, moist, medium dense, clayey SAND.
20		8				SM	Brown, moist, medium dense, silty SAND
		7				CL	Light brown, moist, stiff, sandy lean CLAY.
		20					Very stiff.
						SM	Light brown, moist, loose, silty SAND.
		5				CL	Brown, moist, firm, lean CLAY.
30		33				SM	Light brown, moist, dense, silty SAND.
							Total Depth = 31.5 feet. Groundwater not encountered during drilling. Backfilled with on-site soil on 8/24/23.
40							Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report. The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.

FIGURE A- 22

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BAKERSFIELD WAREHOUSE FACILITY
BAKERFIELD, CALIFORNIA

DATE DRILLED 8/24/23 BORING NO. B-21

GROUND ELEVATION 330' ± (MSL) SHEET 1 OF 1

METHOD OF DRILLING 8" Hollow-Stem Auger (MR Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY RAF LOGGED BY RAF REVIEWED BY RDH

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0						SM	ALLUVIUM: Brown, moist, loose, silty SAND; roots.
		4					
10		16				SC	Brown, moist, medium dense, clayey SAND.
		10					Increase in silt content.
20		13				SP-SM	Yellowish brown, moist, loose, poorly graded SAND with silt.
		7				SM	Brown, moist, loose, silty SAND.
						SP-SM	Light brown, moist, dense, poorly graded SAND with silt.
30		30					
							Total Depth = 31.5 feet. Groundwater not encountered during drilling. Backfilled with on-site soil on 8/24/23. Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report. The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.
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FIGURE A- 23

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BAKERSFIELD WAREHOUSE FACILITY
BAKERFIELD, CALIFORNIA

DATE DRILLED 8/24/23 BORING NO. B-22

GROUND ELEVATION 330' ± (MSL) SHEET 1 OF 1

METHOD OF DRILLING 8" Hollow-Stem Auger (MR Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY RAF LOGGED BY RAF REVIEWED BY RDH

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0						SC	ALLUVIUM: Yellowish brown to brown, moist, loose, clayey SAND.
		6					Pinhole porosity.
10		4					
		5				CL	Brown, moist, firm, sandy lean CLAY.
						SC	Brown, moist, loose, clayey SAND.
20		13				SP-SM	Brown, moist, medium dense, poorly graded SAND with silt.
		10				SM	Brown, moist, loose, silty SAND with clay.
30		27				SP-SM	Brown, moist, dense, poorly graded SAND with silt.
40							Total Depth = 31.5 feet. Groundwater not encountered during drilling. Backfilled with on-site soil on 8/24/23.

Notes:
Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.

The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.

DATE DRILLED 8/23/23 BORING NO. B-23

GROUND ELEVATION 330' ± (MSL) SHEET 1 OF 1

METHOD OF DRILLING 8" Hollow-Stem Auger (MR Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY RAF LOGGED BY RAF REVIEWED BY RDH

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0						SM	ALLUVIUM: Brown, moist, loose, silty SAND; roots.
		5					
		7				ML	Brown, moist, loose, sandy SILT.
10		10				SM	Brown, moist, medium dense, silty SAND.
		12				SC	Brown, moist, medium dense, clayey SAND; thin interbedded clay layers.
		12				SM	Brown, moist, medium dense, silty SAND.
		23					Dense; increase silt content.
20		13					Medium dense.
							Total Depth = 21.5 feet. Groundwater not encountered during drilling. Backfilled with on-site soil on 8/23/23. Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report. The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.
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DATE DRILLED 8/23/23 BORING NO. B-24

GROUND ELEVATION 330' ± (MSL) SHEET 1 OF 1

METHOD OF DRILLING 8" Hollow-Stem Auger (MR Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY RAF LOGGED BY RAF REVIEWED BY RDH

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0						SP-SM	ALLUVIUM: Brown, moist, loose, poorly graded SAND with silt; roots
		7					
		9					Reddish brown; medium dense.
10		12					Brown.
		12					Light brown.
		24					Dense.
		16					Medium dense.
20		16					
							Total Depth = 21.5 feet. Groundwater not encountered during drilling. Backfilled with on-site soil on 8/23/23. Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report. The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.
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DATE DRILLED 8/23/23 BORING NO. P-1

GROUND ELEVATION 330' ± (MSL) SHEET 1 OF 1

METHOD OF DRILLING 8" Hollow-Stem Auger (MR Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY RAF LOGGED BY RAF REVIEWED BY RDH

DEPTH (feet)	SAMPLES Bulk	SAMPLES Driven	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0							SP-SM	ALLUVIUM: Dark brown to reddish brown, moist, loose, poorly graded SAND with silt; silty interbeds.
			6					Yellowish brown.
			7					
10								Total Depth = 10.0 feet. Groundwater not encountered during drilling. Installed 2-inch PVC pipe and gravel for in-situ percolation test. In-situ percolation test performed 8/25/23. Backfilled with on-site soil on 8/25/23. Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report. The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.
20								
30								
40								

DATE DRILLED 8/23/23 BORING NO. P-2

GROUND ELEVATION 330' ± (MSL) SHEET 1 OF 1

METHOD OF DRILLING 8" Hollow-Stem Auger (MR Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY RAF LOGGED BY RAF REVIEWED BY RDH

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0						SM	ALLUVIUM: Light brown, moist, loose, silty SAND.
		4					Brown to dark brown; increase in silt content.
		8				CL	Reddish brown to dark brown, moist, stiff, sandy lean CLAY.
10							Total Depth = 10.0 feet. Groundwater not encountered during drilling. Installed 2-inch PVC pipe and gravel for in-situ percolation test. In-situ percolation test performed 8/25/23. Backfilled with on-site soil on 8/25/23. Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report. The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.
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FIGURE A- 28

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BAKERSFIELD WAREHOUSE FACILITY
BAKERFIELD, CALIFORNIA

DATE DRILLED 8/23/23 BORING NO. P-3

GROUND ELEVATION 330' ± (MSL) SHEET 1 OF 1

METHOD OF DRILLING 8" Hollow-Stem Auger (MR Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY RAF LOGGED BY RAF REVIEWED BY RDH

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0						SM	ALLUVIUM: Brown, moist, loose, silty SAND.
		5					
						SP-SM	Light brown to yellowish brown, moist, medium dense, poorly graded SAND with silt.
		8					
10							Total Depth = 10.0 feet. Groundwater not encountered during drilling. Installed 2-inch PVC pipe and gravel for in-situ percolation test. In-situ percolation test performed 8/25/23. Backfilled with on-site soil on 8/25/23. Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report. The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.
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FIGURE A- 29

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BAKERSFIELD WAREHOUSE FACILITY
BAKERFIELD, CALIFORNIA

DATE DRILLED 8/24/23 BORING NO. P-4

GROUND ELEVATION 330' ± (MSL) SHEET 1 OF 1

METHOD OF DRILLING 8" Hollow-Stem Auger (MR Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY RAF LOGGED BY RAF REVIEWED BY RDH

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0						ML	ALLUVIUM: Grayish brown, moist, loose, sandy SILT; roots.
		3				SC	Brown, moist, very loose, clayey SAND.
		4					Loose.
10							Total Depth = 10.0 feet. Groundwater not encountered during drilling. Installed 2-inch PVC pipe and gravel for in-situ percolation test. In-situ percolation test performed 8/25/23. Backfilled with on-site soil on 8/25/23. Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report. The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.
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FIGURE A- 30

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BAKERSFIELD WAREHOUSE FACILITY
BAKERFIELD, CALIFORNIA

DATE DRILLED 8/23/23 BORING NO. P-5

GROUND ELEVATION 330' ± (MSL) SHEET 1 OF 1

METHOD OF DRILLING 8" Hollow-Stem Auger (MR Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY RAF LOGGED BY RAF REVIEWED BY RDH

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0						SM	ALLUVIUM: Brown, moist, loose, silty SAND; roots.
		5					
		6					
10							Total Depth = 10.0 feet. Groundwater not encountered during drilling. Installed 2-inch PVC pipe and gravel for in-situ percolation test. In-situ percolation test performed 8/24/23. Backfilled with on-site soil on 8/24/23. Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report. The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.
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FIGURE A- 31

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BAKERSFIELD WAREHOUSE FACILITY
BAKERFIELD, CALIFORNIA

DATE DRILLED 8/23/23 BORING NO. P-6

GROUND ELEVATION 330' ± (MSL) SHEET 1 OF 1

METHOD OF DRILLING 8" Hollow-Stem Auger (MR Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY RAF LOGGED BY RAF REVIEWED BY RDH

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0						SM	ALLUVIUM: Brown, moist, loose, silty SAND; roots.
		6					Increase in silt.
		7				SC	Brown, moist, loose, clayey SAND.
10							Total Depth = 10.0 feet. Groundwater not encountered during drilling. Installed 2-inch PVC pipe and gravel for in-situ percolation test. In-situ percolation test performed 8/24/23. Backfilled with on-site soil on 8/24/23. Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report. The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.
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FIGURE A- 32

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BAKERSFIELD WAREHOUSE FACILITY
BAKERFIELD, CALIFORNIA

DATE DRILLED 8/23/23 BORING NO. P-7

GROUND ELEVATION 330' ± (MSL) SHEET 1 OF 1

METHOD OF DRILLING 8" Hollow-Stem Auger (MR Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY RAF LOGGED BY RAF REVIEWED BY RDH

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0						SP-SM	ALLUVIUM: Yellowish brown, moist, loose, poorly graded SAND with silt.
		9				SP	Light brown, moist, medium dense, poorly graded SAND.
		11				SP-SM	Yellowish brown, moist, medium dense, poorly graded SAND with silt.
10							Total Depth = 10.0 feet. Groundwater not encountered during drilling. Installed 2-inch PVC pipe and gravel for in-situ percolation test. In-situ percolation test performed 8/28/23. Backfilled with on-site soil on 8/28/23. Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report. The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.
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DATE DRILLED 8/23/23 BORING NO. P-8

GROUND ELEVATION 330' ± (MSL) SHEET 1 OF 1

METHOD OF DRILLING 8" Hollow-Stem Auger (MR Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY RAF LOGGED BY RAF REVIEWED BY

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0						SP-SM	ALLUVIUM: Light brown to yellowish brown, moist, loose, poorly graded SAND with silt.
		6					Brown to light brown.
		13				SP	Light brown to yellowish brown, moist, medium dense, poorly graded SAND.
10							Total Depth = 10.0 feet. Groundwater not encountered during drilling. Installed 2-inch PVC pipe and gravel for in-situ percolation test. In-situ percolation test performed 8/28/23. Backfilled with on-site soil on 8/28/23. Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report. The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.
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FIGURE A- 34

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BAKERFIELD, CALIFORNIA

APPENDIX B

Laboratory Testing

APPENDIX B

LABORATORY TESTING

Classification
Soils were visually and texturally classified in accordance with the Unified Soil Classification System (USCS) in general accordance with ASTM D 2488. Soil classifications are indicated on the logs of the exploratory borings in Appendix A.

In-Place Moisture and Density Tests
The moisture content and dry density of relatively undisturbed samples obtained from the exploratory borings were evaluated in general accordance with ASTM D 2937. The test results are presented on the logs of the exploratory borings in Appendix A.

200 Wash
An evaluation of the percentage of particles passing the No. 200 sieve in selected soil samples was performed in general accordance with ASTM D 1140. The results of the tests are summarized on Figures B-1 through B-3. These test results were utilized in evaluating the soil classifications in accordance with the USCS.

Sieve Analysis
Sieve analysis tests were performed on selected representative soil samples in general accordance with ASTM D 6913. The grain-size distribution curves are shown on Figures B-4 and B-5. These test results were utilized in evaluating the soil classifications in accordance with the USCS.

Atterberg Limits
Tests were performed on a selected representative fine-grained soil sample to evaluate the liquid limit, plastic limit, and plasticity index in general accordance with ASTM D 4318. These test results were utilized to evaluate the soil classification in accordance with the USCS. The test results and classifications are shown on Figure B-6.

Consolidation Tests
Consolidation tests were performed on selected relatively undisturbed soil samples in general accordance with ASTM D 2435. The samples were inundated during testing to represent adverse field conditions. The percent of consolidation for each load cycle was recorded as a ratio of the amount of vertical compression to the original height of the sample. The results of the tests are summarized on Figures B-7 and B-8.

Direct Shear Tests
Direct shear tests were performed on remolded and relatively undisturbed samples in general accordance with ASTM D 3080 to evaluate the shear strength characteristics of the selected materials. The samples were inundated during shearing to represent adverse field conditions. The results are shown on Figures B-9 through B-12.

Proctor Density Test
The maximum dry density and optimum moisture content of a selected representative soil sample was evaluated using the Modified Proctor method in general accordance with ASTM D 1557. The results of this test are summarized on Figure B-13.

R-Value

The resistance value, or R-value, for site soils was evaluated in general accordance with California Test (CT) 301. Samples were prepared and evaluated for exudation pressure and expansion pressure. The equilibrium R-value is reported as the lesser or more conservative of the two calculated results. The test result is summarized on Figure B-14.

Soil Corrosivity Tests

Soil pH and minimum resistivity tests were performed on representative samples in general accordance with CT 643. The chloride content of the selected samples was evaluated in general accordance with CT 422. The sulfate content of the selected samples was evaluated in general accordance with CT 417. The test results are presented on Figure B-15.

SAMPLE LOCATION	SAMPLE DEPTH (ft)	DESCRIPTION	PERCENT PASSING NO. 4	PERCENT PASSING NO. 200	USCS (TOTAL SAMPLE)
B-1	0.4-4.5	SILTY SAND	100	32	SM
B-2	5.0-6.5	SILTY SAND	100	37	SM
B-3	6.0-7.0	SILTY SAND	100	43	SM
B-6	5.0-6.5	SILTY SAND	100	27	SM
B-7	5.0-6.0	SANDY SILT	100	57	ML
B-8	5.0-6.5	SANDY SILT	100	64	ML
B-9	0.0-4.0	SILTY SAND	100	41	SM
B-10	5.0-6.5	SILTY SAND	100	17	SM
B-10	16.0-16.5	POORLY GRADED SAND WITH SILT	100	9	SP-SM

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 1140

FIGURE B-1

NO. 200 SIEVE ANALYSIS TEST RESULTS

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SAMPLE LOCATION	SAMPLE DEPTH (ft)	DESCRIPTION	PERCENT PASSING NO. 4	PERCENT PASSING NO. 200	USCS (TOTAL SAMPLE)
B-11	5.0-6.5	POORLY GRADED SAND	100	4	SP
B-12	5.0-6.5	SILTY SAND	100	16	SM
B-13	5.0-6.5	SILTY SAND	100	38	SM
B-13	15.0-16.5	SANDY SILT	100	55	ML
B-14	5.0-6.5	SILTY SAND	99	29	SM
B-16	10.0-11.5	POORLY GRADED SAND	100	3	SP
B-17	5.0-6.5	POORLY GRADED SAND	100	4	SP
B-18	0.0-5.0	SILTY SAND	100	13	SM

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 1140

FIGURE B-2

NO. 200 SIEVE ANALYSIS TEST RESULTS

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SAMPLE LOCATION	SAMPLE DEPTH (ft)	DESCRIPTION	PERCENT PASSING NO. 4	PERCENT PASSING NO. 200	USCS (TOTAL SAMPLE)
B-22	5.0-6.5	CLAYEY SAND	100	41	SC
P-4	8.5-10.0	CLAYEY SAND	100	44	SC

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 1140

FIGURE B-3

NO. 200 SIEVE ANALYSIS TEST RESULTS

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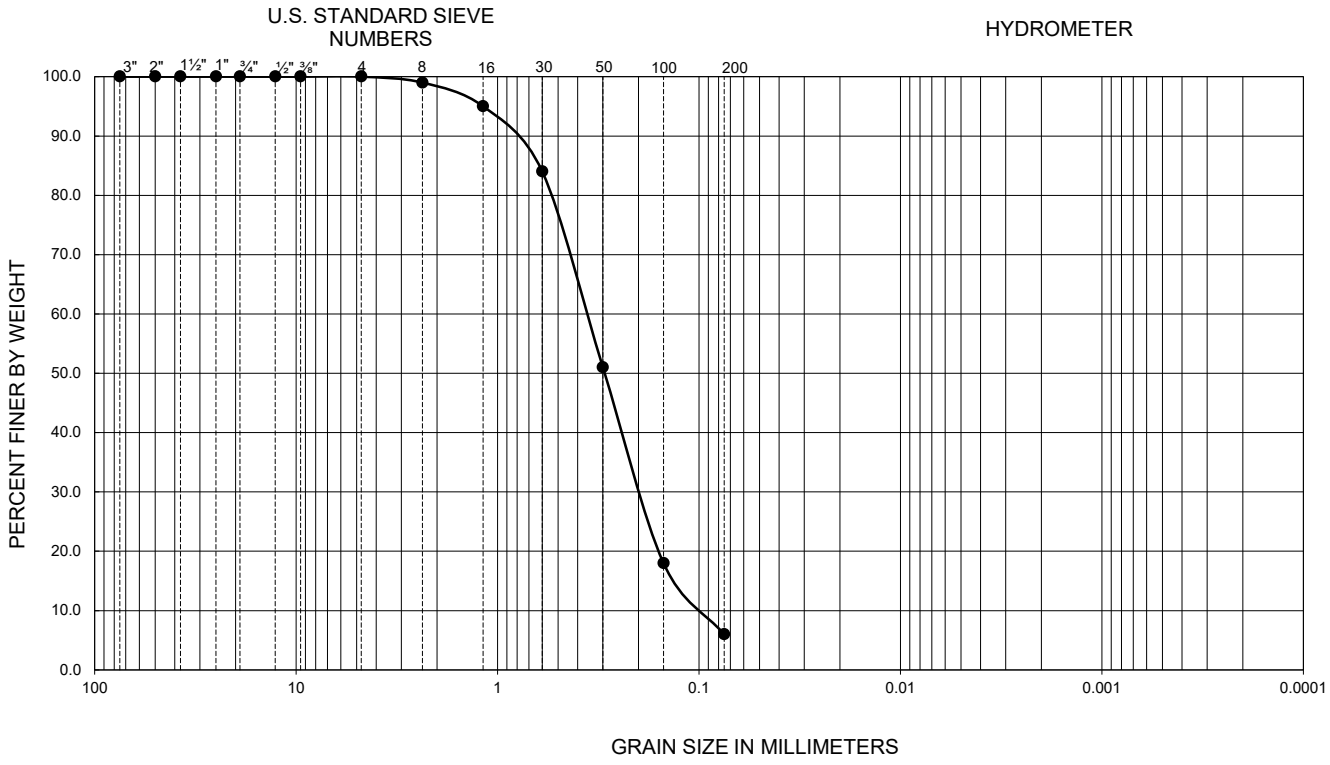
GRAVEL		SAND			FINES	
Coarse	Fine	Coarse	Medium	Fine	SILT	CLAY



Symbol	Sample Location	Depth (ft)	Liquid Limit	Plastic Limit	Plasticity Index	D_{10}	D_{30}	D_{60}	C_u	C_c	Passing No. 200 (percent)	USCS
●	P-7	8.5-10.0	--	--	--	0.10	0.20	0.35	3.5	1.1	6	SP-SM

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 6913

FIGURE B-4

GRADATION TEST RESULTS

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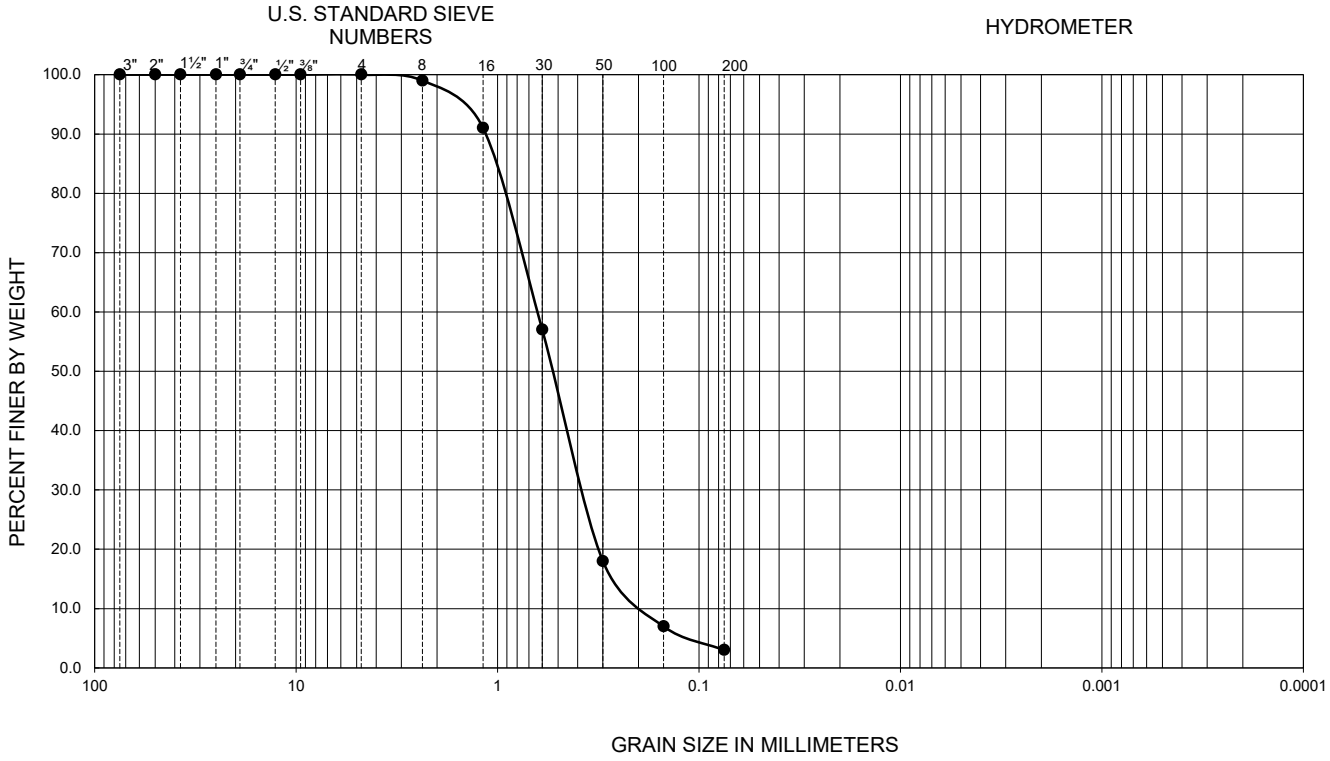
GRAVEL		SAND			FINES	
Coarse	Fine	Coarse	Medium	Fine	SILT	CLAY



Symbol	Sample Location	Depth (ft)	Liquid Limit	Plastic Limit	Plasticity Index	D_{10}	D_{30}	D_{60}	C_u	C_c	Passing No. 200 (percent)	USCS
●	P-8	8.5-10.0	--	--	--	0.20	0.38	0.62	3.1	1.2	3	SP

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 6913

FIGURE B-5

GRADATION TEST RESULTS

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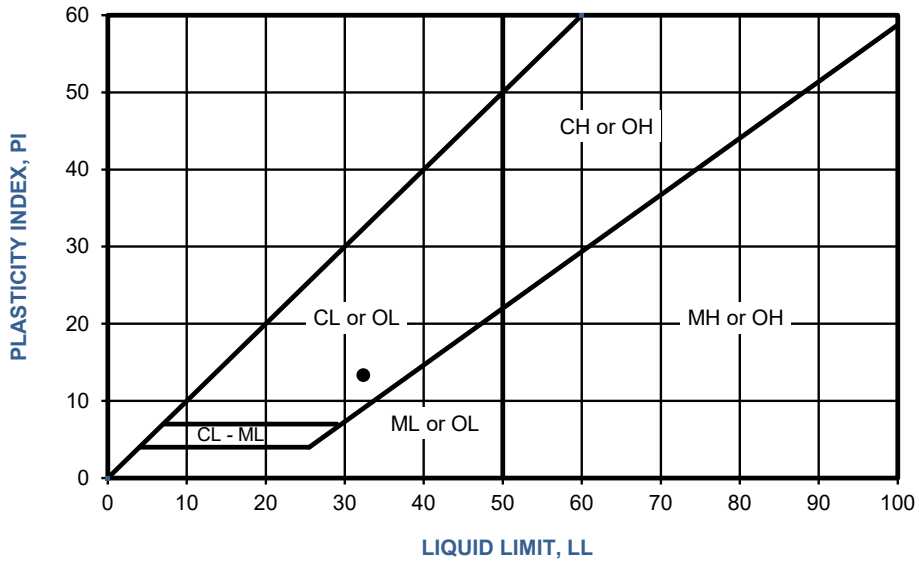
211696003 Fig B-5_SIEVE w No 8 @ P-8 8.5-10.0

SYMBOL	LOCATION	DEPTH (ft)	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	USCS CLASSIFICATION (Fraction Finer Than No. 40 Sieve)	USCS
●	P-2	8.5-10.0	32	19	13	CL	CL



PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 4318

FIGURE B-6

ATTERBERG LIMITS TEST RESULTS

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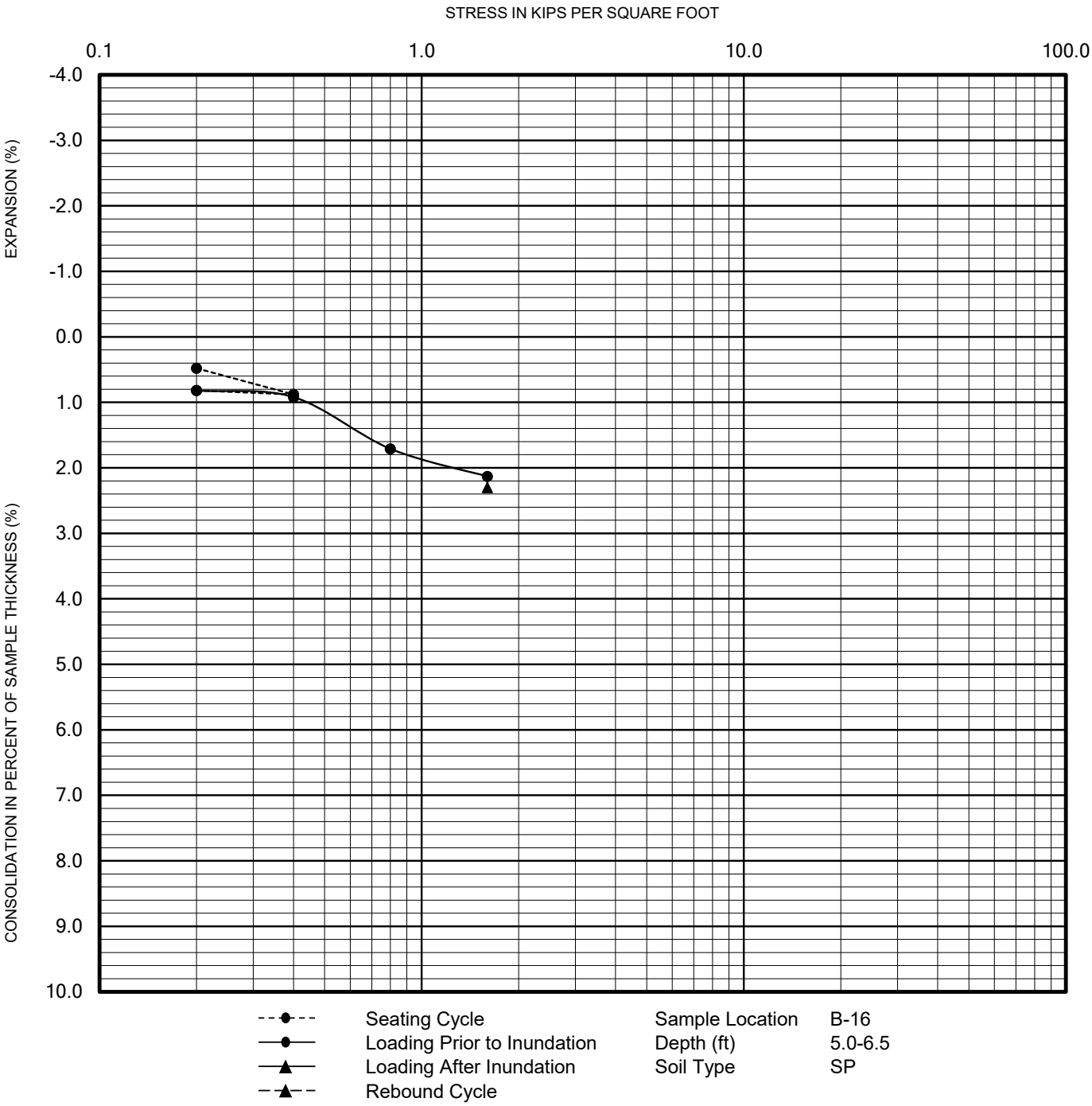

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 2435

FIGURE B-7

CONSOLIDATION TEST RESULTS

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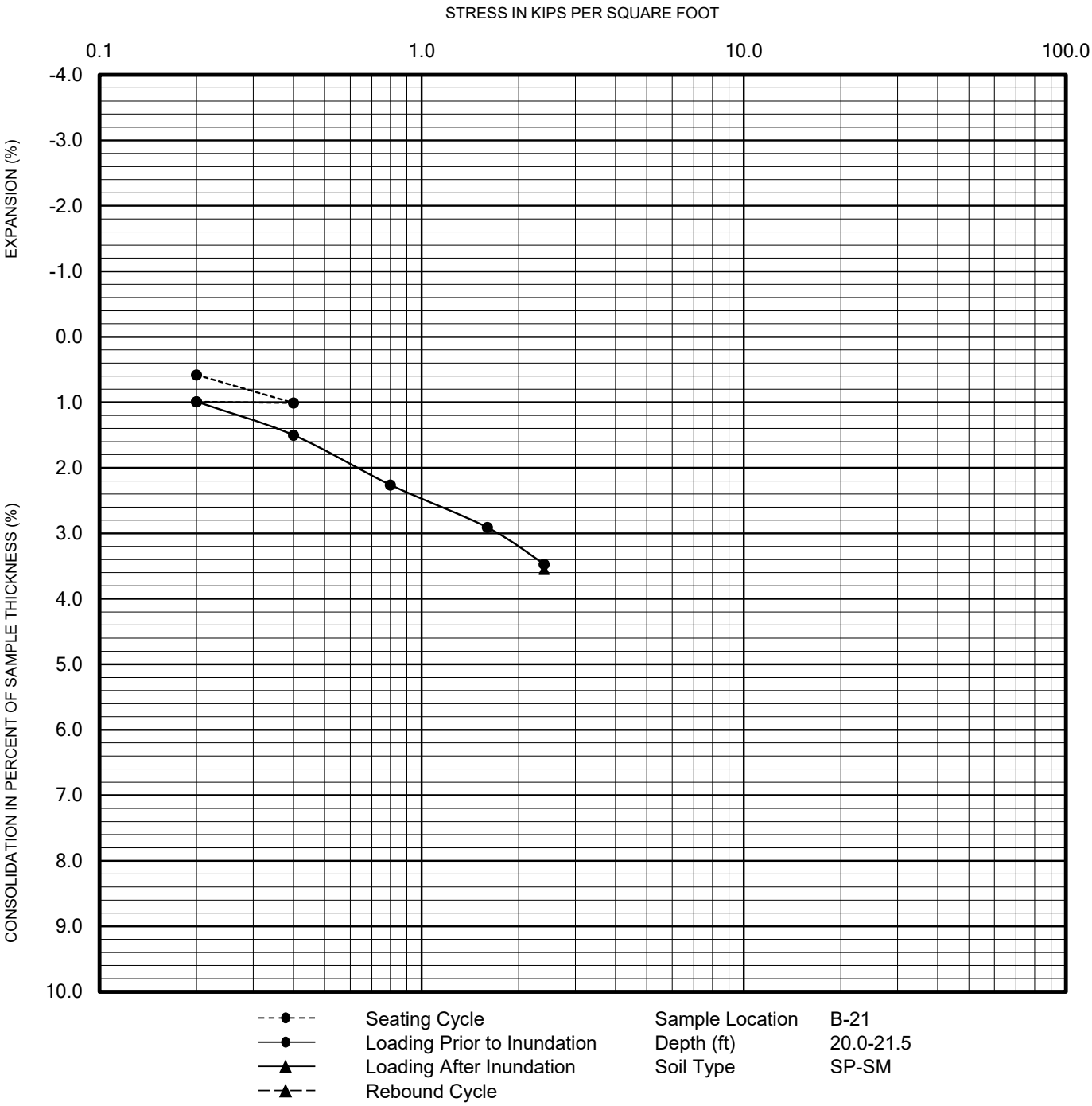

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 2435

FIGURE B-8

CONSOLIDATION TEST RESULTS

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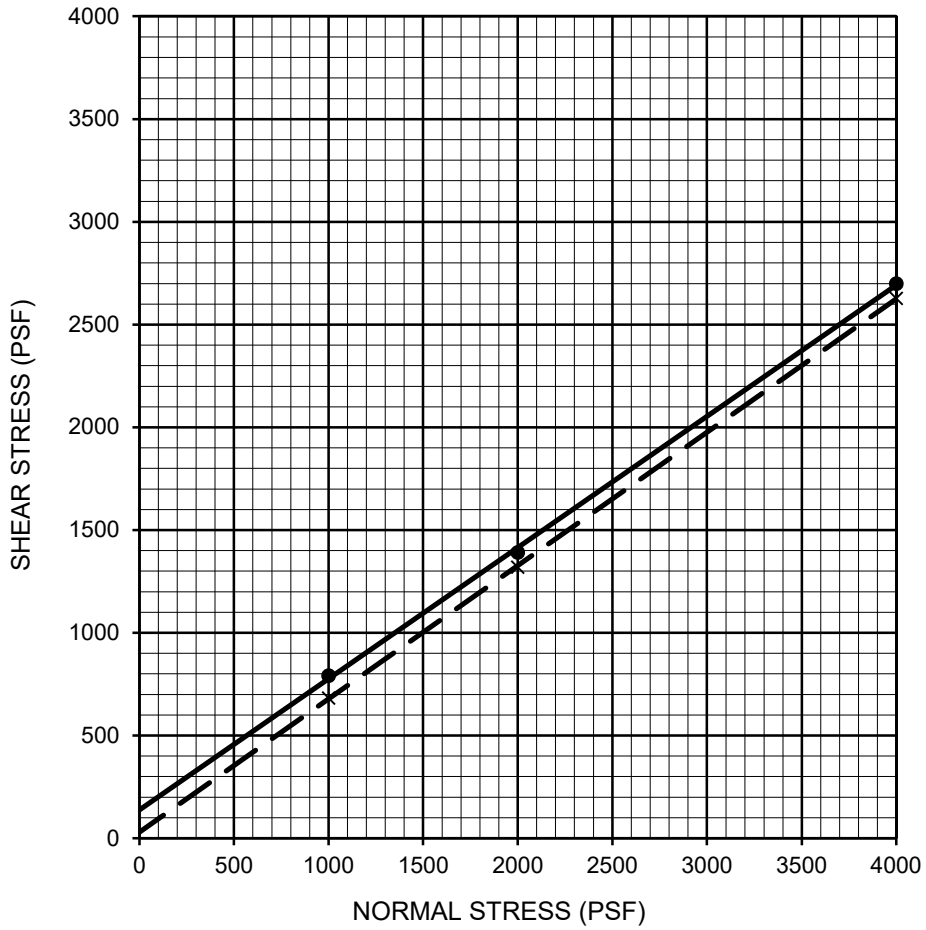

Description	Symbol	Sample Location	Depth (ft)	Shear Strength	Cohesion (psf)	Friction Angle (degrees)	Soil Type
SILTY SAND	—●—	B-9	0.0-4.0	Peak	138	33	SM
SILTY SAND	– – X – –	B-9	0.0-4.0	Ultimate	30	33	SM

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 3080 ON A SAMPLE REMOLDED TO 90% RELATIVE COMPACTION

FIGURE B-9

DIRECT SHEAR TEST RESULTS

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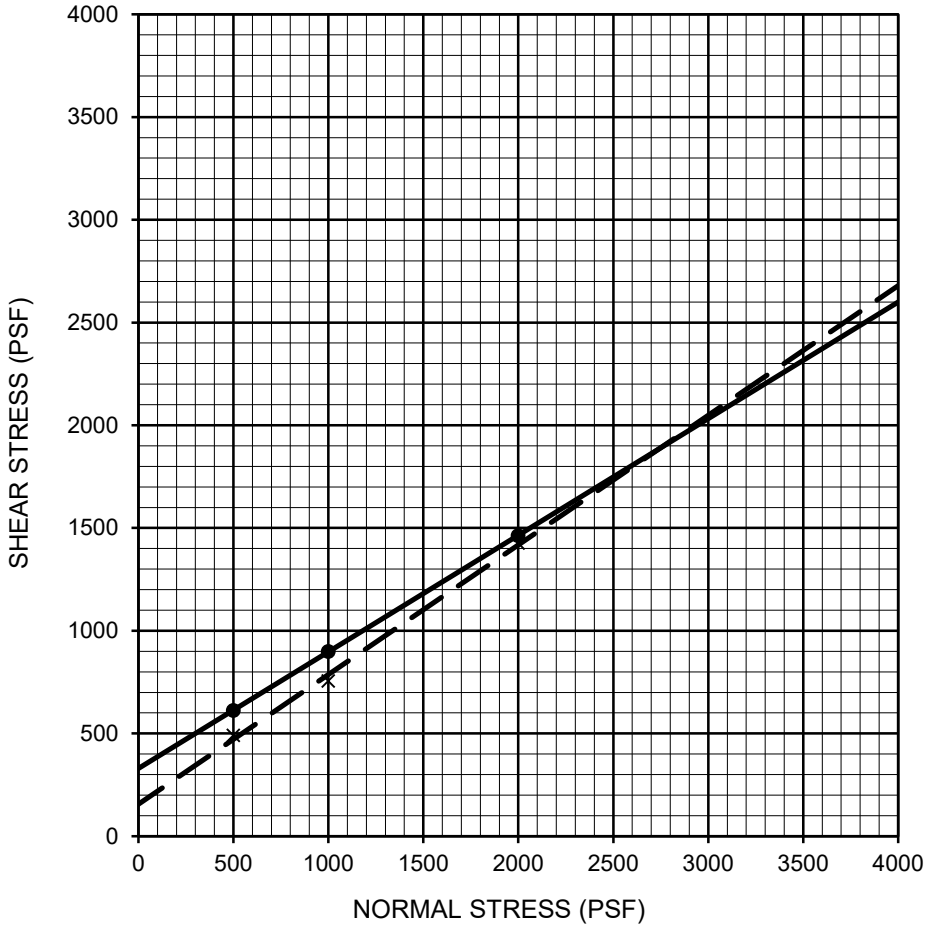

Description	Symbol	Sample Location	Depth (ft)	Shear Strength	Cohesion (psf)	Friction Angle (degrees)	Soil Type
SILTY SAND	—●—	B-13	5.0-6.5	Peak	330	30	SM
SILTY SAND	– – X – –	B-13	5.0-6.5	Ultimate	156	32	SM

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 3080

FIGURE B-10

DIRECT SHEAR TEST RESULTS

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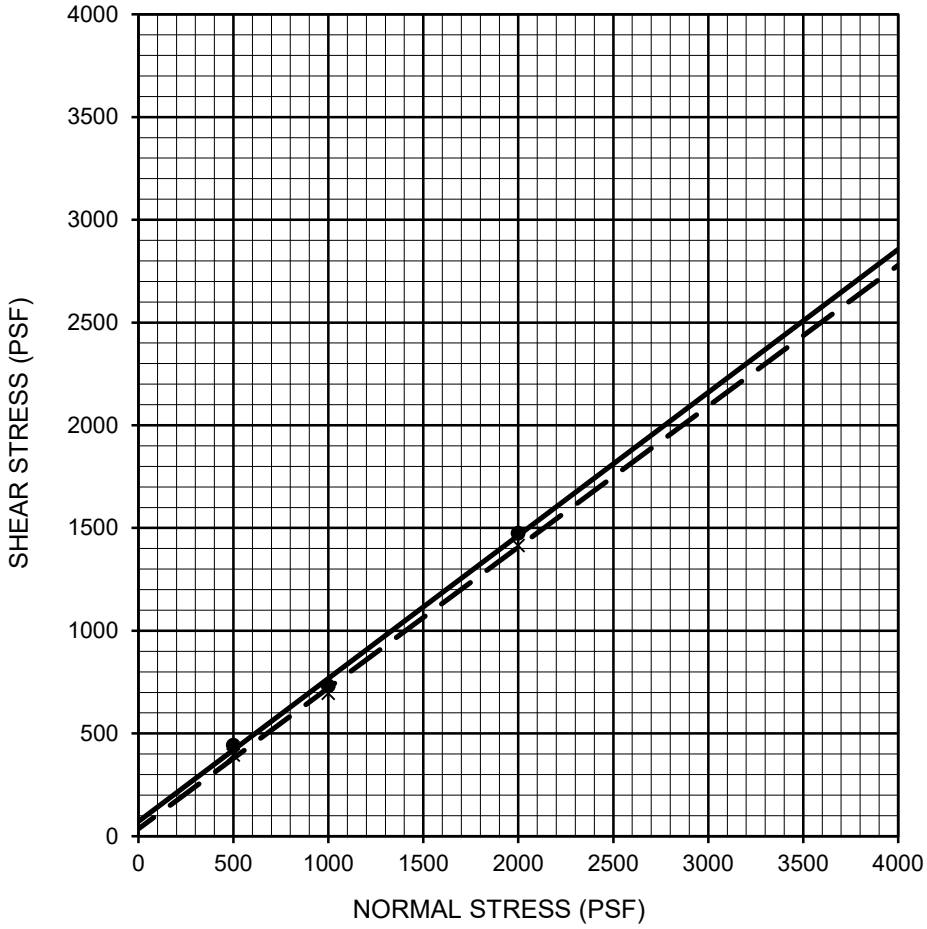

Description	Symbol	Sample Location	Depth (ft)	Shear Strength	Cohesion (psf)	Friction Angle (degrees)	Soil Type
SILTY SAND	—●—	B-14	5.0-6.5	Peak	72	35	SM
SILTY SAND	– – X – –	B-14	5.0-6.5	Ultimate	36	34	SM

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 3080

FIGURE B-11

DIRECT SHEAR TEST RESULTS

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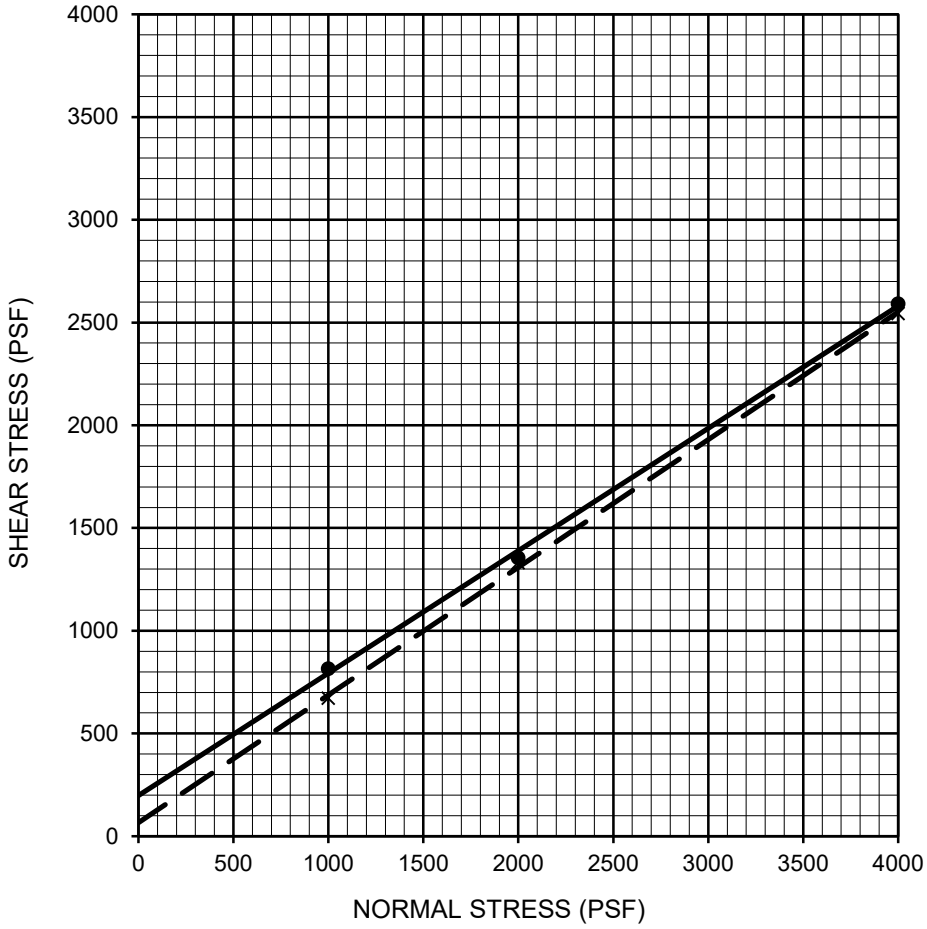

Description	Symbol	Sample Location	Depth (ft)	Shear Strength	Cohesion (psf)	Friction Angle (degrees)	Soil Type
SILTY CLAYEY SAND	—●—	B-21	10.0-11.5	Peak	198	31	SC-SM
SILTY CLAYEY SAND	– – X – –	B-21	10.0-11.5	Ultimate	66	32	SC-SM

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 3080

FIGURE B-12

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DIRECT SHEAR TEST RESULTS

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BAKERSFIELD, CALIFORNIA

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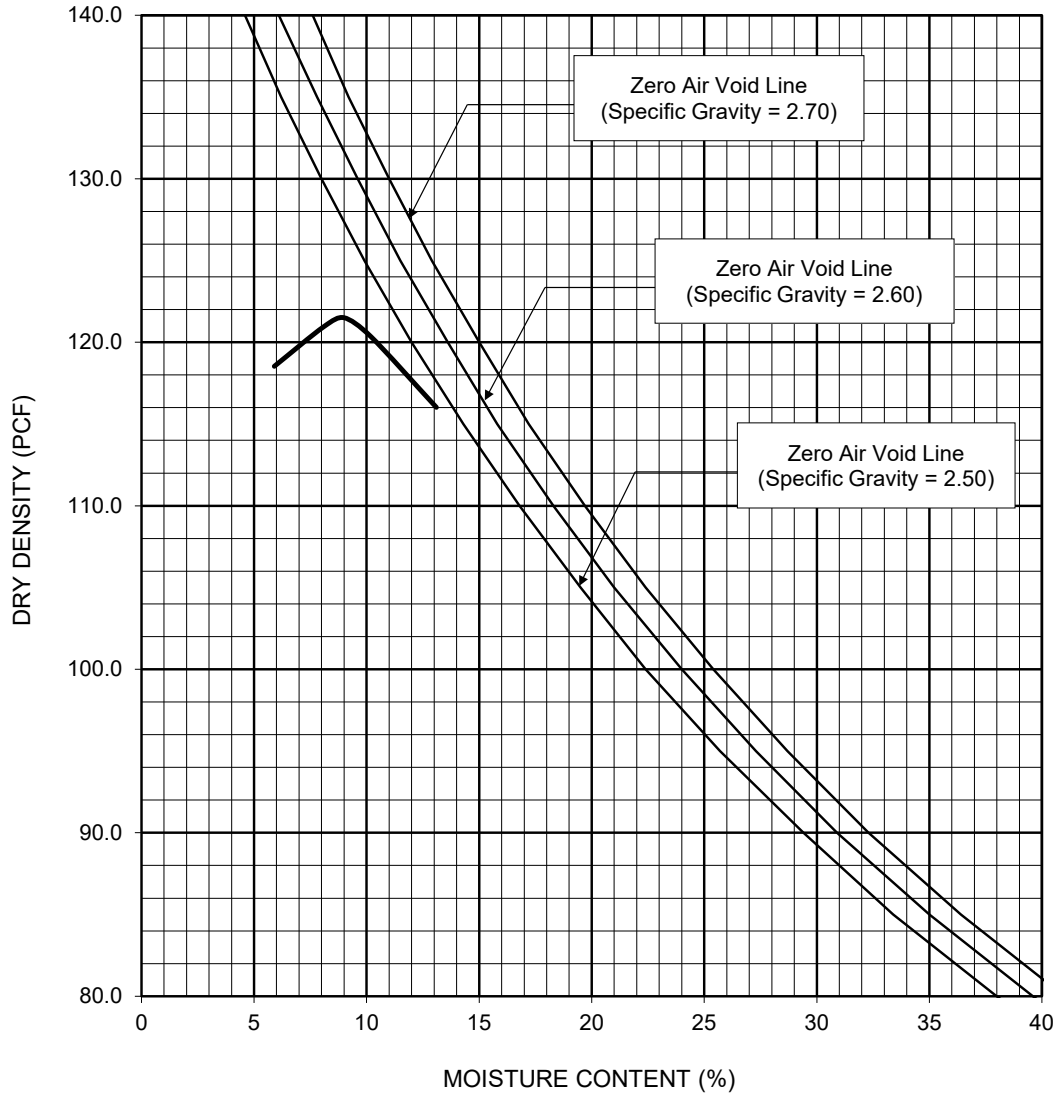

Sample Location	Depth (ft)	Soil Description	Maximum Dry Density (pcf)	Optimum Moisture Content (percent)
B-9	0.0-4.0	Brown Silty SAND	121.5	9.0
Dry Density and Moisture Content Values Corrected for Oversize (ASTM D 4718)			N/A	N/A

☑ ASTM D 1557 ☐ ASTM D 698

PERFORMED IN GENERAL ACCORDANCE WITH METHOD ☐ A ☑ B ☐ C

FIGURE B-13

PROCTOR DENSITY TEST RESULTS

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SAMPLE LOCATION	SAMPLE DEPTH (ft)	SOIL TYPE	R-VALUE
B-18	0.0-5.0	SM	61

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 2844/CT 301

FIGURE B-14

R-VALUE TEST RESULTS

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SAMPLE LOCATION	SAMPLE DEPTH (ft)	pH [1]	RESISTIVITY [1] (ohm-cm)	SULFATE CONTENT [2]		CHLORIDE CONTENT [3] (ppm)
				(ppm)	(%)	
B-5	0.4-5.0	7.1	762	170	0.017	110
B-20	0.0-5.0	7.7	2,025	40	0.004	35
B-21	0.0-5.0	8.1	2,982	20	0.002	20

[1] PERFORMED IN GENERAL ACCORDANCE WITH CALIFORNIA TEST METHOD 643
[2] PERFORMED IN GENERAL ACCORDANCE WITH CALIFORNIA TEST METHOD 417
[3] PERFORMED IN GENERAL ACCORDANCE WITH CALIFORNIA TEST METHOD 422

FIGURE B-15

CORROSIVITY TEST RESULTS

BAKERSFIELD WAREHOUSE FACILITY
BAKERSFIELD, CALIFORNIA

211696003 | 10/23

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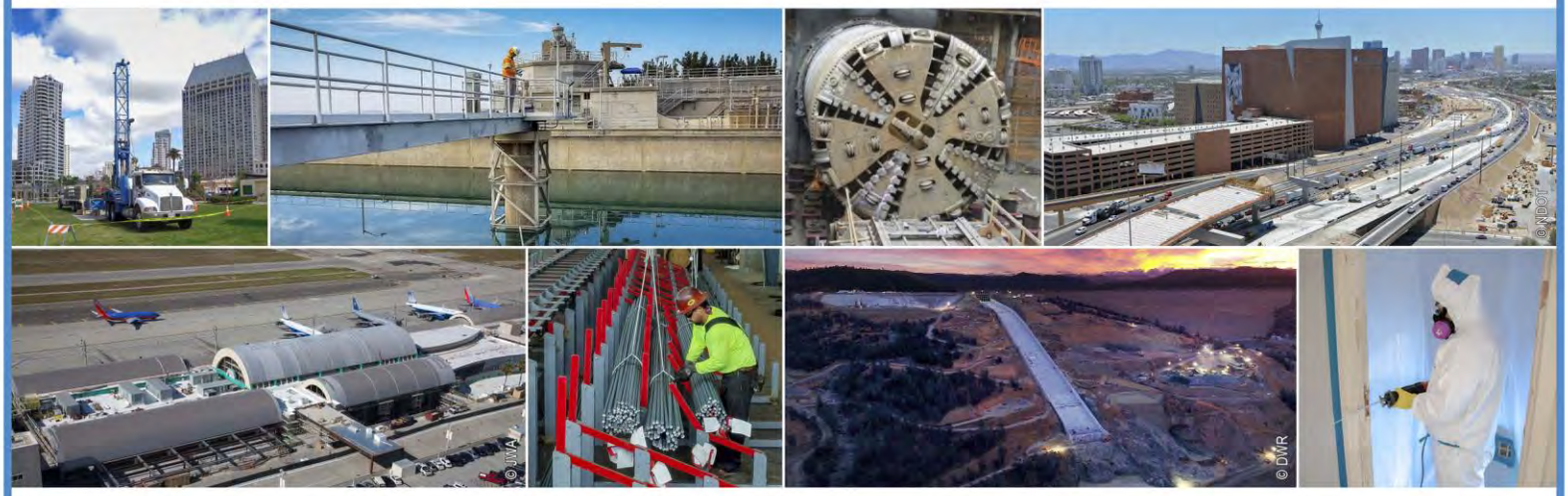
Geotechnical & Environmental Sciences Consultants



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E-2: Paleontological Records Search Results

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Kenneth L. Finger, Ph.D.
Consulting Paleontologist

18208 Judy St., Castro Valley, CA 94546-2306 510.305.1080 klfpaleo@comcast.net

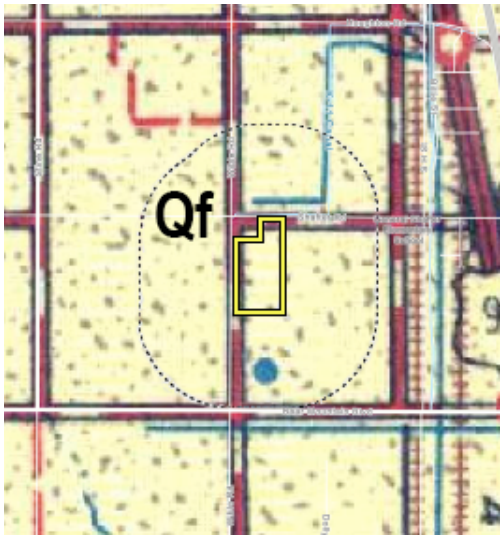
May 13, 2021

Dana DePietro
FirstCarbon Solutions
1350 Treat Boulevard, Suite 380
Walnut Creek, CA 94597

Re: Paleontological Records Search: Project Milo (4115.0034), Kern County

Dear Dr. DePietro:

As per the request of Madelyn Dolan, I have performed a records search on the University of California Museum of Paleontology (UCMP) database for Project Milo in Kern County. The Public Land Survey (PLS) location of the proposed project site is W½, NW¼, Sec. 13, T31S, R27E, Conner quadrangle (USGS 7.5-series topographic map). The applicant is seeking to construct a new 634,812-square-foot industrial building north of Shafter Road on approximately 629 acres between Wible Road and South H Street. The project would also include a detention basin at the northeast corner of the site. Access would be provided via one driveway off Houghton Road and four driveways off Wible Road.



Geologic Units

According to the part of the geologic map by Smith (1964) shown here, the entire project site (yellow outline at center) and its surrounding half-mile search area (dashed black outline) are located solely on Recent (Holocene) fan deposits (Qf). There are no older units mapped in the vicinity to suggest their presence in the shallow subsurface of the site.

UCMP Paleontological Records Search

The paleontological record search for this project focused on the late Pleistocene of the Conner quadrangle. No paleontological localities were found.

Remarks and Recommendations

The project site is located on undivided Holocene fan deposits that are too young to be fossiliferous; hence, they have no paleontological potential or sensitivity. Neither a paleontological walkover survey of the site is not recommended nor paleontological monitoring is recommended because project-related excavations are not expected to disturb any pre-Holocene deposits. Precon-

struction training of the project crew is therefore also unnecessary. This report completes the paleontological mitigation for this project in accordance with CEQA guidelines.

Sincerely

Reference Cited

Smith, A.R., 1964, Geologic map of California: Bakersfield sheet. California Division of Mines and Geology. Scale 1:250,000.

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Appendix F:
Phase I Environmental Site Assessment

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Geosyntec consultants

2365 Northside Drive, Suite 150
San Diego, CA 92108
PH 619.297.1530
www.geosyntec.com

13 June 2023

VIA E-MAIL

Mr. Sean Sheppard
Seefried Development Management, Inc.
2201 East Camelback Road, Suite 225B
Phoenix, Arizona 85016

Subject: **Phase I Environmental Site Assessment**
2909 Houghton Road, Bakersfield, California 93313

Dear Mr. Sheppard:

In accordance with your authorization of Geosyntec Consultants, Inc.'s (Geosyntec's) proposal dated 12 May 2023, Geosyntec has prepared the enclosed Phase I Environmental Site Assessment Update report for Seefried Development Management, Inc. for the above-referenced property. Enclosed is an electronic copy of the report.

Should you have questions regarding this submittal or need additional information, please do not hesitate to contact us. We appreciate the opportunity to be of service to you.

Sincerely,

DRAFT

Veryl Wittig
Senior Principal

cc:

Encl.

Geosyntec consultants

engineers | scientists | innovators

PHASE I ENVIRONMENTAL SITE ASSESSMENT

Site: 2909 Houghton Road, Bakersfield, California 93313

Prepared for

Seefried Development Management, Inc.
2201 East Camelback Road, Suite 225B
Phoenix, Arizona 85016

Prepared by

Geosyntec Consultants, Inc.
2365 Northside Drive, Suite 150
San Diego, CA 92108

Project SC1129

June 2023

EXECUTIVE SUMMARY

This Executive Summary presents the results of the Phase I Environmental Site Assessment (ESA) Update conducted by Geosyntec Consultants, Inc. for the property located at 2909 Houghton Road, Bakersfield, California 93313 (the Site). The Site is an approximately 93.74-acre property located within a larger 629.08-acre parcel (Kern County Parcel Number 184-391-08-4; referred to herein as the "Parent Property"). This Phase I ESA was prepared in accordance with the scope of work, terms, and conditions described in Geosyntec's proposal dated 12 May 2023. This Phase I ESA was conducted in accordance with ASTM International (ASTM) Standard E5127-21[1] to identify, to the extent feasible, "recognized environmental conditions" (RECs) at the Site as the term REC is defined by E1527-21.

The Site is an approximately 93.74-acre property located within a larger 629.08-acre parcel (Kern County Parcel Number 184-391-08-4; referred to herein as the "Parent Property"). The Site is accessed from its northern and western site boundaries via Houghton and Wible Roads, respectively. The Site is presently owned by TBS Prop LLC. The Site was used agriculturally (row crops). No buildings or structures are located on the Site. Prior to its development for agricultural use in 1956, the property was undeveloped land.

Based on the information set forth in this Phase I ESA, Geosyntec has concluded the following:

Recognized Environmental Conditions

- No RECs were identified during this Phase I ESA.

Controlled Recognized Environmental Conditions

- No controlled recognized environmental conditions (CRECs) were identified during this Phase I ESA.

Historical Recognized Environmental Conditions

- No historical recognized environmental conditions (HRECs) were identified during this Phase I ESA.

De Minimis Conditions

- **Agricultural Land Use:** Historical Site documents and aerial photographs indicate the Site has been used for agricultural purposes from the 1950s through the present. Based on the timeframe of the observed agricultural usage, it is possible that hazardous pesticides or

[1] ASTM Standard E1527 is titled: "*Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process"*

herbicides were used on Site; however, no evidence of pesticide/herbicide usage was found as part of this Phase I ESA. Therefore, this finding is not a REC but rather a de minimis condition.

Additional Findings

Per ASTM E1527-21, *"[s]ome findings, but not necessarily all findings, may be indicative of the presence of"* RECs, CRECs, HRECs, or *de minimis* conditions, while other findings may not be indicative as characterized above. These findings that do not fall within the defined characterizations above are therefore considered as additional findings and not classified above.

- No additional findings were identified during this Phase I ESA.

Data Gaps

Our assessment revealed the following data gaps, as defined by ASTM:

- ASTM E1527-21 states that "*interviews with past owners, operators, and occupants of the property who are likely to have material information regarding the potential for contamination at the property shall be conducted to the extent that they have been identified."* Geosyntec was not provided with and did not identify owner contact information for the former or current Site owner.

Collectively, these data gaps are not considered to be significant to the Findings or the identification of RECs at the Site.

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Geosyntec consultants

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1. INTRODUCTION

Geosyntec Consultants, Inc. was retained by Seefried Development Management, Inc. (Seefried) to conduct a Phase I Environmental Site Assessment (ESA) Update at the property located at 2909 Houghton Road, Bakersfield, California 93313 (Site). The Site is an approximately 93.74-acre property located within a larger 629.08-acre parcel (Kern County Parcel Number 184-391-08-4; referred to herein as the "Parent Property"). The Site location is shown on **Figure 1** (Site Location Map). A recent Site and vicinity property layout are depicted on **Figure 2** (Site Layout Map).

1.1 Objective

This Phase I ESA was conducted in general accordance with the scope and limitations of certain guidance contained within the ASTM International (ASTM) Standard Practices E1527-21. The primary purpose of the Phase I ESA was to identify, to the extent feasible, if one or more "recognized environmental conditions[2]" (RECs) exist at the Site, as the "REC" terminology is defined by ASTM E1527-21. Deviations or exceptions to the guidance contained in the E1527-21 standards of practice are described in Section 1.4.

Geosyntec's effort is to provide the User with a Phase I ESA that includes a search for the existence of potential or known surface or subsurface environmental impacts at the Site. For the purposes of this Phase I ESA report, Seefried is the "User," defined as "*the party seeking to use Practice E1527 to complete an environmental site assessment of the subject property*…" in partial fulfillment of the requirements of the All Appropriate Inquiry Rule under 40 CFR 312.

1.2 Scope of Services

The Phase I ESA scope of work included the following:

- Review of pertinent information/documents
- Review of environmental databases regarding the Site itself as well sites in the vicinity of the Site pursuant to the E1527-21 Practice
- Review of historical land usage via historical aerial photographs, fire insurance maps, city directories, property tax files, and topographic maps, as available

[2] As defined by ASTM E1527-21, a Recognized Environmental Condition is: "(1) the presence of hazardous substances or petroleum products in, on, or at the subject property due to a release to the environment; (2) the likely presence of hazardous substances or petroleum products in, on, or at the subject property due to a release or likely release to the environment; or (3) the presence of hazardous substances or petroleum products in, on, or at the subject property under conditions that pose a material threat of a future release to the environment."

- Visit to the Site for a visual reconnaissance of the major interior and exterior site features and use of adjoining properties
- Interviews with current and former owner/occupants knowledgeable with site operations
- Preparation of a Phase I ESA report

In accordance with Geosyntec's scope of work for this project, "non-scope considerations", as defined in ASTM E1527-21, were not evaluated as part of this Phase I ESA.

Geosyntec's authorization and conduct to complete the scope of work are as follows:

Table 1. Scope of Services Details

Scope Item	Detailed Information
Site Name or Reference	BFL3 Bakersfield, California
Site Address	2909 Houghton Road
City, State, and Zip Code	Bakersfield, California 93313
Parcel ID	Kern County 184-391-08-4
Proposal Date	12 May 2023
Authorization Date	12 May 2023
Database Report Date	18 May 2023
Site Visit Date	19 May 2023
Current Owner/Occupant Interview Date	Interviews with current owners and occupants were not conducted as part of this assessment (refer to Section 7.1)
Previous Owner/Occupant Interview Date	Interviews with prior owners and occupants were not conducted as part of this assessment (refer to Section 7.1)
Local Agencies Interview Date(s)	Various agencies were contacted as documented in Section 4.3.
Report Date	13 June 2023
Viability Date	14 November 2023
Geosyntec Site Personnel	Ms. Janet Arroyo
Facility Personnel and Role	N/A
Report Preparer(s)	Ms. Jackie Hyman
Report Reviewer(s)	Mr. Veryl Wittig
Environmental Professional[1]	Mr. Wittig

Note 1: The Environmental Professional meets the requirements as stated in E1527-21.

The professional qualifications of the senior reviewers, including the signatory Environmental Professional are presented in Section 10.

1.3 Significant Assumptions

Geosyntec took no significant assumptions into account as part of this project.

1.4 Limitations, Deviations, and Exceptions

This Phase I ESA was conducted according to the agreed upon scope of work consistent with the ASTM Practice E1527-21, except as follows:

- ASTM E1527-21 states that "*interviews with past owners, operators, and occupants of the property who are likely to have material information regarding the potential for contamination at the property shall be conducted to the extent that they have been identified*." Geosyntec was not provided with and did not identify owner contact information prior to the current or former site owner.

This Phase I ESA did not include sampling rock, soil, groundwater, surface water, soil vapor, air, or on-site substances or materials. Therefore, it is not possible to confirm the presence or absence of hazardous substances or petroleum products in the environments associated with the property. The findings and conclusions presented in this Phase I ESA are the result of professional interpretation of the information collected at the time of this study. Specified information contained in this report has been obtained from publicly available sources and other secondary sources of information. Although care has been taken in compiling this information, Geosyntec has not independently validated this information and provides no warranty as to its accuracy or completeness. The Phase I ESA does not necessarily include an exhaustive search of all available records nor does it include detailed assessment of all Phase I ESA findings. Therefore, Geosyntec cannot "certify" or guarantee that any property is free of environmental impairment; no warranties regarding the environmental quality of the property are expressed or implied.

1.5 Special Terms and Conditions

No special contractual terms or conditions were taken into account as part of this project.

1.6 User Reliance

This Phase I ESA report has been prepared solely for the benefit of Seefried ("User"). Geosyntec has issued the Phase I ESA report to Seefried and grants Seefried the right to rely on the report contents. Except as specifically set forth in Geosyntec's proposal to Seefried to perform this work, no third party shall have the right to rely on Geosyntec opinions rendered in connection with the Services without Geosyntec's written consent which may be conditioned on the third party's agreement to be bound to acceptable conditions and limitations similar to those agreed to by

Seefried. Please note that Geosyntec's consent to provide a right-to-rely on the Phase I ESA report is subject to Seefried's approval and to agreement to Geosyntec's terms and conditions associated with Geosyntec's performance of this specific Phase I ESA.

2. SITE DESCRIPTION

The Site description presented herein is derived from information provided by the User, Seefried, and information gathered during the research of historical records and the reconnaissance unless referenced otherwise.

2.1 Site Location and General Characteristics

The Site is located at 2909 Houghton Road, Bakersfield, California 93313 and is surrounded by a mix of agricultural, commercial and rural residential properties. The approximately 93.74-acre Site is located within a larger 629.08-acre parcel (**Table 2)**. The location of the Site is shown on **Figure 1**. A recent site layout and vicinity property layout are depicted on **Figure 2**. Ownership information, where available, is provided in **Appendix A**.

Table 2. Parcel Information

Parcel No.	Zoning	Owner	Approximate Area (Acres)	Land Use/Description
184-391-08-4	399 – Other Industrial Structures	TBS Prop LLC	629.08	4300 - Irrigated Land

Source: Kern County, CA Assessor Property Search

2.2 Current and Former Uses of the Site

The Site is presently owned by TBS Prop LLC. At the time of Geosyntec's site reconnaissance, the Site was used agriculturally (row crops). No buildings or structures are located on the Site. Prior to its development for agricultural use in 1956, the property was undeveloped land.

2.3 Description of Structures, Roads, Other Improvements on the Site

The Site is used agriculturally (row crops). Aboveground irrigation piping, an irrigation well, water tank, and associated pump were located along the dirt road near the eastern Site boundary. In addition, a gas pipeline marker is located near the eastern Site boundary. Rural roads run along the eastern and southern portions of the Site. Current site features observed during the site reconnaissance are presented on **Figure 2**.

2.4 Current and Prior Use of Adjoining and Surrounding Properties

At the time of completion of this Phase I ESA and in recent years, the vicinity surrounding the Site consisted of a mix of agricultural and rural residential land use with some light commercial use to the northwest. The land use immediately surrounding the Site is noted in **Table 3** below.

Table 3. Adjoining Property and Surrounding Land Use

Direction	Current Geosyntec-Observed Use[1]	Identified Prior Use	Considered to be More Likely to Result in Surface/Subsurface Quality Impacts to the Site (Yes/No)
North	Houghton Road and Martin Feed followed by agriculture crop land	Undeveloped land	No
South	Agriculture crop land followed by Shafter Road	Undeveloped land	No
East	Agriculture crop land and an irrigation canal	Undeveloped land	No
West	Wible Road followed by agriculture crop land and a residential property	Undeveloped land	No

Note 1: Observations from Geosyntec's 19 May 2023 site visit.

The adjacent properties were briefly inspected during the site reconnaissance (from vantage point of the Site or public rights-of-way) to observe the associated land use practices (e.g., condition, housekeeping, evidence of chemical usage/spills). Observations made for the adjoining sites are described later in this report (Section 5).

2.5 Physical Setting

A summary of the physical setting of the Site and vicinity including topography, geology/ hydrogeology, and water resources is presented in **Table 4**. Environmental Data Resources (EDR) provided Geosyntec with a Radius Map Report (RMR) for the area including the Site which serves as a source of certain information. Other sources of information in **Table 4** are noted accordingly.

Table 4. Physical Setting

Topic	Information	Source
Topography		
USGS 7.5-Minute Quadrangle Map	Conner and Gosford, California	U.S. Geological Survey (USGS)
Elevation	Approximately 333 feet above mean sea level (ft MSL)	EDR RMR
General Topographic Gradient	There is a slight topographic slope to the south.	USGS Quadrangle Map and site Reconnaissance
Soils & Geology		
Site Soils	Soils beneath the property are composed of Kimberlina fine sandy loam with moderate infiltration rates.	EDR RMR
Area Geology	The Site vicinity is underlain by Pleistocene to Holocene nonmarine sedimentary rocks consisting of alluvium and lake deposits.	California Geological Survey[3]
Water Resources		
Nearest Water Body	The nearest surface water body to the Site is the Kern River located approximately 10 miles northwest to west of the Site. Additionally, there are several ditches and canals associated with agricultural activities located within the Site vicinity.	EDR RMR and USGS Quadrangle Map
Estimated Groundwater Flow Direction[4]	Groundwater is assumed to flow to the west, generally following topography toward Kern River which drains into Lake Webb (located approximately 12 miles west of the Site).	EDR RMR
Depth of Groundwater	According to data collected from monitoring wells for the Francisco Navarro Property cleanup case located approximately three miles northeast of the Site, groundwater flows to the west and is present at a depth of 138-145 feet below ground surface based on data collected from monitoring wells.	Geotracker[5]

[3] https://maps.conservation.ca.gov/cgs/gmc/

[4] Local groundwater flow direction may vary depending on area groundwater pumping, surface water bodies, land use and development, localized topography, and other macro and micro features.

[5] Environmental & Geological Solutions, 2018. *Bi-Annual 2018 Groundwater Monitoring Report (Francisco Navarro Property)*. 17 July.

Table 4. Physical Setting

Topic	Information	Source
Wetlands (on-site)	Riverine habitat associated with agricultural channels are located within 0.25 miles from the Site. No part of the Site is classified as wetlands by the US Fish and Wildlife Service.	NWI, US Fish & Wildlife Wetland Map. EDR RMR
Wells (on-site)	A search of local/regional water agency records by EDR reported no wells on the Site. During the site reconnaissance, groundwater irrigation wells was observed on the Site.	EDR RMR & Site Reconnaissance (see Section 5)
Nearby[6] Groundwater Supply and Monitoring Wells	A search of local/regional water agency records by EDR reported: • 6 wells were identified in the USGS National Water Information System database within 1 mile. These wells are not typically monitored for water quality. • 14 wells were listed in the State Public Water Systems database within 1 mile.	EDR RMR

[6] EDR searched federal and state water well databases within one mile of the Site boundary.

3. USER-PROVIDED INFORMATION

This section describes the information provided to Geosyntec by Seefried (the User of this Phase I ESA). This includes information that was provided in the User Questionnaire (**Appendix C**).

3.1 Title Records

Geosyntec was not provided with and did not review title records for the Site. A property title search was not included in the scope of Geosyntec's services.

3.2 Environmental Liens or Activity and Use Limitations

The User did not supply Geosyntec with information regarding environmental liens or activity and land use limitations associated with the Site; a search for such liens or activity and use limitations was not included as part of Geosyntec's scope of work.

3.3 Specialized Knowledge

The User indicated that it does not have specialized knowledge of environmental conditions at the Site, other than a Phase I ESA completed for the Site in May 2021.

3.4 Knowledge of Hazardous Substances or Petroleum Products

The User is not aware of any hazardous substances or petroleum products in, on, or under the Site.

3.5 Commonly Known or Reasonably Ascertainable Information

The User is not aware of any commonly known or reasonably ascertainable information within the local community about the Site that is material to RECs in connection with the Site.

3.6 Valuation Reduction for Environmental Issues

The User has not informed Geosyntec regarding whether or not the valuation of the Site has been reduced or otherwise impacted by environmental issues (as defined in AAI[7]) at the Site.

3.7 Degree of Obviousness

The User has considered the degree of obviousness of the presence or likely presence of releases or threatened releases at the Site and the ability to detect releases or threatened releases by appropriate investigation. The User has not observed any conditions indicating the presence or likely presence of releases or threatened releases at the Site.

[7] The "All Appropriate Inquiry Rule", enacted under the 2002 Brownfields Amendments to the Comprehensive Environmental Response, Compensation, and Liability Act; 40 CFR 312

3.8 Litigation, Administrative Proceedings, and Notices

The User is not aware of (i) any pending, threatened, or past litigation relevant to hazardous substances or petroleum products in, on, or from the Site; (ii) any pending, threatened, or past administrative proceedings relevant to hazardous substances or petroleum products in, on, or from the Site; or (iii) any notices from any governmental entity regarding any possible violations of environmental laws or possible liability relating to hazardous substances or petroleum products.

3.9 Reason for Performing This Phase I ESA

Geosyntec understands that Seefried engaged Geosyntec to perform this Phase I ESA for the Site to identify RECs (as defined in ASTM E1527-21) in order to help identify potential environmental liabilities associated with a potential leasing of the Site.

3.10 Pertinent Documents

Geosyntec was provided various Site Plans for the Site.

4. RECORDS REVIEW

Geosyntec reviewed the following records, to the extent we found these to be available and reasonably ascertainable:

- Federal, state, and local environmental databases
- Historical aerial photographs
- Historical topographic maps
- Fire insurance maps
- City directories
- Local authority permits and records
- Available property tax information

In addition to the standard sources above, Geosyntec reviewed available Site-related documents provided by the User and reviewed environmental files obtained from regulatory agencies.

4.1 Standard Environmental Records Sources

4.1.1 Database Search Approach

Geosyntec contracted EDR to provide portions of the records reviewed as described below. EDR conducted the environmental database search in an attempt to ascertain whether the Site or neighboring properties were suspected of having environmental conditions that could have impacted the surface or subsurface at the Site. EDR reported specific records and search distances (from the approximate site boundaries) for the environmental databases to be consistent with ASTM Practice E1527-21 and are discussed in the EDR Radius Map Report (EDR, 2023f) presented in **Appendix B**. Database descriptions are included in the EDR report.

The following sections discuss listings that are projected to be located upgradient of the Site and have reported (or suspected) contamination or that have the potential for significant contamination that could have impacted the Site (such as National Priorities List [NPL] or Resource Conservation and Recovery Act [RCRA] Corrective Action sites). The locations of these listed sites are shown on the Overview Map and Detail Map in the EDR Radius Map Report (**Appendix B**).

4.1.2 Database Search Results – Site

EDR identified two database listings for the Site. Within these databases, the Site was listed under TBS Properties and PG&E Hydrotest Segment Test-1385, L-300A. These databases and associated listings are as follows:

- **CUPA LISTINGS, FINDS, and CERS:** The Site, under the name TBS Properties and Ten Star Farming, is listed in Certified Unified Program Agencies Listings (CUPA Listings), Facility Index System/Facility Registry System (FINDS), and California Environmental Reporting System (CERS) databases as an active chemical storage facility. No violations were reported between approximately 2013 and 2020.

- **CIWQS:** The Site, under the name PG&E Hydrotest Segment Test-1385, L-300A, was listed in the California Integrated Water Quality System (CIWQS) database as a historical facility subject to No-Exposure Certification stormwater regulations from 2017 to 2018. No violations were reported.

4.1.3 Database Search Results – Vicinity Properties

The search of environmental databases identified 13 site listings for properties within 1-mile of the Site, some of which were in databases indicative of releases. Other than select sites discussed below based on their database listing, listed sites located greater than 0.25 miles from the Site were not evaluated because they are not anticipated to adversely affect the Site based on their database listing, location, and/or proximity. A summary of reviewed database listings is included below:

- **Old River Gin** at Houghton & Wible (adjoining the Site to the north-northwest) is listed in the Kern County Underground Storage Tank (Kern Co. UST) database for one UST; additional details were not provided. Based on the available information, and information obtained from our review of aerial photographs (described in Section 4.2), the correct location of this listing may be at the adjoining property at the northeast corner of Wible and Houghton Roads, approximately 390 feet from the Site. The facility has a permitted UST with no indication of a release. Based on the lack of a reported release, this facility is considered unlikely to be of environmental concern to the Site.

- **Martin Feed** at 12838 Wible Road (adjoining the Site to the north-northwest) and listed on the following databases: Permitted Aboveground Storage Tanks (AST), CERS, CERS Hazardous Waste (CERS HAZ WASTE), Permitted AST and Underground Storage Tanks (CERS TANKS), Kern County Certified Unified Program Agencies (CUPA LISTINGS), Hazardous Waste Tracking System (HWTS), Resource Conservation and Recovery Act Non Generators/No Longer Regulated (RCRA NonGEN/NLR), and Solid Waste Facility Permit Database (SWF/LF). Martin Feed was identified as a medium volume transfer/processing facility for food wastes with a capacity of 12,000 tons per year. The facility has permitted ASTs with no indication of a release. Based on the lack of a reported release, this facility is considered unlikely to be of environmental concern to the Site.

4.1.4 Unplottable Sites

EDR did not identify any "unplottable sites" which could not be mapped by EDR due to the lack of sufficient address information.

4.2 Historical Use Information

Geosyntec contracted EDR to provide standard historical records, including aerial photographs, topographic maps, city directories, and fire insurance maps (EDR, 2023a-e). The sections below identify and summarize the historical information sources reviewed for the Site and vicinity. A summary of the findings from the review of the historical sources is provided in **Table 5**. Copies of the historical records reports are included in **Appendix B**.

4.2.1 Historic Aerial Photographs

EDR provided aerial photographs from 1937, 1942, 1952, 1956, 1968, 1973, 1984, 2006, 2009, 2012, 2016 and 2020. Additional aerials were reviewed from Google Earth for 1994, 2003, 2004, 2005, 2006, 2008, 2009, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2020, 2021, 2022, and 2023.

4.2.2 Historical Topographic Maps

EDR supplied portions of USGS topographical maps of the Site and vicinity for 1910, 1912, 1930, 1932, 1933, 1954, 1968, 1973, 2012, 2015 and 2018.

4.2.3 City Directories

Available business directories, including cross reference and telephone directories, were reviewed for 1922, 1928, 1930, 1934, 1940, 1945, 1951, 1955, 1960, 1965, 1970, 1971, 1975, 1976, 1980, 1986, 1990, 1992, 1995, 2000, 2002, 2005, 2010, 2014, 2017, and 2020. The Site address, 2909 Houghton Road and nearby properties on Wible Road and Houghton Road Drive were not listed in the Digital Business Directory from 1922 to 2020.

4.2.4 Fire Insurance Maps

Based on EDR's search of fire insurance maps, there was no coverage for the Site or adjoining properties.

4.2.5 Property Tax Files

Geosyntec researched publicly available online tax records through Kern County records. The information retrieved included property boundary information, property owner, and property size.

The owner for the parcel of the Site is listed as “TBS Prop LLC.” The retrieved tax map parcel information is provided in **Appendix A.**

Table 5. Historical Records Review

Aerial Photographs	Topographic Maps
Site: The 1937 through 1952 aerial photographs depict the Site as undeveloped land with meandering natural and man-made drainages/canals traversing the Site. The 1956 aerial photo indicated the Site had been cleared of native vegetation and appeared to be pastureland or used for agricultural purposes with meandering drainage channels with sedimentation. By 1968, the Site was actively cultivated agricultural land and appeared to alternate between actively cultivated and fallow agricultural land through the present. From 2005 to 2012, the southwest Site boundary appears to be used for storage of hay bales. **Adjoining and Vicinity:** The 1937 through 1942 aerial photos depict the areas north, east, and south as undeveloped land, and the areas west as agricultural land. Canals are visible in the Site vicinity. Between 1952 and 1968 all adjoining properties had been converted to agricultural use, and by 1954 a canal and levee had been constructed east of the Site on the Parent Property. Rural residential properties are visible to the west. By 1956, a portion of the north adjoining property had been developed for commercial use. From 1968 to the present, the Site vicinity remained relatively unchanged with the exception of the northeast corner of the Parent Property which was developed with a commercial structure in 2013 and was subsequently expanded in 2015. No significant changes were noted for the Site vicinity after 2015.	**Site**: The 1910 through 1933 topographic maps depict the Site as undeveloped land with meandering natural and man-made drainages/canals traversing the Site. The 1954 topo depicts a pipeline trending northwest to southeast through the northern portion of the Site. From 2012 to 2018, the Site is mapped within a developed area, however, no property use details are depicted at the Site. **Adjoining and Vicinity:** The 1910 through 1930 topos depict the adjoining properties as undeveloped land. Wible Road is depicted west of the Site. The 1930 and 1933 topos show canals throughout the Site vicinity. By 1954, a canal and levee had been constructed east of the Site on the Parent Property. Water wells and small buildings are depicted to the north and southwest. By 1968, Houghton Road is developed to the north. Several structures are developed beyond Houghton Road to the northwest. From 2012 to 2018, the Site vicinity is mapped within a developed area.
In summary, the review of aerial photographs, topographic maps, and city directories revealed usages that could be indicative of hazardous materials or chemical storage, management, usage, or disposal at the Site or in the immediate vicinity that could pose a threat to the surface or subsurface quality at the Site. However, in this review, Geosyntec noted no definitive features showing chemical management, chemical spills or evidence of waste disposal on or into the ground at the Site. Our opinions on the nature of the historical features of the Site and the surrounding area are included in Section 7 of this report.	

4.3 Local, County, State, and Federal Files

Geosyntec contracted with Environmental Support Services (ESS) to contact local, county, and state agencies via telephone and electronic mail to inquire as to whether they possessed relevant records regarding the Site. Relevant information is summarized below. Excerpts of relevant regulatory agency documents are presented in **Appendix D**.

4.3.1 Local Fire Department Records

On 19 May 2023, ESS contacted Kern County Fire Department via email to inquire about storage of hazardous materials/waste, aboveground and underground storage tanks, and/or incidents at the Site. Records on-file included a propane gas tank permit and routine fire department inspections.

4.3.2 City or County Records

ESS contacted the Kern County Public Health Department via email on 19 May 2023 regarding the utilization, manufacture, storage and/or discharge of hazardous materials/waste, and any information concerning previous or on-going site investigations/remediations pertaining to hazardous materials/waste emergency response, spill records available for the Site. Records available with the Environmental Health Department included CERS submittal dated 2022 for TBS Properties (the Site owner). Hazardous materials inventory includes a 500-gallon propane tank. The tank was not observed during the Site reconnaissance and is likely associated with the Parent Property. In addition, Geosyntec searched the County of Kern Public Health Services Department[8] website and did not find any online databases to search.

ESS contacted the Kern County Building Department via email on 19 May 2023 regarding information on building permits and certificates of occupancy available for the Site. Kern County records for the Site and Parent Property. Permits appeared to be largely associated with off-Site improvements at the Parent Property. Numerous permits for electrical service and agricultural well pumps issued between 1989 and 2022. A permit was issued in 2012 for a 30,000-square foot shade structure. In 2014, a permit was issued to construct two attached pole barn structures to an existing pole barn (15,000-sqaure feet total). In 2016, permits were issued to install a roof mounted solar system on an existing pole barn and associated transformer.

ESS contacted the Kern County Public Works Department – Industrial Waste department via email on 19 May 2023 regarding information on septic systems and supply wells available for the Site. Kern County replied stating the property is not connected to the sewer. No records were available for the Site.

[8] https://kernpublichealth.com/

ESS contacted the San Joaquin Valley Air Pollution Control District (SJVAPCD) via email on 19 May 2023 regarding information on air quality equipment permits or inspections available for the Site. No records were available for the Site.

4.3.3 State Records

ESS contacted the California State Water Resources Control Board Central Valley office via email on 19 May 2023 regarding previous or on-going site investigations/remediation, hazardous materials/waste emergency response, or spill records available for the Site. No records were identified for the Site. The Water Board indicated that the Site is farmed commercially and is subject to regulations under the Central Valley Water Board's Irrigated Lands Regulatory Program. The Site is currently enrolled with the Kern River Watershed Coalition Authority which is an intermediary between commercial farmers and the Central Valley Water Board. In addition, Geosyntec searched the California State Water Resources Control Board GeoTracker[9] database where site cleanup records were available for online search. No records were found for the Site or surrounding vicinity during the search.

ESS contacted the California Department of Toxic Substances Control (DTSC) Sacramento and Clovis offices via email on 19 May 2023 regarding the treatment, storage and disposal of hazardous waste, and any information concerning previous or on-going site investigations/remediations pertaining to hazardous materials/waste emergency response, or spill records available for the Site. No records were identified for the Site. In addition, Geosyntec searched the DTSC EnviorStor[10] database where hazardous materials records were available for online search. No records were found for the Site or surrounding vicinity during the search.

Review of the California Department of Conservation Geologic Energy Management Division (CalGEM)[11] database indicated that a canceled well permit was listed on the southeast portion of the Site as API 0403053329, however, no well records existed in the CalGEM WellStar electronic database. The lease name is listed as Houge and the operator is listed as Maranatha Petroleum, Inc. During historical aerial photo review and the site reconnaissance, no evidence of an oil and gas well (oil derrick, sump, access road, etc.) was observed. According to correspondence with CalGEM, a cancelled status of a well typically occurs when an operator submits a notice of intention to drill a well, receives the permit, but does not drill within the allotted time thus the permit expires. On 12 May 2021, CalGEM confirmed the well was cancelled and another well with the same name was drilled at an off-Site location under API 0403059374 (Appendix D).

ESS contacted the Cal Fire - Office of the State Fire Marshal via email on 19 May 2023 regarding information on hazardous materials/waste, pipelines, aboveground and underground storage tanks, or spill/release incidents available for the Site. Cal Fire records for the Site included an incident in

9 https://geotracker.waterboards.ca.gov/map/
10 https://www.envirostor.dtsc.ca.gov/public/map/
11 https://www.conservation.ca.gov/calgem/Pages/WellFinder.aspx

2020 regarding a natural gas leak/explosion at the Site/Parent Property address. An active natural gas pipeline operated by Pacific Gas and Electric runs northwest to southeast through the northeast corner of the Site and through the Parent Property. The precise location of the leak is unknown and may be located off-site within the Parent Property.

4.3.4 Federal Records

Review of the USEPA Enforcement and Compliance History Online (ECHO)[12] database did not reveal records in connection with the Site, however, the north adjoining property (12838 Wible Road) was listed as Martin Feed Inc. under the North American Industry Classification System (NAICS) codes 112111 (beef cattle ranching and farming) and 311611 (animal [except poultry] slaughtering). No violations or compliance issues were identified. This database is used to track compliance, releases, and other information for facilities handling hazardous materials.

Review of the USEPA National Priorities List (NPL)[13] database did not reveal records in connection with the Site or surrounding properties. This database lists sites of national priority among the known releases or threatened releases of hazardous substances, pollutants, or contaminants throughout the United States and its territories.

Review of the Air Force Civil Engineer Center website[14] and Base Realignment and Closures Sites website[15] did not reveal any military sites in the vicinity of the Site.

4.4 Other Documents Reviewed

No documentation was provided by the Client or owner during this assessment.

[12] https://echo.epa.gov

[13] https://epa.maps.arcgis.com/apps/webappviewer/index.html?id=33cebcdfdd1b4c3a8b51d416956c41f1

[14] https://ar.afcec-cloud.af.mil/Search.aspx

[15] https://www.epa.gov/fedfac/base-realignment-and-closure-brac-sites-state

5. SITE RECONNAISSANCE

A reconnaissance of the Site was conducted in accordance to the information provided in Table 1. The site reconnaissance was performed by Geosyntec personnel and was unescorted. Photographs taken during the reconnaissance are included in Appendix E. Adjoining properties were observed from their perimeters.

The focus of the reconnaissance, was to identify evidence of hazardous substances and petroleum products used, stored, or discarded and inspected the Site for areas of disturbed or discolored soil, suspect equipment, and building materials that may contain hazardous substances; areas of distressed vegetation; wastewater discharge areas; storage tanks/septic systems; waste management and disposal areas; lagoons; pits; sumps; surface water management areas; and stained surfaces. No limiting conditions were encountered.

5.1 Utility Service and Materials Management Provider Information

The utility service and materials management providers and practices at the Site are summarized (**Table 6**) from information supplied during Geosyntec's site reconnaissance.

Table 6. Site Utilities and Materials Management

Utility Service/Materials Management	Service Provider
Electricity	None identified; however, overhead electrical lines were observed throughout the Site.
Natural Gas	An active Pacific Gas and Electric natural gas pipeline is located beneath the Site. A warning sign for the pipeline was observed near the east boundary of the Site.
Sanitary wastewater disposal	Not identified.
Industrial wastewater disposal	Not identified.
Drinking water supply	Not identified.
Irrigation water supply	Irrigation water is likely supplied by nearby groundwater wells.
Stormwater disposal	Stormwater infiltrates low-lying areas on-Site. No stormwater discharge drains were observed at the Site.
Solid (non-hazardous) waste disposal	Not identified.
Hazardous waste disposal	Not identified.
Universal waste	Not identified.

5.2 Interior and Exterior Observations

Observations made during the site reconnaissance for the Site are documented in **Table 7**.

5.3 Adjoining Property Reconnaissance

During the site reconnaissance, Geosyntec observed the adjoining properties from the Site or public vantage points in an attempt to identify possible sources of obvious environmental impairment that could affect soil and groundwater quality at or result in vapor migration into the Site as a result of surface water runoff, groundwater transport, or similar pathways. Reagent Chemical & Research, Inc. operates a facility located across East State Road to the south of the Site. Aboveground storage tanks and railcar loading infrastructure were apparent on the facility, however, there were no obvious evidence of staining or distressed vegetation from Geosyntec's vantage point along East State Road. Apart from Reagent Chemical, Geosyntec saw no obvious evidence of chemical storage or releases to the ground at adjacent properties. Additional information regarding adjoining land use is provided in Section 2.4.

Table 7. Interior and Exterior Observations

ASTM Section E1527-21	Feature or Condition	Description
Interior and Exterior Observations		
9.4.11	General Usage of Hazardous Substances and Petroleum Products	No hazardous substances or petroleum products were observed, with the exception of the natural gas pipeline which crosses through the northeast portion of the Site.
9.4.12	Aboveground Storage Tanks (ASTs)	A portable AST containing fertilizer was stored on a trailer in the eastern portion of the Site. An AST for water storage was also observed near the eastern Site boundary during Geosyntec's site visit.
9.4.12	Underground Storage Tanks (USTs)	No evidence of USTs was observed during Geosyntec's site visit.
9.4.13	Odors	No out unusual odors were identified during the site visit.
9.4.14	Pools of Liquids	Irrigation ditches were observed near the eastern boundary of the Site.
9.4.15	Drums ≥ 5 Gallons	No drums of size less than 5 gallons were observed during Geosyntec's site visit.
9.4.16	Hazardous Substances and Petroleum Products Containers	No hazardous substances or petroleum products containers were observed.
9.4.17	Unidentified Substances/Containers	None observed during Geosyntec's site visit.
9.4.18	Indication of PCBs	No indication of PCB items were observed during Geosyntec's site visit.

Table 7. Interior and Exterior Observations

ASTM Section E1527-21	Feature or Condition	Description
Interior Observations		
9.4.19	Heating and Cooling Systems	Not applicable – no buildings are present at the Site.
9.4.20	Stains/Corrosion	Not applicable – no buildings are present at the Site.
9.4.21	Drains and Sumps	Not applicable – no buildings are present at the Site.
Exterior Observations		
9.4.22	Pits, Ponds, or Lagoons	Irrigation ditches were observed near the eastern boundary of the Site.
9.4.23	Stained Soil or Pavement	No areas of staining indicative of potential subsurface contamination were observed at the Site.
9.4.24	Stressed Vegetation	No obviously stressed vegetation indicative of a chemical discharge or application was observed at the Site.
9.4.25	Solid Waste	No solid waste generation or disposal was observed on the Site.
9.4.26	Wastewater and Stormwater Discharge	Irrigation water discharge was observed on the eastern border of the Site. No stormwater discharge drains were observed at the Site.
9.4.27	Wells	Irrigation supply wells were observed on the eastern portion of the Site.
9.4.28	Septic Systems	No evidence of septic systems was observed at the Site during Geosyntec's visit.

6. INTERVIEWS

6.1 Interview with Current Owner/Occupant/User

Geosyntec was not provided with contact information for any of the current property owners; Geosyntec did not conduct an interview with current owner representatives. This is considered a data gap (see Section 7).

6.2 Interview with Previous Owner/Occupant

Geosyntec requested but was not provided with contact information for previous owners/operators of the Site. Interviews with prior owners and occupants were not conducted as part of this assessment. This is considered a data gap (see Section 7).

6.3 Interview with Local Agencies

Geosyntec contacted local and county agencies via telephone or electronic mail to ask whether they possessed relevant records regarding the Site, as discussed in Section 4.3.

7. FINDINGS AND CONCLUSIONS

Geosyntec has conducted a Phase I ESA in conformance with the scope and limitations of ASTM Practice E1527-21 of the Site located at 2909 Houghton Road, Bakersfield, California 93313. Any exceptions to, or deletions from, this practice are described in Section 1.4 of this report.

Following the Findings and Opinions section (Section 7.1), we present identified data gaps and conclusions (Sections 7.2 and 7.3) regarding any identified RECs, Controlled (CRECs), Historical RECs (HRECs), or de *minimis conditions* associated with the Site.

7.1 Findings and Opinions

This assessment has revealed several findings that could represent an environmental condition on the Site. Each finding and our opinion relative to its significance as an environmental condition is discussed below.

Recognized Environmental Conditions (RECs)

As defined by ASTM E1527-21, a REC is: *"(1) the presence of hazardous substances or petroleum products in, on, or at the subject property due to a release to the environment; (2) the likely presence of hazardous substances or petroleum products in, on, or at the subject property due to a release or likely release to the environment; or (3) the presence of hazardous substances or petroleum products in, on, or at the subject property under conditions that pose a material threat of a future release to the environment."*

- No RECs were identified during this Phase I ESA.

Controlled Recognized Environmental Conditions

A CREC is a "*recognized environmental condition affecting the subject property that has been addressed to the satisfaction of the applicable regulatory authority or authorities with hazardous substances or petroleum products allowed to remain in place subject to implementation of required controls (for example, activity and use limitations or other property use limitations).*"

- No CRECs were identified during this Phase I ESA.

Historical Recognized Environmental Conditions

An HREC is "*a previous release of hazardous substances or petroleum products affecting the subject property that has been addressed to the satisfaction of the applicable regulatory authority or authorities and meeting unrestricted use criteria established by the applicable regulatory authority or authorities without subjecting the subject property to any controls (for example,*

activity and use limitations or other property use limitations. A historical recognized condition is not a recognized environmental condition."

- No HRECs were identified during this Phase I ESA.

De Minimis Conditions

A *de minimis* condition is "a condition *related to a release that generally does not present a threat to human health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies. A condition determined to be a de minimis condition is not a recognized environmental condition nor a controlled recognized environmental condition.*".

Based on the information Geosyntec obtained, Geosyntec has concluded that the following findings do not meet the definition of a REC, CREC or HREC and are therefore *de minimis* conditions:

- **Historical Agricultural Land Use:** Historical Site documents and aerial photographs indicate the Site has been used for agricultural purposes from the 1950s through the present. Based on the timeframe of the observed agricultural usage, it is possible that hazardous pesticides or herbicides were used on Site; however, no evidence of pesticide/herbicide usage was found as part of this Phase I ESA. Therefore, this finding is not a REC but rather a de minimis condition.

Additional Findings

Per ASTM E1527-21, *"[s]ome findings, but not necessarily all findings, may be indicative of the presence of"* RECs, CRECs, HRECs, or *de minimis* conditions, while other findings may not be indicative as characterized above. These findings that do not fall within the defined characterizations above are therefore considered as additional findings and not classified above.

- No additional findings were identified during this Phase I ESA.

Data Gaps

In accordance with ASTM E1527-21, this section documents data gaps in the information obtained and reviewed as part of this Phase I ESA and discusses the associated significance. A data gap is defined as being "*a lack of or inability to obtain information required by this practice [ASTM E1527-21] despite good faith efforts by the environmental professional to gather such information*". A significant data gap is defined as "*a data gap that affects the ability of the environmental professional to identify*" a REC.

Identified data gaps are presented below:

- ASTM E1527-21 states that "*interviews with past owners, operators, and occupants of the property who are likely to have material information regarding the potential for contamination at the property shall be conducted to the extent that they have been identified.*" Geosyntec was not provided with and did not identify owner contact information for the current or former site owner.

Collectively, these data gaps are not considered to be significant to the Findings or the identification of RECs because sufficient information was obtained from other sources that has been used to inform our opinion.

7.2 Conclusions

Geosyntec has performed a Phase I ESA in conformance with the scope and limitations of ASTM Practice E1527-21 of the Site located at 2909 Houghton Road, Bakersfield, California 93313. Any exceptions to, or deviations from, this practice are described in Section 1.4 of this report. This assessment has revealed no evidence of RECs but has revealed evidence of one *de minimis* condition in connection with the Site. No *significant* data gaps were identified.

8. REFERENCES

ASTM. 2021. Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment. E1527-21.

EDR. 2023a. *Certified Sanborn Map Report.* Environmental Risk Information Services. 18 May.

EDR. 2023b. *Historical Topo Map Report*. 18 May.

EDR. 2023c. *Aerial Photo Decade Package*. 18 May.

EDR. 2023d. *City Directory Abstract.* 08 June.

EDR. 2023e. *Radius Map Report with GeoCheck.* 18 May.

9. ENVIRONMENTAL PROFESSIONAL STATEMENT

I declare that, to the best of my professional knowledge and belief, I meet the definition of an Environmental professional as defined in §312.10 of 40 CFR Part 312. I have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the Site. I have developed and performed all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

DRAFT

_____

Signed by Veryl Wittig - Geosyntec Consultants

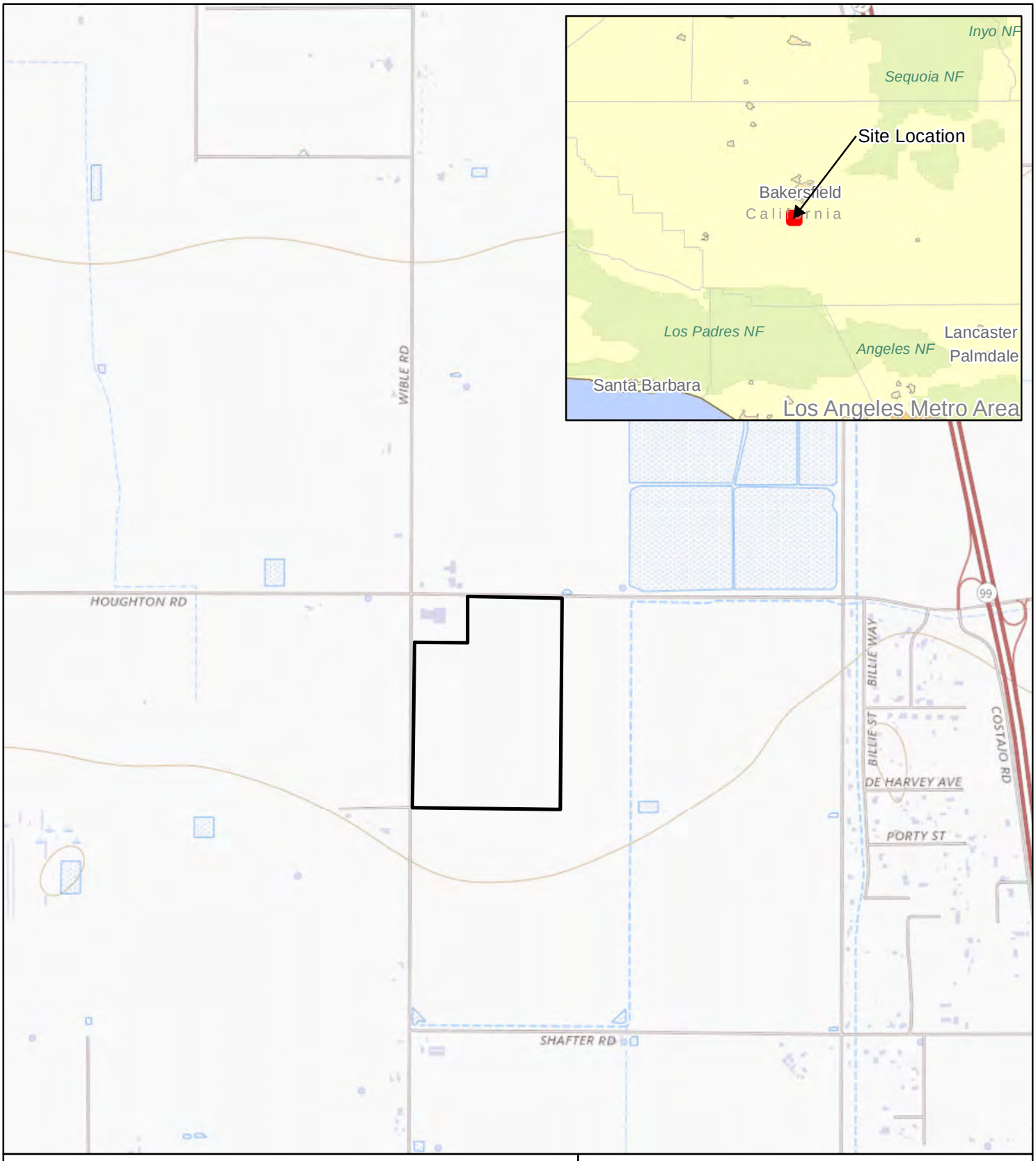
The qualifications of the above-signed professional are included in Section 10.

10. QUALIFICATIONS OF STAFF

Veryl Wittig, PG, CHG

Mr. Wittig is a Senior Principal Hydrogeologist with more than 30 years of diverse experience in planning, conducting, and managing multi-disciplinary due diligence projects involving Phase I Environmental Site Assessments (ESAs), contaminant investigations, vapor intrusion studies, human health risk assessments, engineering feasibility studies, environmental liability evaluations, mitigation of environmentally impaired properties, regulatory coordination, and litigation support for a variety of private and public sector clients. Mr. Wittig has conducted and/or managed more than 300 Phase I ESAs throughout the USA and northern Mexico between 1992 and the present in accordance with ASTM standards to evaluate the presence of Recognized Environmental Conditions (RECs) associated with the subject properties. The Phase I ESAs have involved a variety of complexities and property usages ranging from rural native land to highly-impacted industrial properties with more than a century of historical activity. Mr. Wittig earned a Bachelor's degree in Geological Sciences (Hydrogeology Emphasis) from San Diego State University in 1991.

FIGURES



Legend

Site Location

N

0 500 1,000 2,000 Feet

USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National Transportation Dataset; USGS

Site Location Map

Southeast of the Intersection of
Wible Road and Houghton Road
Bakersfield, California

Geosyntec consultants

SC1129-02	June 2023

Figure 1

P:\CAD_GIS\Projects\SC1129-02_Bakersfield\MXDs\Figure 1 Site Location Map.mxd 6/9/2023 8:44:52 AM

Legend

- Approximate Site Boundary
- Approximate Location of Pacific Gas & Electric Natural Gas Pipeline

Notes:
All locations are approximate.
Imagery Source: © 2023 Microsoft Corporation © 2023 Maxar ©CNES (2023) Distribution Airbus DS © 2023 TomTom

N

0 150 300 600 Feet

Site Layout Map
Southeast of the Intersection of
Wible Road and Houghton Road
Bakersfield, California

Geosyntec consultants

SC1129-02	June 2023

Figure 2

P:\CAD_GIS\Projects\SC1129-02_Bakersfield\MXDs\Figure 2 Site Layout Map.mxd 6/13/2023 12:28:48 PM

APPENDICES

APPENDIX A
Tax and Parcel Information

Assessor Property Search - Property Details

Note: You are not currently in a decline in value status.

General Property Information

ATN	184-391-08-00-6	**Status**	Active
Parcel Num.	184-391-08-4 View Assessor's Parcel Map		View GIS Map
Site Addr.	2909 HOUGHTON RD BAKERSFIELD		
Legal	SECTION 13 TOWNSHIP 31 RANGE 27		
Acres	629.08		
Use Code	4300 - IRRIGATED LAND		
Prior APN(s)	--		
Supervisorial District	4 - David Couch		

Recorded Documents

Document Number	Document Type	Date Recorded
210179607	Deed - Quitclaim	12/23/2010
208106731	Deed	07/07/2008
200021099	Deed	02/23/2000
RLT000323	Deed	01/01/2000

Permits

This section shows the four (4) most recent appraisable permits on the property. To find out about additional permits, contact the permitting agency.

Permit No.	AS28611	**Status**	Inactive
Date Issued	8/19/2019	**Date Completed**	8/19/2019
Permit Type	MISC SITE IMPS/		

Permit No.	WP17463	**Status**	Inactive
Date Issued	3/5/2019	**Date Completed**	
Permit Type	MISC SITE IMPS/		

Permit No.	K17463	**Status**	Inactive
Date Issued	5/3/2016	**Date Completed**	
Permit Type	SOLAR		

Permit No.	KB17463	**Status**	Inactive
Date Issued	5/1/2014	**Date Completed**	5/30/2014
Permit Type	MISC SITE IMPS/		

Property Characteristics

Building #0

Current tax roll values that are used to calculate the bills due in December 2022 and April 2023

Land Value	$2,439,509

Mineral Value	$0
Improvement Value	$1,126,597
Other Improvements	$0
Personal Property Value	$0
Total	$3,566,106
Less Exemption Value	$0
Net Total Taxable Value	$3,566,106
Tax Rate Area	118-000 - GENERAL SHAFTER

Tax Bill Information

Questions regarding tax bills should be directed to the Tax Collector at (661) 868-3490.
Go to Bill Details on Kern County Treasurer-Tax Collector's website

Lien Date Bill	22-1119649-00-3	Paid
Net Billed Value	**Tax Rate Area**	**Proration Period**
$3,566,106	118-000	1 Year

General Amount	**Special Amount**	**Special Assessments**	**General Rate**	**Special Rate**
$40,421.49	$0.00	$0.00	1.133491	0.000000

	Due Date	**Amount**	**Date Paid**	**Penalty**	**Total Paid**
1st Installment	12/12/2022	$20,210.75	12/1/2022	$2,021.07	$20,210.75
2nd Installment	4/10/2023	$20,210.74	3/17/2023	$2,031.07	$20,210.74
Total		$40,421.49			$40,421.49

INFORMATION FOR PROPERTY OWNER

Overview

Pursuant to California Revenue & Taxation Code § 619 and § 621, this notice informs you of THE TAXABLE VALUE of your property. It also serves to inform you of your opportunity to request reconsideration of our findings or to file an assessment appeal. If you believe that your property is worth less than the indicated amount, you may discuss the matter with the Assessor's staff by calling (661)-868-3485. Decline-in-value review requests are taken between July 2 and November 30. For details, visit the Decline-in-Value Review (Proposition 8) page

If you and the County Assessor cannot agree on the assessed value, you may appeal the assessment to the Assessment Appeals Board. Applications are accepted between July 2 and November 30, and are processed by the Clerk of the Assessment Appeal Board, located at the County Administration Center, 5th floor, 1115 Truxtun Avenue, Bakersfield, California 93301. For more information, visit the Assessment Appeals page

Revenue and Taxation Code § 1607 provides that the taxpayer need not attend the scheduled equalization hearing and testify to the property's value. If an agreement can be reached with the Assessor, the applicant or applicant's agent may sign a written stipulation setting forth the facts upon which a reduction in value is premised. The Board can either accept the stipulation or reject it and set a new hearing date.

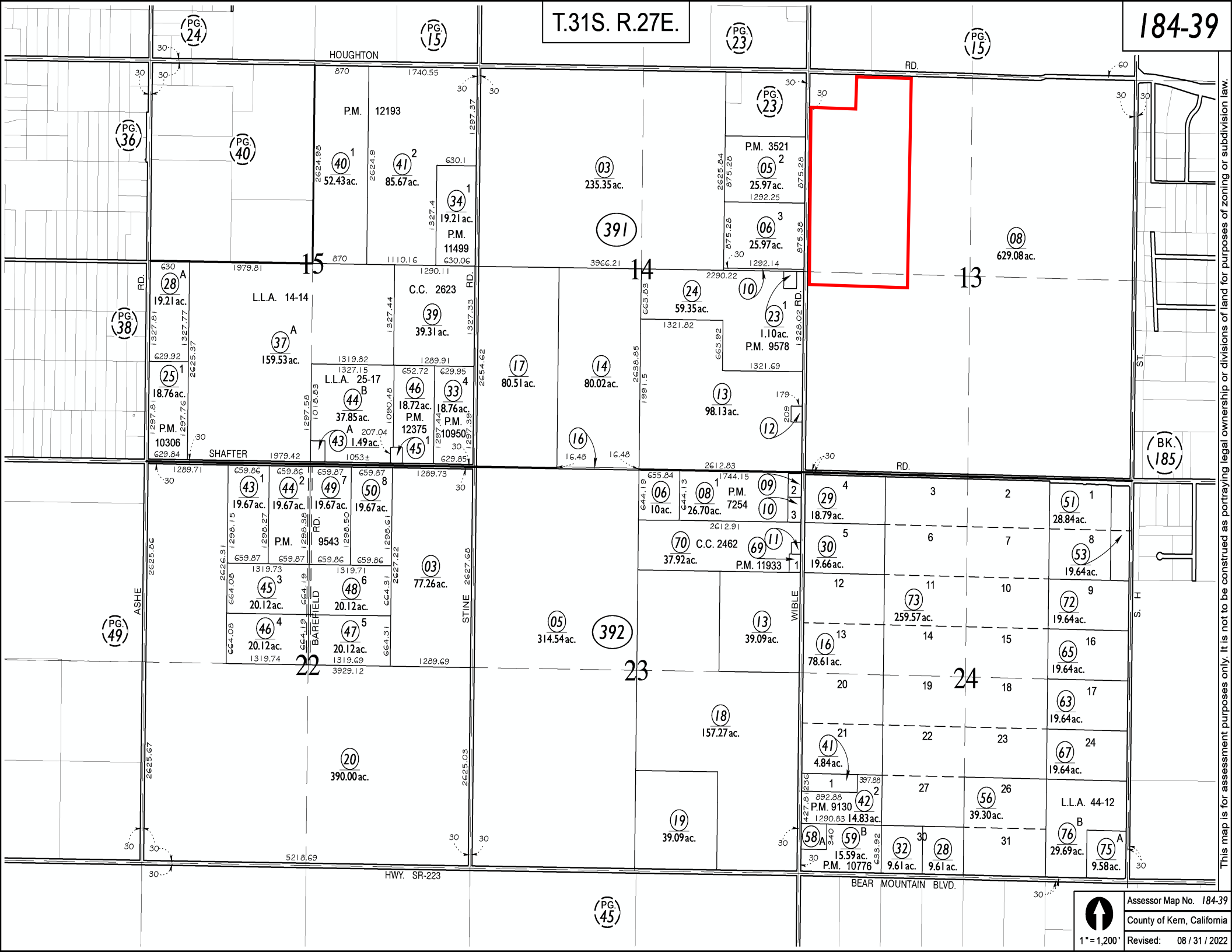
How and when property is assessed

Article XIIIA of the California Constitution provides that property shall be taxed in proportion to its value. In part:

- Property is appraised at its 1975-76 market value unless it has been sold, newly constructed, or had a change in ownership after March 1, 1975.

- Property transferred after March 1, 1975 will have a new base year market value established as of the date of the change in ownership.
- New construction will be assessed at market value and added to the base year value as of its date of completion.
- The base year value is subject to an annual rate of inflation not to exceed 2 percent increase per year.
- The taxable value of real property on the local roll shall be the lesser of: (a) factored base year value, (b) current market value, or (c) the value of the property if it was damaged or destroyed by calamity pursuant to Revenue and Taxation Code § 170

A copy of the local assessment roll is available for public inspection during regular office hours (8-5) Monday through Friday in the Assessor's Office at 1115 Truxtun Ave, 2nd floor.


T.31S. R.27E.
184-39
HOUGHTON RD.
SHAFTER RD.
ASHE RD.
BAREFIELD RD.
STINE RD.
WIBLE RD.
S. H ST.
HWY. SR-223
BEAR MOUNTAIN BLVD.
P.M. 12193
P.M. 3521
P.M. 11499
L.L.A. 14-14
C.C. 2623
L.L.A. 25-17
P.M. 12375
P.M. 10950
P.M. 10306
P.M. 9578
P.M. 7254
P.M. 9543
C.C. 2462
P.M. 11933
P.M. 9130
P.M. 10776
L.L.A. 44-12
15
14
13
22
23
24
391
392
BK. 185
This map is for assessment purposes only. It is not to be construed as portraying legal ownership or divisions of land for purposes of zoning or subdivision law.
Assessor Map No. 184-39
County of Kern, California
Revised: 08 / 31 / 2022
1" = 1,200'

APPENDIX B
Historical Source Records and Database Reports

Bakersfield - Project Milo

2909 Houghton Road

Bakersfield, CA 93313

Inquiry Number: 7341071.3

May 18, 2023

Certified Sanborn® Map Report

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

05/18/23

Site Name:

Bakersfield - Project Milo
2909 Houghton Road
Bakersfield, CA 93313
EDR Inquiry # 7341071.3

Client Name:

GeoSyntec Consultants
16644 West Bernardo Drive SUITE 301
SAN DIEGO, CA 92127
Contact: Jackie Hyman

The Sanborn Library has been searched by EDR and maps covering the target property location as provided by GeoSyntec Consultants were identified for the years listed below. The Sanborn Library is the largest, most complete collection of fire insurance maps. The collection includes maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow, and others. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by the Sanborn Library LLC, the copyright holder for the collection. Results can be authenticated by visiting www.edrnet.com/sanborn.

The Sanborn Library is continually enhanced with newly identified map archives. This report accesses all maps in the collection as of the day this report was generated.

Certified Sanborn Results:

Certification # 75F1-46CE-BACA

PO # NA

Project SC1129/02

UNMAPPED PROPERTY

This report certifies that the complete holdings of the Sanborn Library, LLC collection have been searched based on client supplied target property information, and fire insurance maps covering the target property were not found.

Sanborn® Library search results

Certification #: 75F1-46CE-BACA

The Sanborn Library includes more than 1.2 million fire insurance maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow and others which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- ☑ Library of Congress
- ☑ University Publications of America
- ☑ EDR Private Collection

The Sanborn Library LLC Since 1866™

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Bakersfield - Project Milo

2909 Houghton Road

Bakersfield, CA 93313

Inquiry Number: 7341071.8

May 18, 2023

The EDR Aerial Photo Decade Package

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Aerial Photo Decade Package

05/18/23

Site Name:

Bakersfield - Project Milo
2909 Houghton Road
Bakersfield, CA 93313
EDR Inquiry # 7341071.8

Client Name:

GeoSyntec Consultants
16644 West Bernardo Drive SUITE 301
SAN DIEGO, CA 92127
Contact: Jackie Hyman

Environmental Data Resources, Inc. (EDR) Aerial Photo Decade Package is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's professional researchers provide digitally reproduced historical aerial photographs, and when available, provide one photo per decade.

Search Results:

Year	*Scale*	*Details*	*Source*
2020	1"=500'	Flight Year: 2020	USDA/NAIP
2016	1"=500'	Flight Year: 2016	USDA/NAIP
2012	1"=500'	Flight Year: 2012	USDA/NAIP
2009	1"=500'	Flight Year: 2009	USDA/NAIP
2006	1"=500'	Flight Year: 2006	USDA/NAIP
1984	1"=500'	Flight Date: June 16, 1984	USDA
1973	1"=500'	Flight Date: May 01, 1973	USDA
1968	1"=500'	Flight Date: April 21, 1968	USGS
1956	1"=500'	Flight Date: August 03, 1956	USDA
1952	1"=500'	Flight Date: August 14, 1952	USGS
1942	1"=500'	Flight Date: May 31, 1942	USDA
1937	1"=500'	Flight Date: August 01, 1937	USDA

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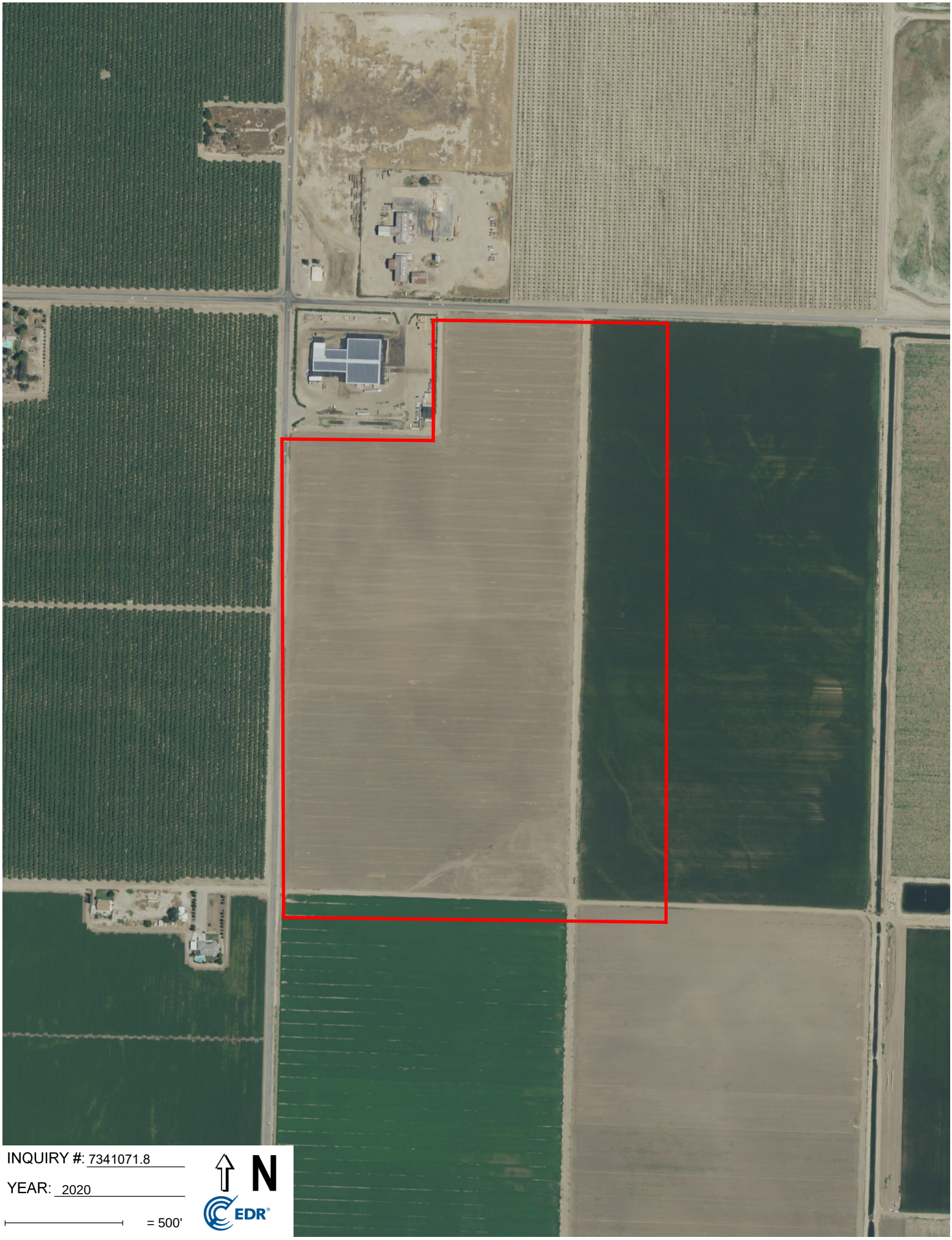

INQUIRY #: 7341071.8
YEAR: 2020
= 500'
N
EDR

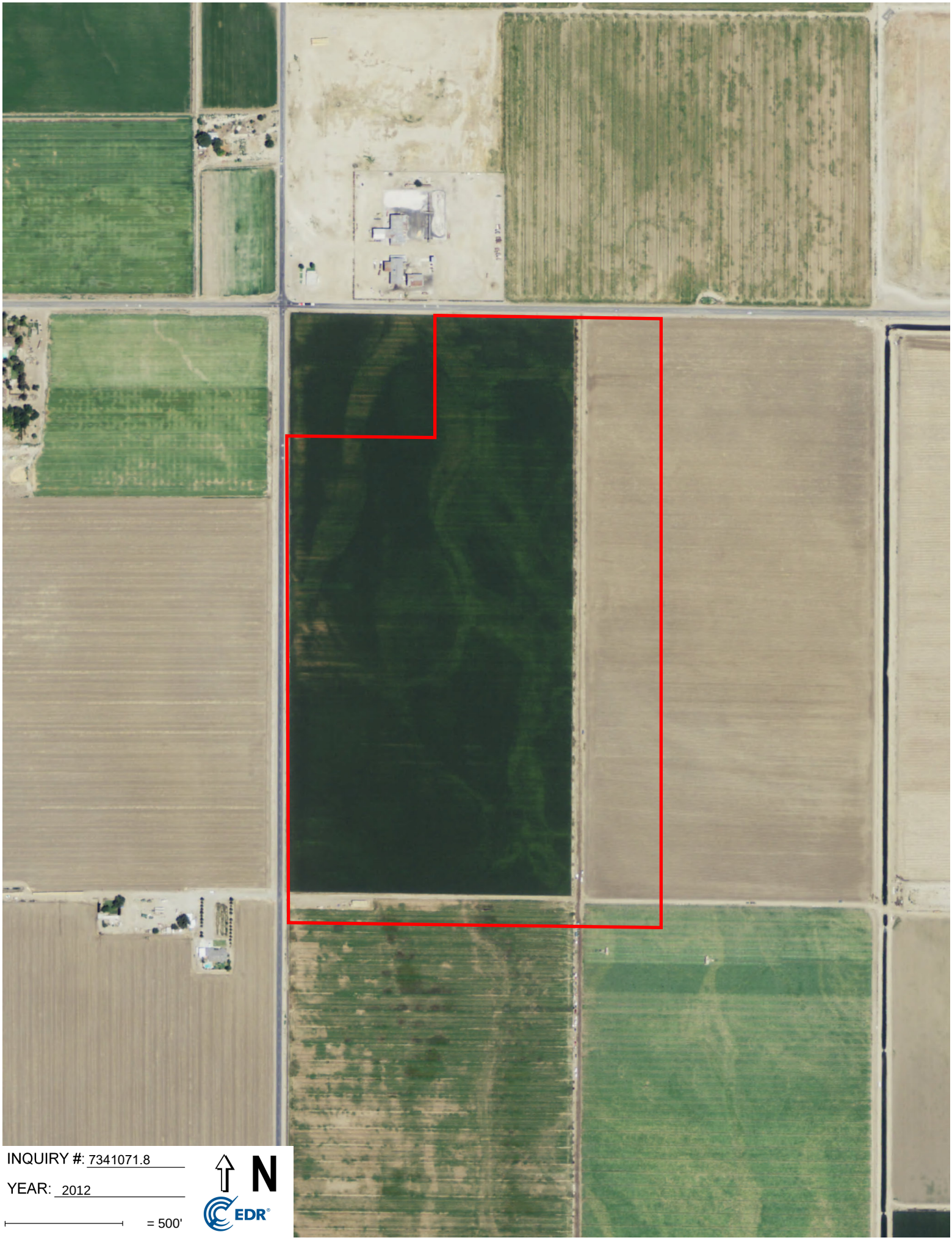
INQUIRY #: 7341071.8

YEAR: 2016

= 500'

N

EDR



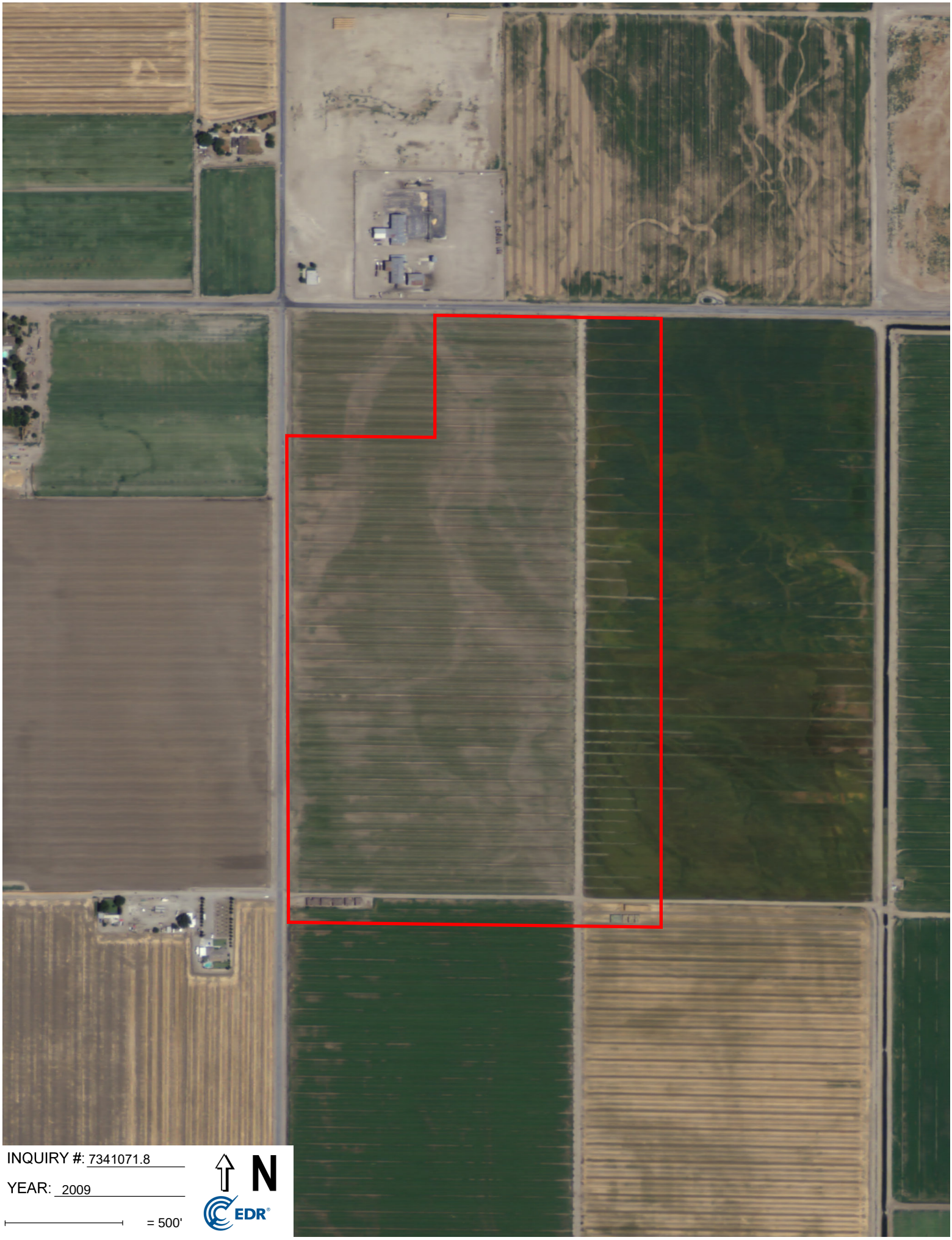
INQUIRY #: 7341071.8

YEAR: 2012

= 500'

N

EDR



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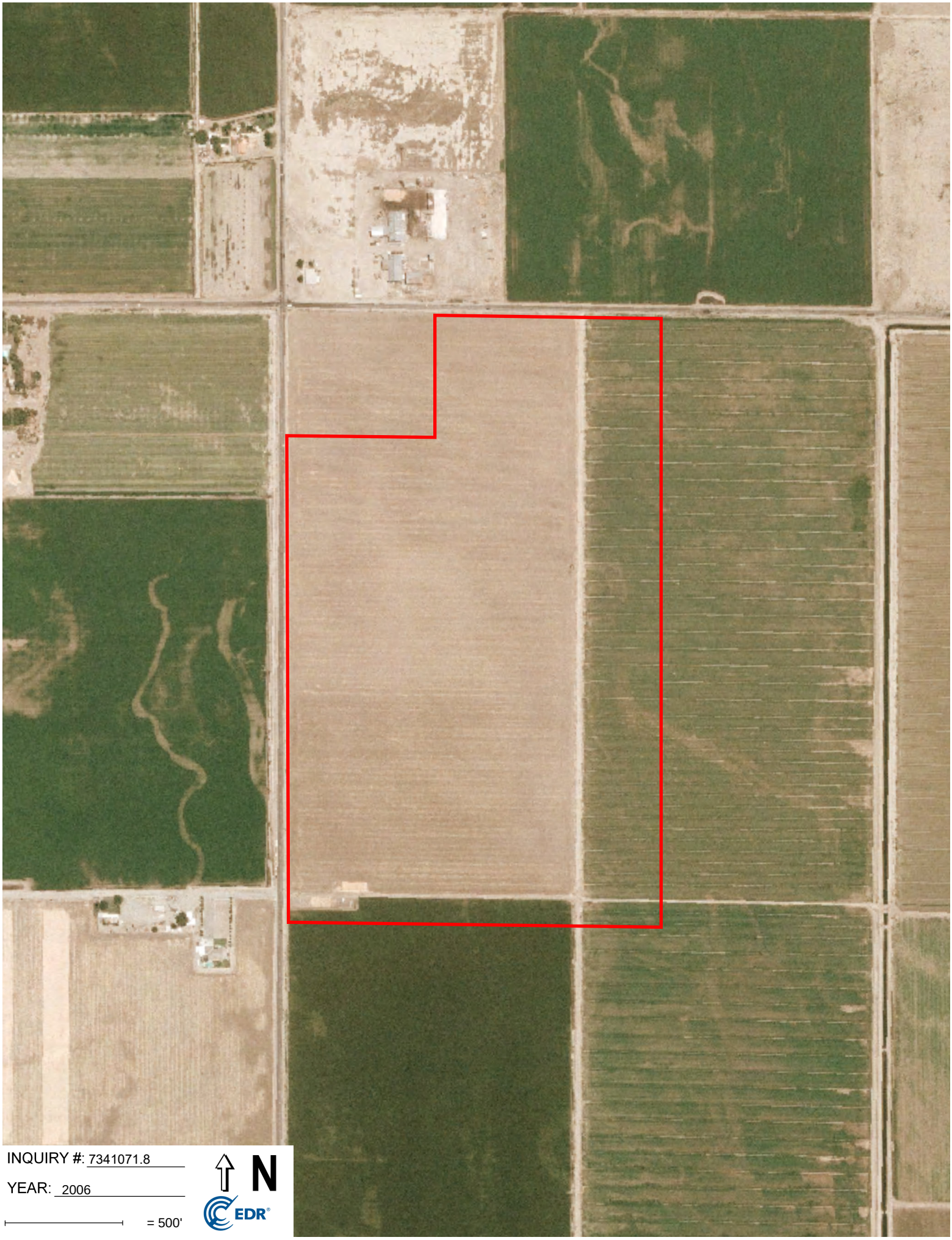
YEAR: 2009

= 500'

N

EDR



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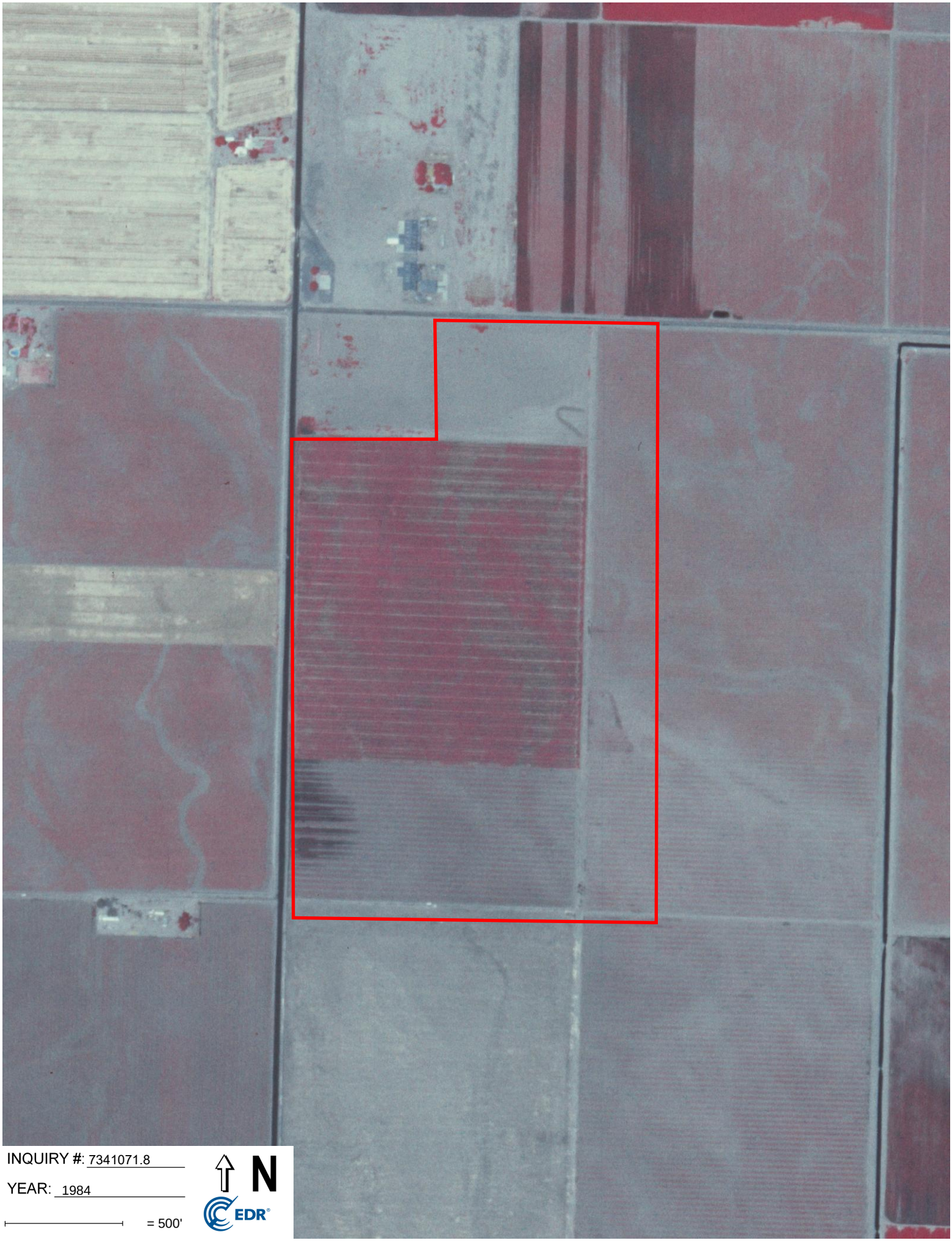
YEAR: 2006

= 500'

N

EDR



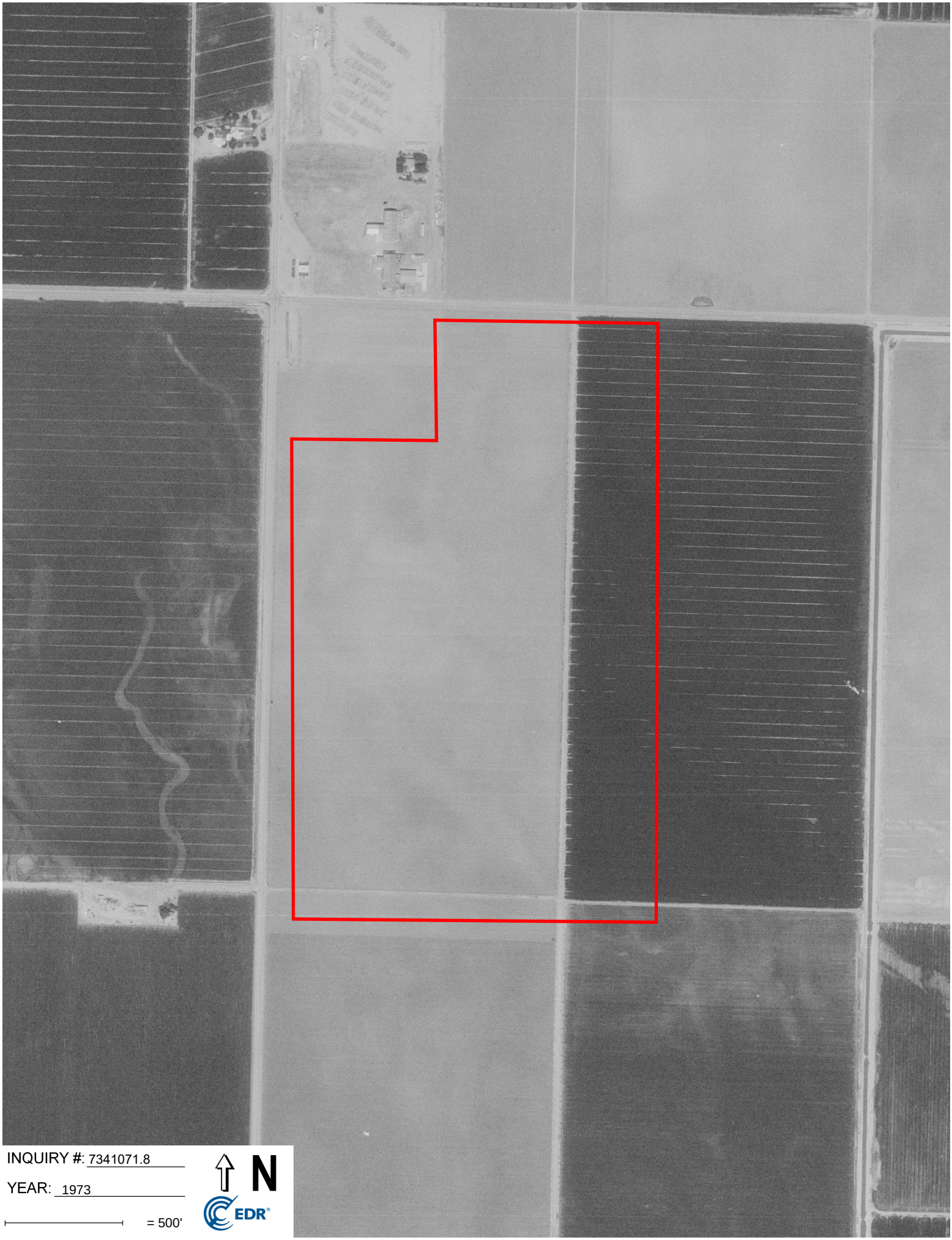
INQUIRY #: 7341071.8

YEAR: 1984

= 500'

N

EDR



INQUIRY #: 7341071.8

YEAR: 1973

= 500'

N

EDR

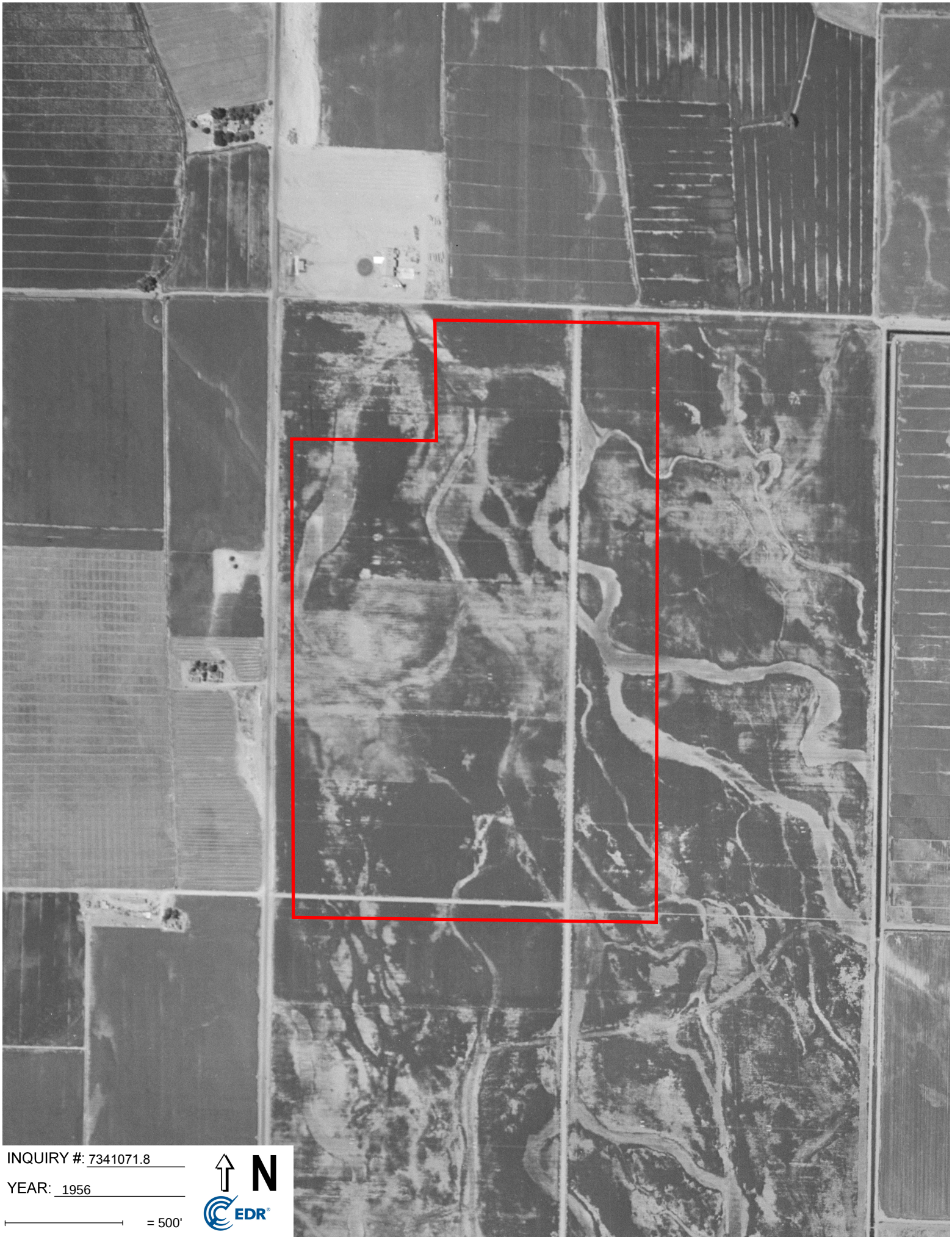
INQUIRY #: 7341071.8

YEAR: 1968

= 500'

N

EDR



INQUIRY #: 7341071.8

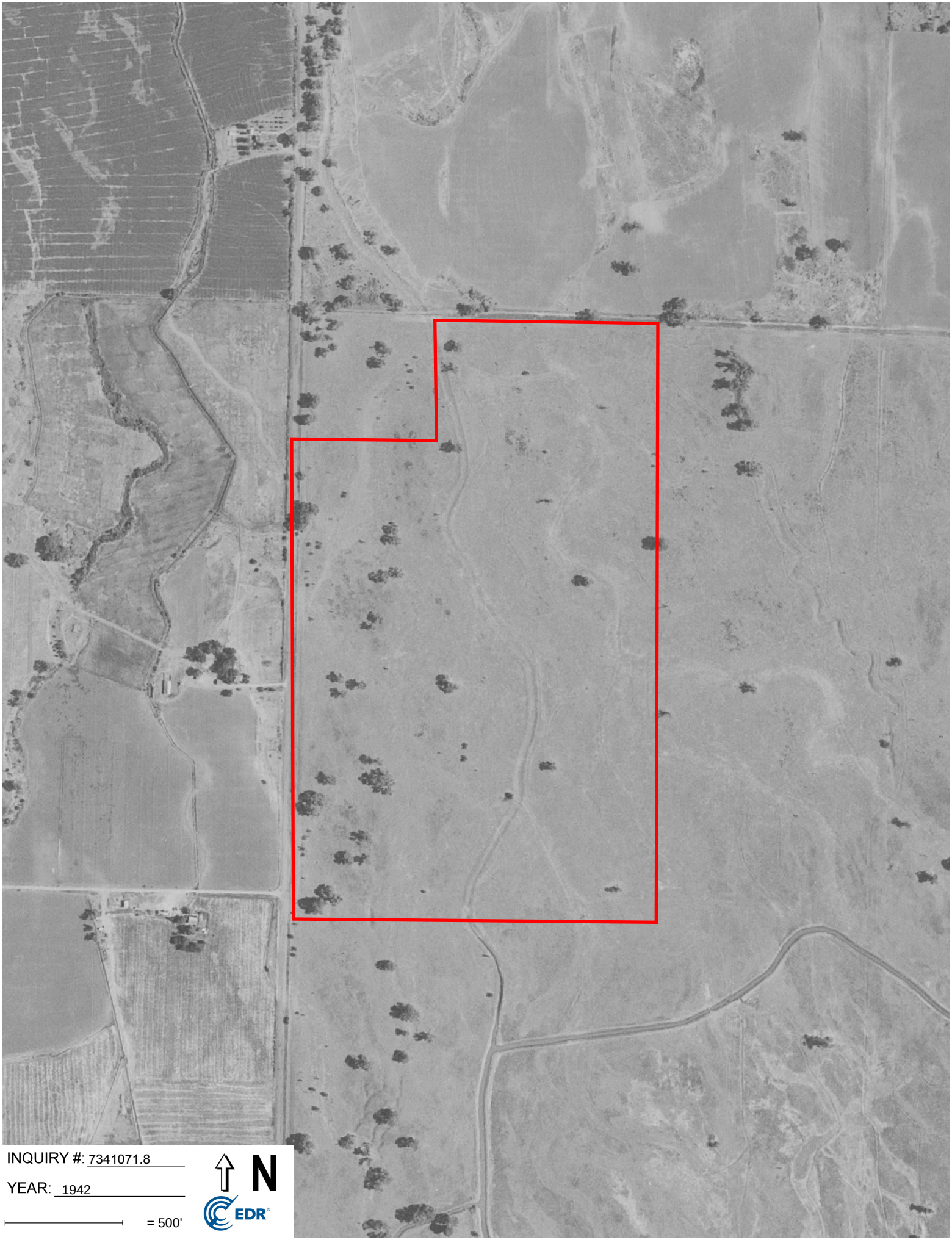
YEAR: 1956

= 500'

N

EDR

INQUIRY #: 7341071.8
YEAR: 1952
= 500'
N
EDR


INQUIRY #: 7341071.8
YEAR: 1942
= 500'
N
EDR

INQUIRY #: 7341071.8

YEAR: 1937

= 500'

N

EDR

Bakersfield - Project Milo

2909 Houghton Road

Bakersfield, CA 93313

Inquiry Number: 7341071.4

May 18, 2023

EDR Historical Topo Map Report

with QuadMatch™

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Historical Topo Map Report

05/18/23

Site Name:

Bakersfield - Project Milo
2909 Houghton Road
Bakersfield, CA 93313
EDR Inquiry # 7341071.4

Client Name:

GeoSyntec Consultants
16644 West Bernardo Drive SUITE 301
SAN DIEGO, CA 92127
Contact: Jackie Hyman

EDR Topographic Map Library has been searched by EDR and maps covering the target property location as provided by GeoSyntec Consultants were identified for the years listed below. EDR's Historical Topo Map Report is designed to assist professionals in evaluating potential liability on a target property resulting from past activities. EDRs Historical Topo Map Report includes a search of a collection of public and private color historical topographic maps, dating back to the late 1800s.

Search Results:

P.O.# NA
Project: SC1129/02

Coordinates:

Latitude:	35.233991 35° 14' 2" North
Longitude:	-119.036038 -119° 2' 10" West
UTM Zone:	Zone 11 North
UTM X Meters:	314725.46
UTM Y Meters:	3900891.91
Elevation:	333.00' above sea level

Maps Provided:

2018
2015
2012
1973
1968
1954
1933
1930, 1932
1912
1910

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Topo Sheet Key

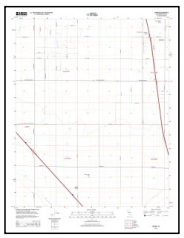
This EDR Topo Map Report is based upon the following USGS topographic map sheets.

2018 Source Sheets

Conner
2018
7.5-minute, 24000

Gosford
2018
7.5-minute, 24000

2015 Source Sheets



Conner
2015
7.5-minute, 24000

Gosford
2015
7.5-minute, 24000

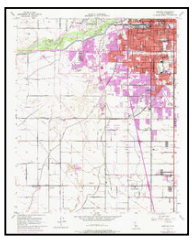
2012 Source Sheets

Conner
2012
7.5-minute, 24000

Gosford
2012
7.5-minute, 24000

1973 Source Sheets

Conner
1973
7.5-minute, 24000
Aerial Photo Revised 1973



Gosford
1973
7.5-minute, 24000
Aerial Photo Revised 1973

Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

1968 Source Sheets

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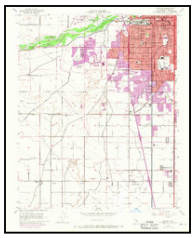
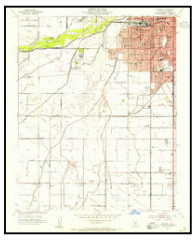
1968
7.5-minute, 24000
Aerial Photo Revised 1968



Gosford
1968
7.5-minute, 24000
Aerial Photo Revised 1968

1954 Source Sheets



Gosford
1954
7.5-minute, 24000

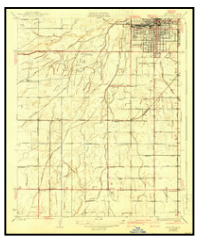
Conner
1954
7.5-minute, 24000
Aerial Photo Revised 1952

1933 Source Sheets

Conner
1933
7.5-minute, 31680

1930, 1932 Source Sheets

Conner
1930
7.5-minute, 31680



Gosford
1932
7.5-minute, 31680

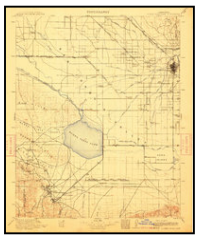
Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

1912 Source Sheets

Buena Vista Lake
1912
30-minute, 125000

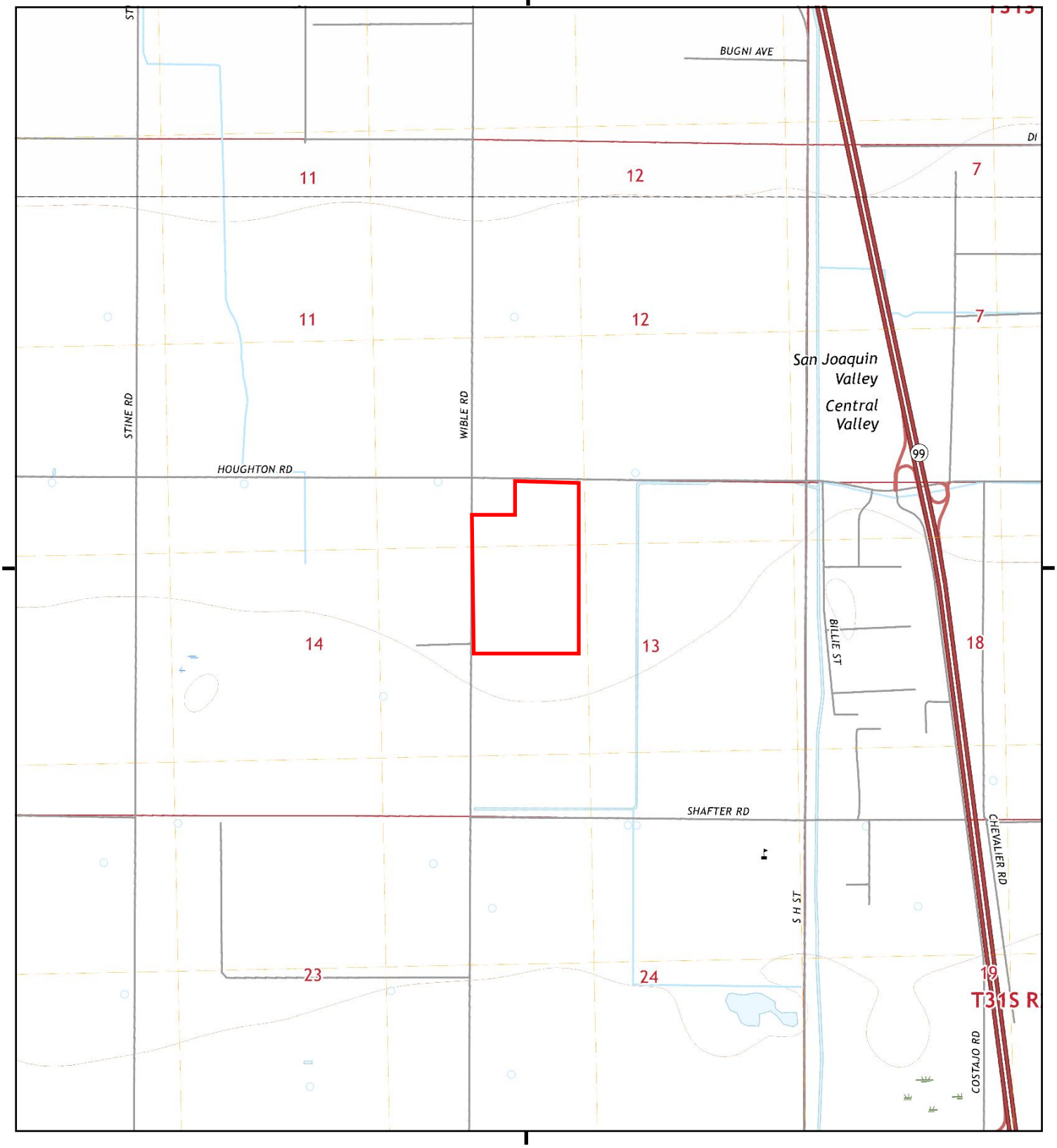
1910 Source Sheets



Buena Vista Lake
1910
30-minute, 125000

Historical Topo Map

2018



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

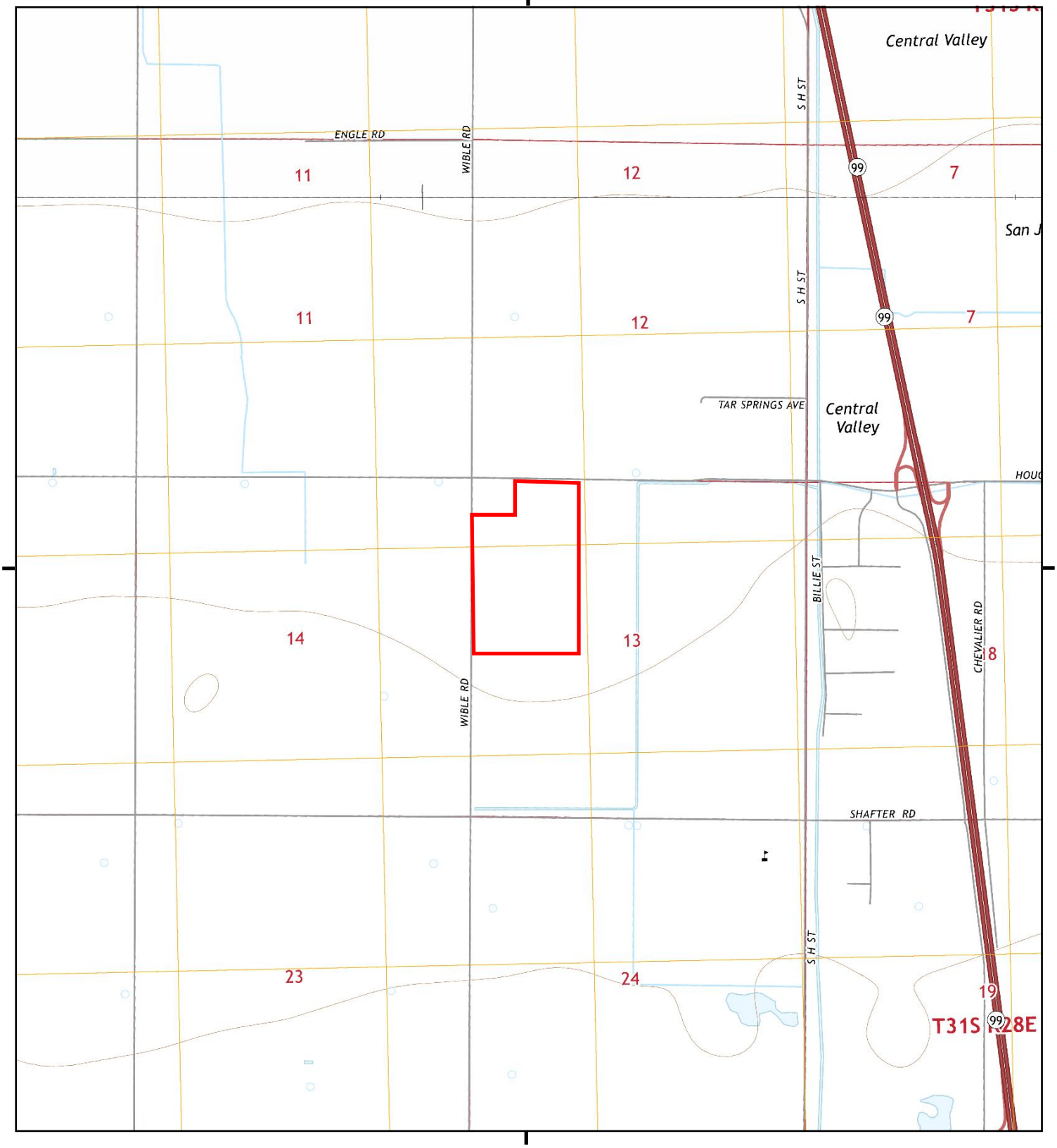
TP, Conner, 2018, 7.5-minute
N, Gosford, 2018, 7.5-minute

SITE NAME: Bakersfield - Project Milo
ADDRESS: 2909 Houghton Road
Bakersfield, CA 93313
CLIENT: GeoSyntec Consultants

N

Historical Topo Map

2015



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

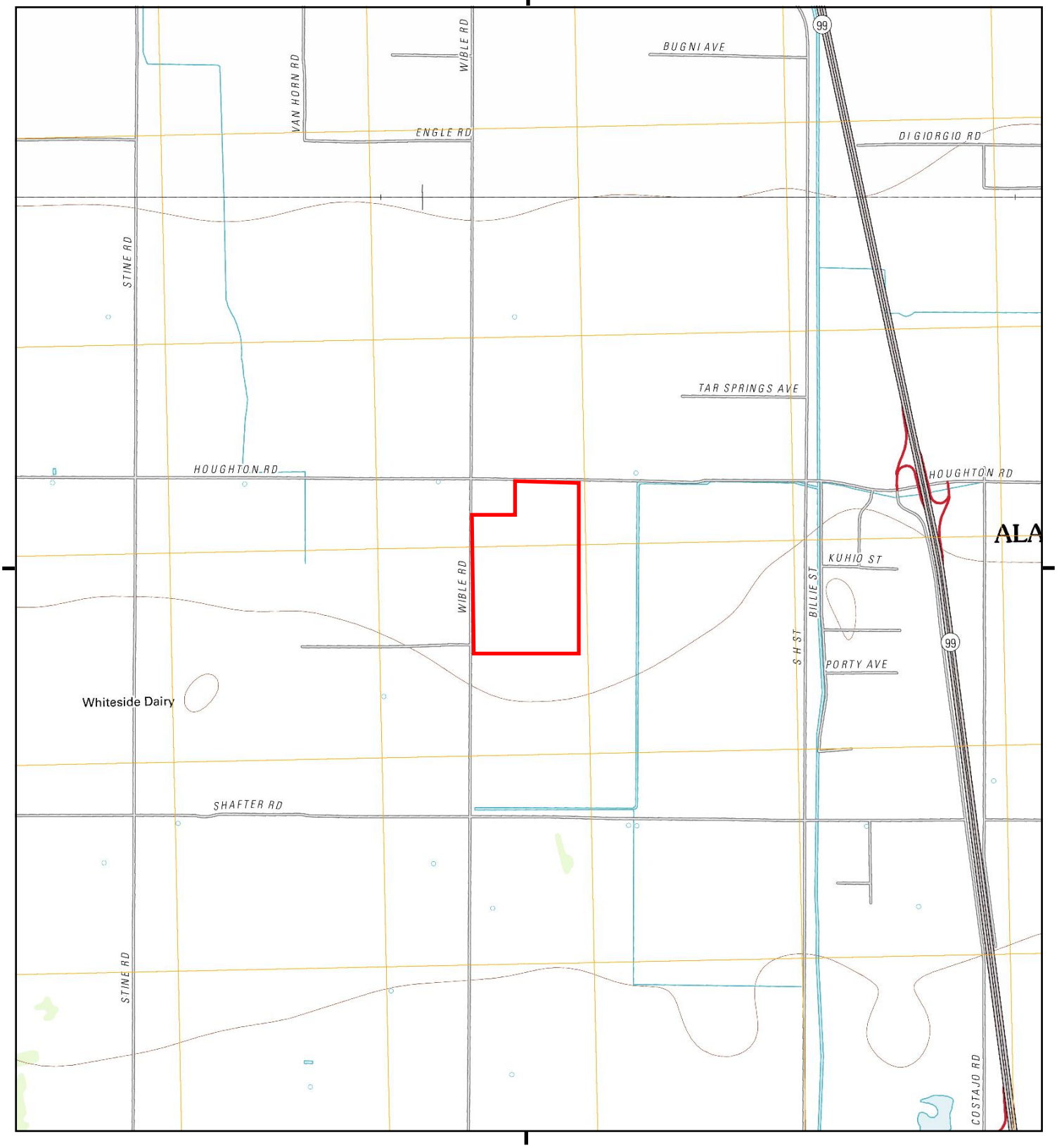
TP, Conner, 2015, 7.5-minute
N, Gosford, 2015, 7.5-minute

SITE NAME: Bakersfield - Project Milo
ADDRESS: 2909 Houghton Road
Bakersfield, CA 93313
CLIENT: GeoSyntec Consultants

N

Historical Topo Map

2012



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

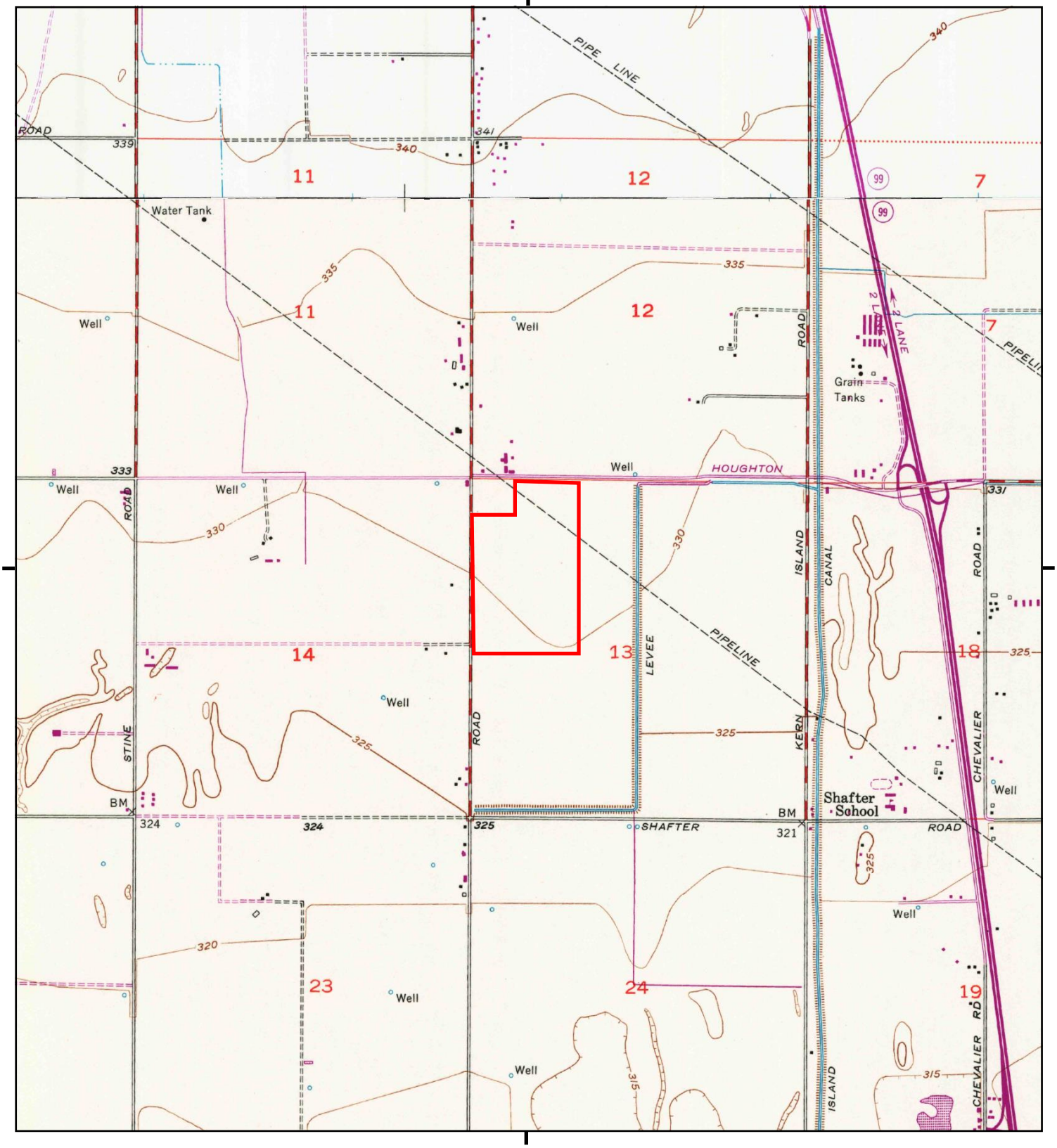
TP, Conner, 2012, 7.5-minute
N, Gosford, 2012, 7.5-minute

SITE NAME: Bakersfield - Project Milo
ADDRESS: 2909 Houghton Road
Bakersfield, CA 93313
CLIENT: GeoSyntec Consultants

N

Historical Topo Map

1973



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

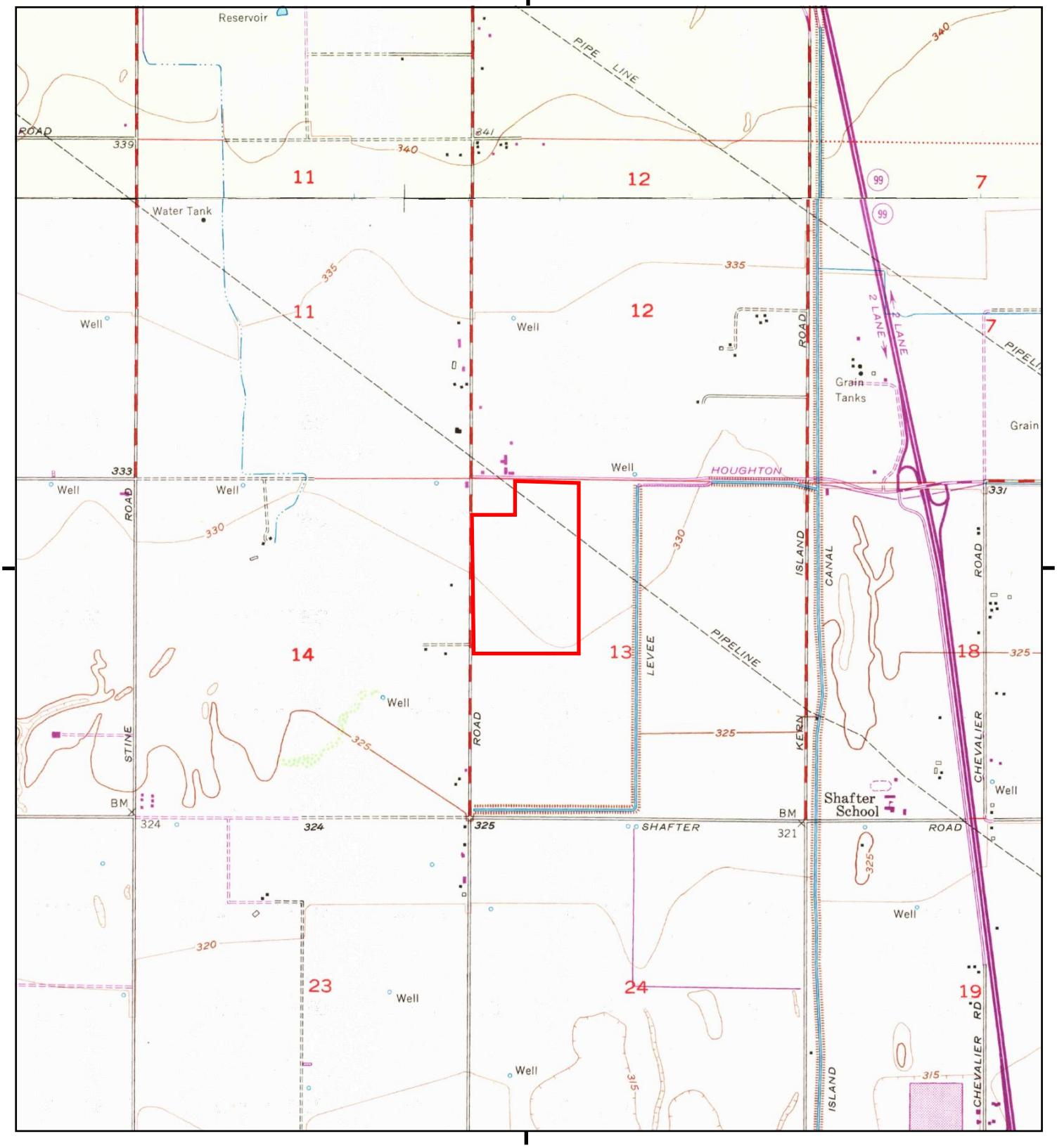
TP, Conner, 1973, 7.5-minute
N, Gosford, 1973, 7.5-minute

SITE NAME: Bakersfield - Project Milo
ADDRESS: 2909 Houghton Road
Bakersfield, CA 93313
CLIENT: GeoSyntec Consultants

N

Historical Topo Map

1968



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

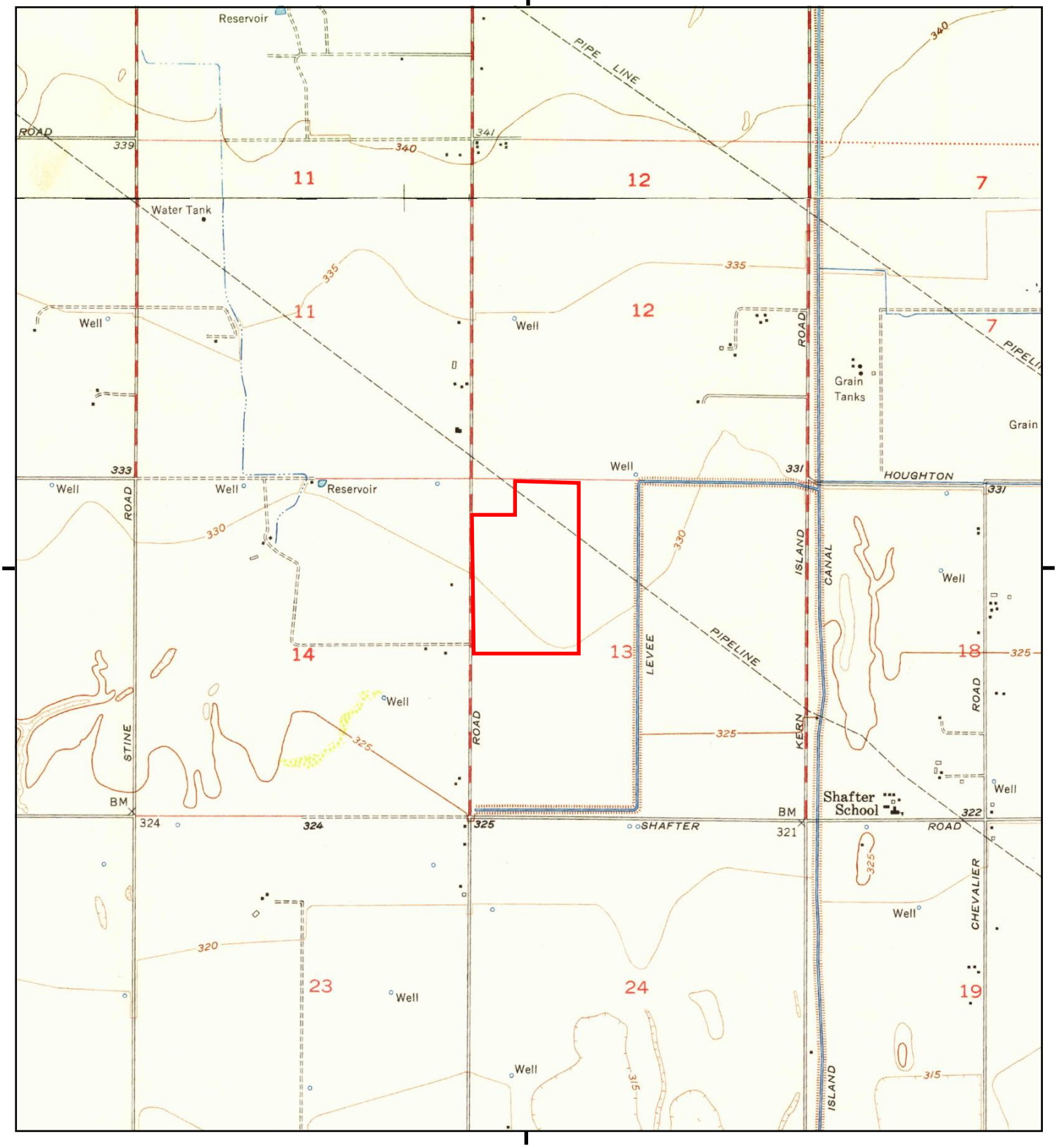
TP, Conner, 1968, 7.5-minute
N, Gosford, 1968, 7.5-minute

SITE NAME: Bakersfield - Project Milo
ADDRESS: 2909 Houghton Road
Bakersfield, CA 93313
CLIENT: GeoSyntec Consultants

N

Historical Topo Map

1954



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0 Miles 0.25 0.5 1 1.5

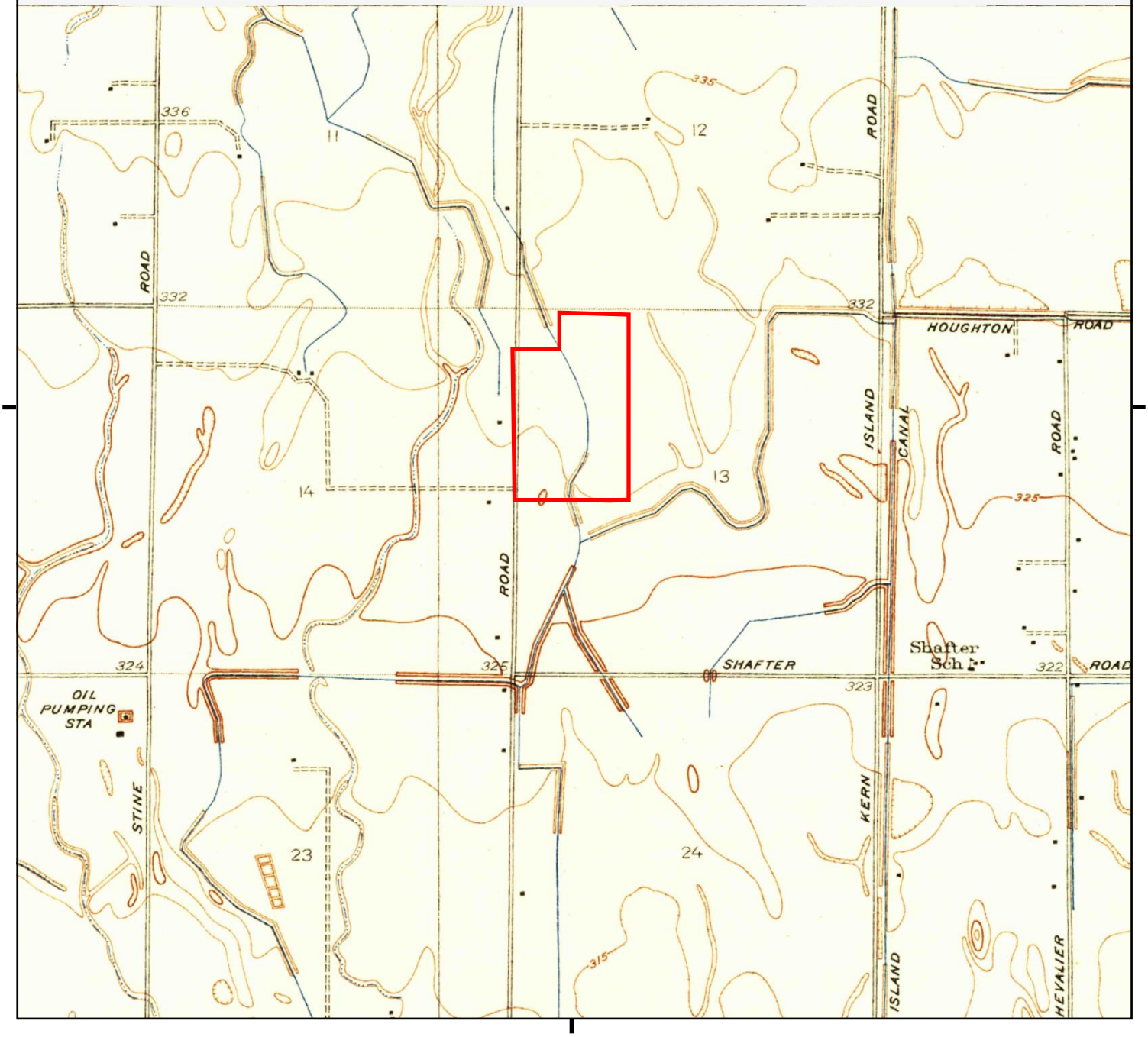
NW N NE
W E
SW S SE

TP, Conner, 1954, 7.5-minute
N, Gosford, 1954, 7.5-minute

SITE NAME: Bakersfield - Project Milo
ADDRESS: 2909 Houghton Road
Bakersfield, CA 93313
CLIENT: GeoSyntec Consultants

N

UNMAPPED UNMAPPED UNMAPPED UNMAPPED UNMAPPED UNMAPPED
UNMAPPED UNMAPPED UNMAPPED UNMAPPED UNMAPPED UNMAPPED



This report includes information from the following map sheet(s).

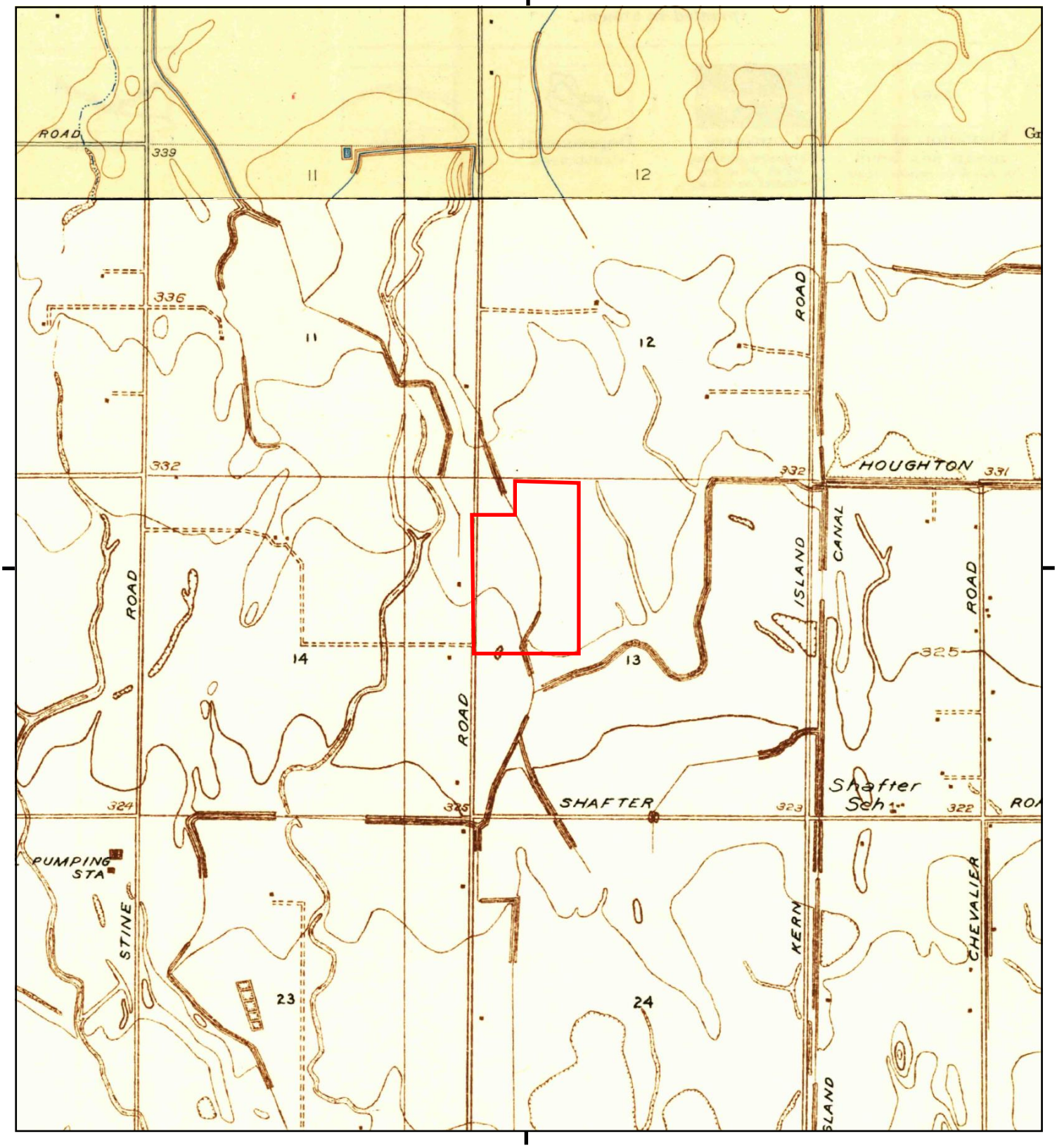
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Conner, 1933, 7.5-minute

SITE NAME: Bakersfield - Project Milo
ADDRESS: 2909 Houghton Road
Bakersfield, CA 93313
CLIENT: GeoSyntec Consultants

N



This report includes information from the following map sheet(s).

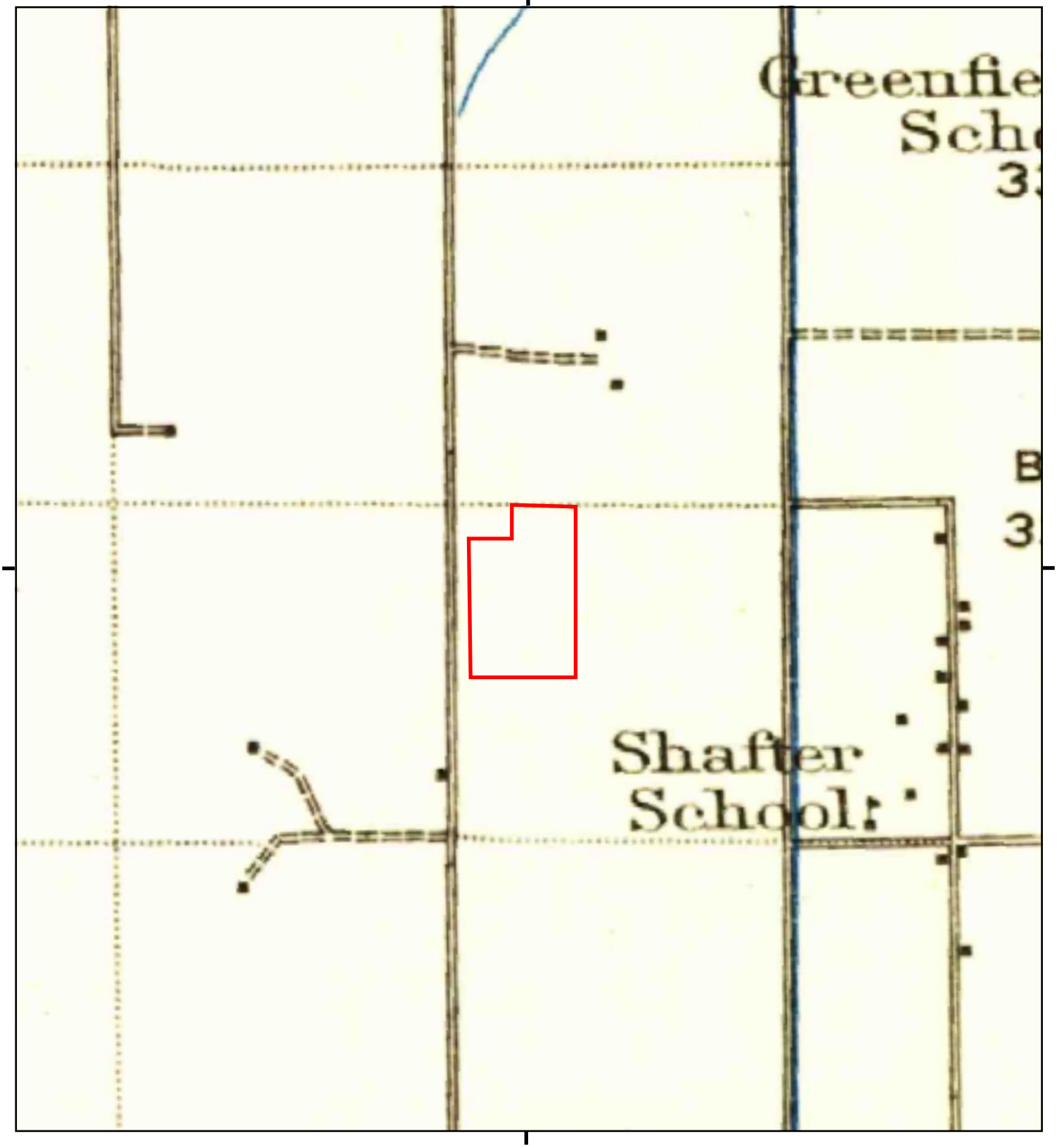
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Conner, 1930, 7.5-minute
N, Gosford, 1932, 7.5-minute

SITE NAME: Bakersfield - Project Milo
ADDRESS: 2909 Houghton Road
Bakersfield, CA 93313
CLIENT: GeoSyntec Consultants

N



This report includes information from the following map sheet(s).

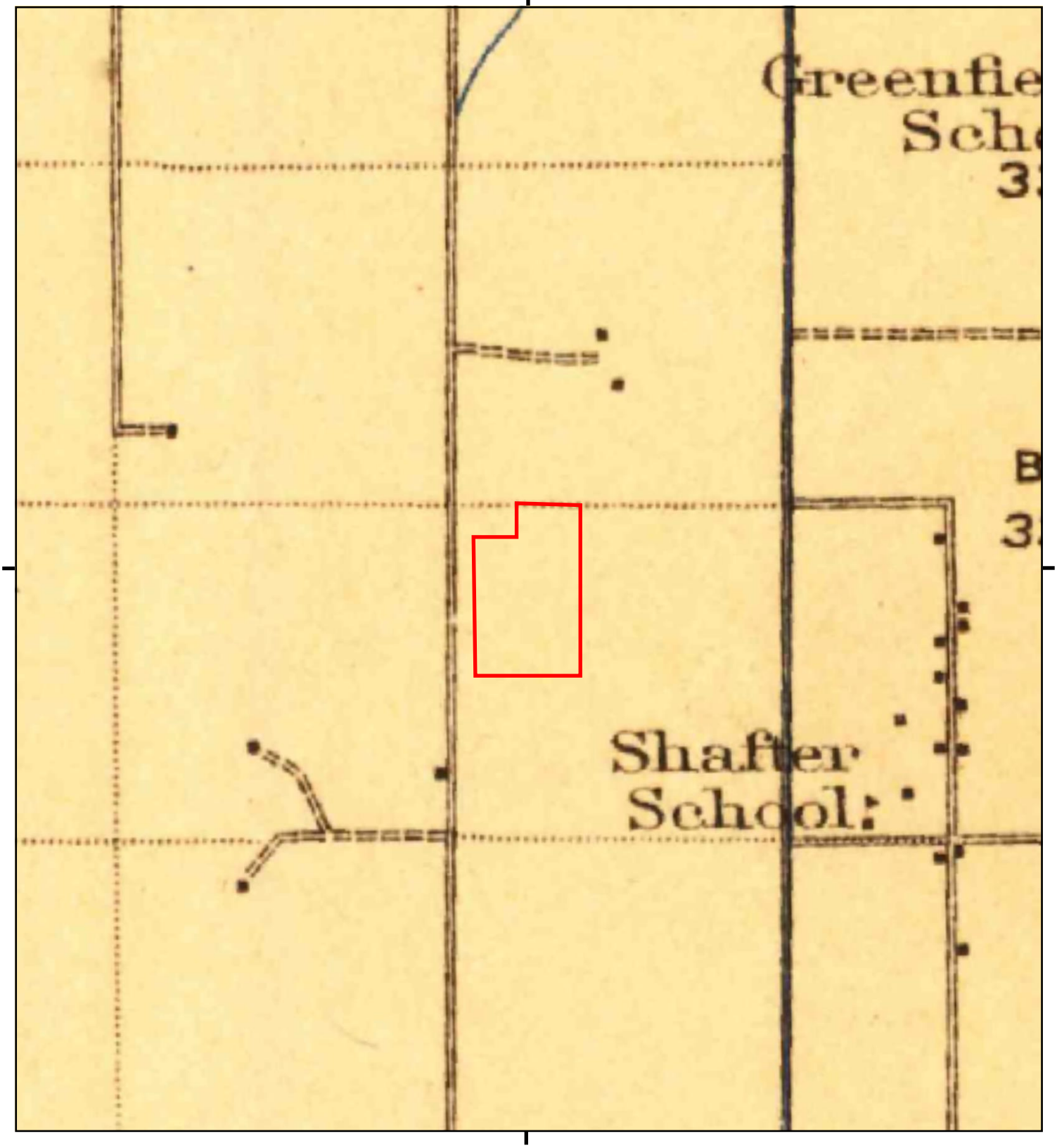
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Buena Vista Lake, 1912, 30-minute

SITE NAME: Bakersfield - Project Milo
ADDRESS: 2909 Houghton Road
Bakersfield, CA 93313
CLIENT: GeoSyntec Consultants

N



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Buena Vista Lake, 1910, 30-minute

SITE NAME: Bakersfield - Project Milo
ADDRESS: 2909 Houghton Road
Bakersfield, CA 93313
CLIENT: GeoSyntec Consultants

N

Bakersfield - Project Milo
2909 Houghton Road
Bakersfield, CA 93313

Inquiry Number: 7341071.5
June 08, 2023

The EDR-City Directory Abstract

Environmental Data Resources Inc

6 Armstrong Road
Shelton, CT 06484
800.352.0050
www.edrnet.com

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Findings

City Directory Images

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

DESCRIPTION

Environmental Data Resources, Inc.'s (EDR) City Directory Abstract is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's City Directory Abstract includes a search and abstract of available city directory data. For each address, the directory lists the name of the corresponding occupant at approximately five year intervals.

Business directories including city, cross reference and telephone directories were reviewed, if available, at approximately five year intervals for the years spanning 1922 through current. This report compiles information gathered in this review by geocoding the latitude and longitude of properties identified and gathering information about properties within 1320 feet of the target property.

Summary information obtained is provided in the text of this report.

RECORD SOURCES

The EDR City Directory Report accesses a variety of business directory sources, including Haines, InfoUSA, Polk, Cole, Bresser, and Stewart. Listings marked as EDR Digital Archive access Cole and InfoUSA records. The various directory sources enhance and complement each other to provide a more thorough and accurate report.

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RESEARCH SUMMARY

The following research sources were consulted in the preparation of this report. An "X" indicates where information was identified in the source and provided in this report.

Year	Source	TP	Adjoining	Text Abstract	Source Image
2020	EDR Digital Archive	-	-	-	-
2017	Cole Information	-	-	-	-
2014	Cole Information	-	-	-	-
2010	Cole Information	-	-	-	-
2005	Cole Information	-	-	-	-
2002	R.L. Polk Co Publishers	-	-	-	-
2000	Cole Information	-	-	-	-
1995	Cole Information	-	-	-	-
	R.L. Polk Co Publishers	-	-	-	-
1992	Cole Information	-	-	-	-
1990	Pacific Bell Telephone Co	-	-	-	-
1986	Pacific Telephone	-	-	-	-
1980	R.L. Polk Co Publishers	-	-	-	-
1976	B&G Publications	-	-	-	-
1975	R.L. Polk Co Publishers	-	-	-	-
1971	B&G Publications	-	-	-	-

EXECUTIVE SUMMARY

Year	Source	TP	Adjoining	Text Abstract	Source Image
1970	R.L. Polk Co Publishers	-	-	-	-
1965	R.L. Polk Co Publishers	-	-	-	-
1960	R. L. Polk & Co.	-	-	-	-
1955	R. L. Polk & Co.	-	-	-	-
1951	R. L. Polk & Co.	-	-	-	-
1945	R. L. Polk Co.	-	-	-	-
1940	R. L. Polk & Co.	-	-	-	-
1935	R.L. Polk Co Publishers	-	-	-	-
1930	R. L. Polk Co.	-	-	-	-
1928	R.L. Polk Co Publishers	-	-	-	-
1922	Polk-Husted Directory Co.	-	-	-	-

EXECUTIVE SUMMARY

SELECTED ADDRESSES

The following addresses were selected by the client, for EDR to research. An "X" indicates where information was identified.

Address	*Type*	*Findings*
12712 Wible Road	Client Entered	
3623 Houghton Road	Client Entered	
13715 Wible Road	Client Entered	
13717 Wible Road	Client Entered	
12838 Wible Road	Client Entered	

FINDINGS

TARGET PROPERTY INFORMATION

ADDRESS

2909 Houghton Road
Bakersfield, CA 93313

FINDINGS DETAIL

Target Property research detail.

FINDINGS

ADJOINING PROPERTY DETAIL

The following Adjoining Property addresses were researched for this report. Detailed findings are provided for each address.

No Addresses Found

FINDINGS

ADJOINING PROPERTY: ADDRESSES NOT IDENTIFIED IN RESEARCH SOURCE

The following Adjoining Property addresses were researched for this report, and the addresses were not identified in research source.

Address Researched	Address Not Identified in Research Source
12712 Wible Road	2020, 2017, 2014, 2010, 2005, 2002, 2000, 1995, 1992, 1990, 1986, 1980, 1976, 1975, 1971, 1970, 1965, 1960, 1955, 1951, 1945, 1940, 1935, 1930, 1928, 1922
12838 Wible Road	2020, 2017, 2014, 2010, 2005, 2002, 2000, 1995, 1992, 1990, 1986, 1980, 1976, 1975, 1971, 1970, 1965, 1960, 1955, 1951, 1945, 1940, 1935, 1930, 1928, 1922
13715 Wible Road	2020, 2017, 2014, 2010, 2005, 2002, 2000, 1995, 1992, 1990, 1986, 1980, 1976, 1975, 1971, 1970, 1965, 1960, 1955, 1951, 1945, 1940, 1935, 1930, 1928, 1922
13717 Wible Road	2020, 2017, 2014, 2010, 2005, 2002, 2000, 1995, 1992, 1990, 1986, 1980, 1976, 1975, 1971, 1970, 1965, 1960, 1955, 1951, 1945, 1940, 1935, 1930, 1928, 1922
3623 Houghton Road	2020, 2017, 2014, 2010, 2005, 2002, 2000, 1995, 1992, 1990, 1986, 1980, 1976, 1975, 1971, 1970, 1965, 1960, 1955, 1951, 1945, 1940, 1935, 1930, 1928, 1922

TARGET PROPERTY: ADDRESS NOT IDENTIFIED IN RESEARCH SOURCE

The following Target Property addresses were researched for this report, and the addresses were not identified in the research source.

Address Researched	Address Not Identified in Research Source
2909 Houghton Road	2020, 2017, 2014, 2010, 2005, 2002, 2000, 1995, 1992, 1990, 1986, 1980, 1976, 1975, 1971, 1970, 1965, 1960, 1955, 1951, 1945, 1940, 1935, 1930, 1928, 1922

Bakersfield - Project Milo
2909 Houghton Road
Bakersfield, CA 93313

Inquiry Number: 7341071.2s
May 18, 2023

The EDR Radius Map™ Report with GeoCheck®

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

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Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E1527-21), the ASTM Standard Practice for Environmental Site Assessments for Forestland or Rural Property (E 2247-16), the ASTM Standard Practice for Limited Environmental Due Diligence: Transaction Screen Process (E 1528-22) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

2909 HOUGHTON ROAD
BAKERSFIELD, CA 93313

COORDINATES

Latitude (North):	35.2339910 - 35° 14' 2.36''
Longitude (West):	119.0360380 - 119° 2' 9.73''
Universal Tranverse Mercator:	Zone 11
UTM X (Meters):	314721.2
UTM Y (Meters):	3900693.8
Elevation:	333 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	11998645 CONNER, CA
Version Date:	2018
North Map:	12013990 GOSFORD, CA
Version Date:	2018

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from:	20140617
Source:	USDA

MAPPED SITES SUMMARY

Target Property Address:
2909 HOUGHTON ROAD
BAKERSFIELD, CA 93313

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
A1	TBS PROPERTIES	2909 HOUGHTON RD	CUPA Listings, CERS		TP
A2	PG&E HYDROTEST SEGME	2909 HOUGHTON ROAD	CIWQS		TP
A3	TBS PROPERTIES	2909 HOUGHTON RD	FINDS		TP
B4	CERRO FARMS	13717 WIBLE	AST	Lower	291, 0.055, SW
B5	CERRO FARMS	13717 WIBLE RD	CUPA Listings, HWTS	Lower	291, 0.055, SW
6	OLD RIVER GIN	HOUGHTON & WIBLE	UST	Higher	562, 0.106, NNW
C7	MARTIN FEED INC	12838 WIBLE RD	AST	Higher	961, 0.182, NNW
C8	MARTIN FEED, INC. T/	12838 WIBLE ROAD	SWF/LF	Higher	961, 0.182, NNW
C9	MARTIN FEED INC	12838 WIBLE RD	RCRA NonGen / NLR	Higher	961, 0.182, NNW
C10	MARTIN FEED INC	12838 WIBLE	AST	Higher	961, 0.182, NNW
C11	MARTIN FEED INC	12838 WIBLE RD	CERS HAZ WASTE, CERS TANKS, CUPA Listings, CERS,...	Higher	961, 0.182, NNW
12	30-ACRE SCHOOL SITE	SHAFTER ROAD/SOUTH H	ENVIROSTOR, SCH	Lower	4502, 0.853, SE
13	KERN HSD - WIBLE / E	SOUTHEAST OF WIBLE R	ENVIROSTOR, SCH	Higher	5178, 0.981, North

EXECUTIVE SUMMARY

TARGET PROPERTY SEARCH RESULTS

The target property was identified in the following records. For more information on this property see page 9 of the attached EDR Radius Map report:

Site	Database(s)	EPA ID
TBS PROPERTIES 2909 HOUGHTON RD BAKERSFIELD, CA 93313	CUPA Listings Database: KERN CO CUPA, Date of Government Version: 01/30/2023 CERS	N/A
PG&E HYDROTEST SEGME 2909 HOUGHTON ROAD BAKERSFIELD, CA 93313	CIWQS	N/A
TBS PROPERTIES 2909 HOUGHTON RD BAKERSFIELD, CA 93313	FINDS Registry ID:: 110065198422	N/A

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Lists of Federal NPL (Superfund) sites

NPL ---------- National Priority List
Proposed NPL ---------- Proposed National Priority List Sites
NPL LIENS ---------- Federal Superfund Liens

Lists of Federal Delisted NPL sites

Delisted NPL ---------- National Priority List Deletions

Lists of Federal sites subject to CERCLA removals and CERCLA orders

FEDERAL FACILITY ---------- Federal Facility Site Information listing
SEMS ---------- Superfund Enterprise Management System

Lists of Federal CERCLA sites with NFRAP

SEMS-ARCHIVE ---------- Superfund Enterprise Management System Archive

Lists of Federal RCRA facilities undergoing Corrective Action

CORRACTS ---------- Corrective Action Report

EXECUTIVE SUMMARY

Lists of Federal RCRA TSD facilities

RCRA-TSDF ---------- RCRA - Treatment, Storage and Disposal

Lists of Federal RCRA generators

RCRA-LQG ---------- RCRA - Large Quantity Generators
RCRA-SQG ---------- RCRA - Small Quantity Generators
RCRA-VSQG ---------- RCRA - Very Small Quantity Generators (Formerly Conditionally Exempt Small Quantity Generators)

Federal institutional controls / engineering controls registries

LUCIS ---------- Land Use Control Information System
US ENG CONTROLS ---------- Engineering Controls Sites List
US INST CONTROLS ---------- Institutional Controls Sites List

Federal ERNS list

ERNS ---------- Emergency Response Notification System

Lists of state- and tribal (Superfund) equivalent sites

RESPONSE ---------- State Response Sites

Lists of state and tribal leaking storage tanks

LUST ---------- Geotracker's Leaking Underground Fuel Tank Report
INDIAN LUST ---------- Leaking Underground Storage Tanks on Indian Land
CPS-SLIC ---------- Statewide SLIC Cases

Lists of state and tribal registered storage tanks

FEMA UST ---------- Underground Storage Tank Listing
INDIAN UST ---------- Underground Storage Tanks on Indian Land

Lists of state and tribal voluntary cleanup sites

INDIAN VCP ---------- Voluntary Cleanup Priority Listing
VCP ---------- Voluntary Cleanup Program Properties

Lists of state and tribal brownfield sites

BROWNFIELDS ---------- Considered Brownfieds Sites Listing

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS ---------- A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

WMUDS/SWAT ---------- Waste Management Unit Database

SWRCY Recycler Database
HAULERS Registered Waste Tire Haulers Listing
INDIAN ODI Report on the Status of Open Dumps on Indian Lands
DEBRIS REGION 9 Torres Martinez Reservation Illegal Dump Site Locations
ODI Open Dump Inventory
IHS OPEN DUMPS Open Dumps on Indian Land

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL Delisted National Clandestine Laboratory Register
HIST Cal-Sites Historical Calsites Database
SCH School Property Evaluation Program
CDL Clandestine Drug Labs
Toxic Pits Toxic Pits Cleanup Act Sites
US CDL National Clandestine Laboratory Register

Local Lists of Registered Storage Tanks

SWEEPS UST SWEEPS UST Listing
HIST UST Hazardous Substance Storage Container Database
CA FID UST Facility Inventory Database

Local Land Records

LIENS Environmental Liens Listing
LIENS 2 CERCLA Lien Information
DEED Deed Restriction Listing

Records of Emergency Release Reports

HMIRS Hazardous Materials Information Reporting System
CHMIRS California Hazardous Material Incident Report System
LDS Land Disposal Sites Listing
MCS Military Cleanup Sites Listing
SPILLS 90 SPILLS 90 data from FirstSearch

Other Ascertainable Records

FUDS Formerly Used Defense Sites
DOD Department of Defense Sites
SCRD DRYCLEANERS State Coalition for Remediation of Drycleaners Listing
US FIN ASSUR Financial Assurance Information
EPA WATCH LIST EPA WATCH LIST
2020 COR ACTION 2020 Corrective Action Program List
TSCA Toxic Substances Control Act
TRIS Toxic Chemical Release Inventory System
SSTS Section 7 Tracking Systems
ROD Records Of Decision
RMP Risk Management Plans
RAATS RCRA Administrative Action Tracking System
PRP Potentially Responsible Parties
PADS PCB Activity Database System
ICIS Integrated Compliance Information System
FTTS FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

EXECUTIVE SUMMARY

MLTS	Material Licensing Tracking System
COAL ASH DOE	Steam-Electric Plant Operation Data
COAL ASH EPA	Coal Combustion Residues Surface Impoundments List
PCB TRANSFORMER	PCB Transformer Registration Database
RADINFO	Radiation Information Database
HIST FTTS	FIFRA/TSCA Tracking System Administrative Case Listing
DOT OPS	Incident and Accident Data
CONSENT	Superfund (CERCLA) Consent Decrees
INDIAN RESERV	Indian Reservations
FUSRAP	Formerly Utilized Sites Remedial Action Program
UMTRA	Uranium Mill Tailings Sites
LEAD SMELTERS	Lead Smelter Sites
US AIRS	Aerometric Information Retrieval System Facility Subsystem
US MINES	Mines Master Index File
ABANDONED MINES	Abandoned Mines
DOCKET HWC	Hazardous Waste Compliance Docket Listing
UXO	Unexploded Ordnance Sites
ECHO	Enforcement & Compliance History Information
FUELS PROGRAM	EPA Fuels Program Registered Listing
PFAS NPL	Superfund Sites with PFAS Detections Information
PFAS FEDERAL SITES	Federal Sites PFAS Information
PFAS TSCA	PFAS Manufacture and Imports Information
PFAS RCRA MANIFEST	PFAS Transfers Identified In the RCRA Database Listing
PFAS ATSDR	PFAS Contamination Site Location Listing
PFAS WQP	Ambient Environmental Sampling for PFAS
PFAS NPDES	Clean Water Act Discharge Monitoring Information
PFAS ECHO	Facilities in Industries that May Be Handling PFAS Listing
PFAS ECHO FIRE TRAINING	Facilities in Industries that May Be Handling PFAS Listing
PFAS PART 139 AIRPORT	All Certified Part 139 Airports PFAS Information Listing
AQUEOUS FOAM NRC	Aqueous Foam Related Incidents Listing
PFAS	PFAS Contamination Site Location Listing
AQUEOUS FOAM	Former Fire Training Facility Assessments Listing
CA BOND EXP. PLAN	Bond Expenditure Plan
Cortese	"Cortese" Hazardous Waste & Substances Sites List
DRYCLEANERS	Cleaner Facilities
EMI	Emissions Inventory Data
ENF	Enforcement Action Listing
Financial Assurance	Financial Assurance Information Listing
ICE	ICE
HIST CORTESE	Hazardous Waste & Substance Site List
HWP	EnviroStor Permitted Facilities Listing
HWT	Registered Hazardous Waste Transporter Database
HAZNET	Facility and Manifest Data
MINES	Mines Site Location Listing
MWMP	Medical Waste Management Program Listing
NPDES	NPDES Permits Listing
PEST LIC	Pesticide Regulation Licenses Listing
PROC	Certified Processors Database
Notify 65	Proposition 65 Records
HAZMAT	Hazardous Material Facilities
UIC	UIC Listing
UIC GEO	UIC GEO (GEOTRACKER)
WASTEWATER PITS	Oil Wastewater Pits Listing
WDS	Waste Discharge System
WIP	Well Investigation Program Case List

MILITARY PRIV SITES ..... MILITARY PRIV SITES (GEOTRACKER)
PROJECT ..... PROJECT (GEOTRACKER)
WDR ..... Waste Discharge Requirements Listing
NON-CASE INFO ..... NON-CASE INFO (GEOTRACKER)
OTHER OIL GAS ..... OTHER OIL & GAS (GEOTRACKER)
PROD WATER PONDS ..... PROD WATER PONDS (GEOTRACKER)
SAMPLING POINT ..... SAMPLING POINT (GEOTRACKER)
WELL STIM PROJ ..... Well Stimulation Project (GEOTRACKER)
PFAS TRIS ..... List of PFAS Added to the TRI
HWTS ..... Hazardous Waste Tracking System
MINES MRDS ..... Mineral Resources Data System

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP ..... EDR Proprietary Manufactured Gas Plants
EDR Hist Auto ..... EDR Exclusive Historical Auto Stations
EDR Hist Cleaner ..... EDR Exclusive Historical Cleaners

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF ..... Recovered Government Archive Solid Waste Facilities List
RGA LUST ..... Recovered Government Archive Leaking Underground Storage Tank

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

STANDARD ENVIRONMENTAL RECORDS

Lists of state- and tribal hazardous waste facilities

ENVIROSTOR: The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to,

identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

A review of the ENVIROSTOR list, as provided by EDR, and dated 01/23/2023 has revealed that there are 2 ENVIROSTOR sites within approximately 1 of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
KERN HSD - WIBLE / E	***SOUTHEAST OF WIBLE R***	***N 1/2 - 1 (0.981 mi.)***	***13***	***31***
Facility Id: 60002689				
Status: Inactive - Needs Evaluation				

Lower Elevation	Address	Direction / Distance	Map ID	Page
30-ACRE SCHOOL SITE	***SHAFTER ROAD/SOUTH H***	***SE 1/2 - 1 (0.853 mi.)***	***12***	***28***
Facility Id: 15010017				
Status: No Further Action				

Lists of state and tribal landfills and solid waste disposal facilities

SWF/LF: The Solid Waste Facilities/Landfill Sites records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. The data come from the Integrated Waste Management Board's Solid Waste Information System (SWIS) database.

A review of the SWF/LF list, as provided by EDR, has revealed that there is 1 SWF/LF site within approximately 1 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
MARTIN FEED, INC. T/	12838 WIBLE ROAD	NNW 1/8 - 1/4 (0.182 mi.)	C8	16
Database: SWF/LF (SWIS), Date of Government Version: 02/06/2023				
Facility ID: 15-AA-0390				
Operational Status: Active				
Regulation Status: Permitted				

Lists of state and tribal registered storage tanks

UST: The Underground Storage Tank database contains registered USTs. USTs are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA). The data come from the State Water Resources Control Board's Hazardous Substance Storage Container Database.

A review of the UST list, as provided by EDR, has revealed that there is 1 UST site within approximately 1 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
OLD RIVER GIN	HOUGHTON & WIBLE	NNW 0 - 1/8 (0.106 mi.)	6	14
Database: KERN CO. UST, Date of Government Version: 01/30/2023				

AST: A listing of aboveground storage tank petroleum storage tank locations.

A review of the AST list, as provided by EDR, has revealed that there are 3 AST sites within approximately 1 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
MARTIN FEED INC	12838 WIBLE RD	NNW 1/8 - 1/4 (0.182 mi.)	C7	15
Database: AST, Date of Government Version: 07/06/2016				
MARTIN FEED INC	12838 WIBLE	NNW 1/8 - 1/4 (0.182 mi.)	C10	20
Database: AST, Date of Government Version: 07/06/2016				

Lower Elevation	Address	Direction / Distance	Map ID	Page
CERRO FARMS	13717 WIBLE	SW 0 - 1/8 (0.055 mi.)	B4	13
Database: AST, Date of Government Version: 07/06/2016				

ADDITIONAL ENVIRONMENTAL RECORDS

Local Lists of Hazardous waste / Contaminated Sites

CERS HAZ WASTE: List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the Hazardous Chemical Management, Hazardous Waste Onsite Treatment, Household Hazardous Waste Collection, Hazardous Waste Generator, and RCRA LQ HW Generator programs.

A review of the CERS HAZ WASTE list, as provided by EDR, and dated 01/05/2023 has revealed that there is 1 CERS HAZ WASTE site within approximately 1 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
MARTIN FEED INC	***12838 WIBLE RD***	***NNW 1/8 - 1/4 (0.182 mi.)***	***C11***	***21***

Local Lists of Registered Storage Tanks

CERS TANKS: List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the Aboveground Petroleum Storage and Underground Storage Tank regulatory programs.

A review of the CERS TANKS list, as provided by EDR, and dated 01/06/2023 has revealed that there is 1 CERS TANKS site within approximately 1 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
MARTIN FEED INC	***12838 WIBLE RD***	***NNW 1/8 - 1/4 (0.182 mi.)***	***C11***	***21***

Other Ascertainable Records

RCRA NonGen / NLR: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA)

of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

A review of the RCRA NonGen / NLR list, as provided by EDR, and dated 03/06/2023 has revealed that there is 1 RCRA NonGen / NLR site within approximately 1 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
MARTIN FEED INC EPA ID:: CAL000266960	12838 WIBLE RD	NNW 1/8 - 1/4 (0.182 mi.)	C9	18

CUPA Listings: A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

A review of the CUPA Listings list, as provided by EDR, has revealed that there are 2 CUPA Listings sites within approximately 1 miles of the target property.

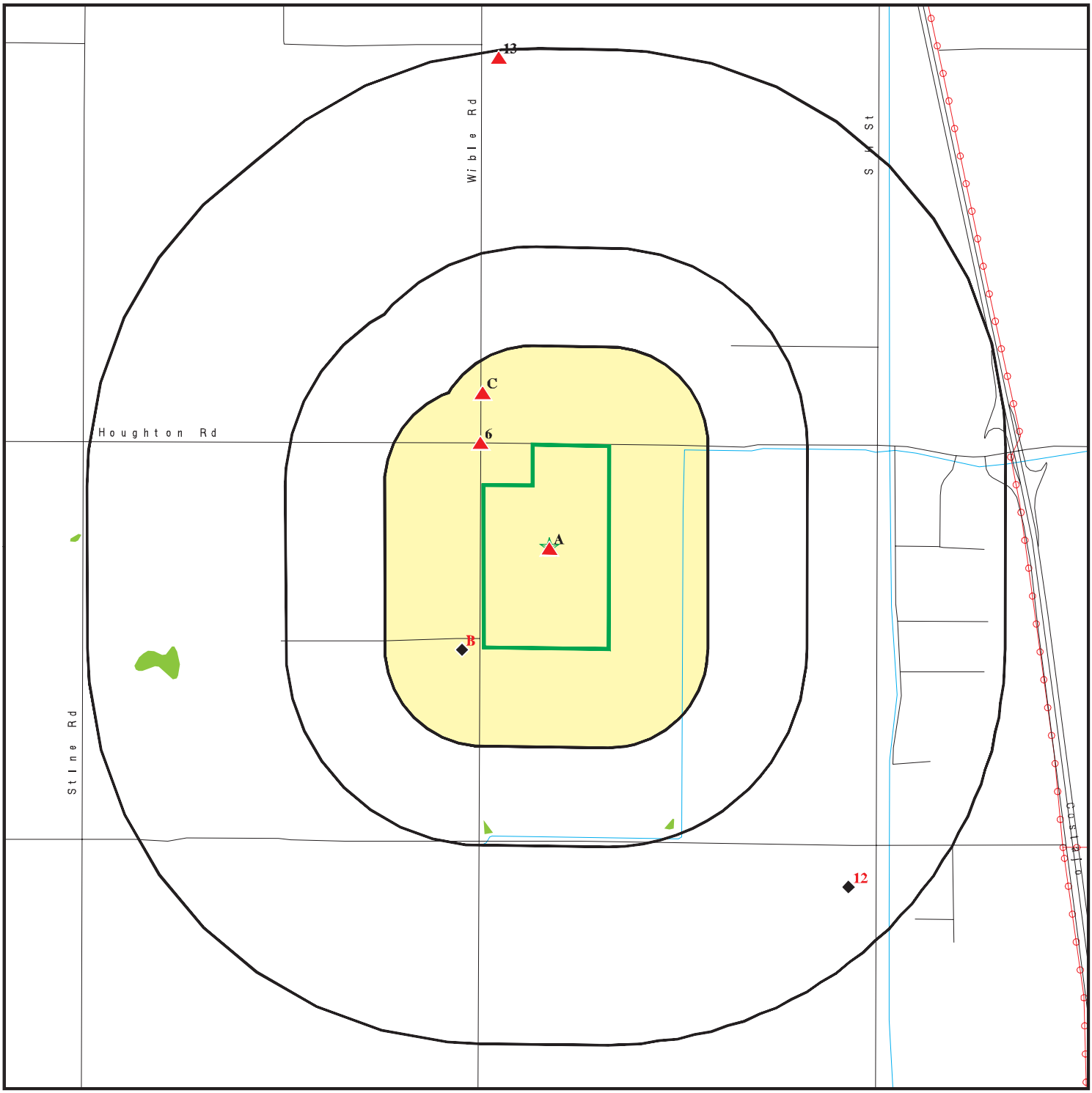
Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
MARTIN FEED INC	***12838 WIBLE RD***	***NNW 1/8 - 1/4 (0.182 mi.)***	***C11***	***21***
Database: KERN CO CUPA, Date of Government Version: 01/30/2023				

Lower Elevation	Address	Direction / Distance	Map ID	Page
CERRO FARMS	***13717 WIBLE RD***	***SW 0 - 1/8 (0.055 mi.)***	***B5***	***13***
Database: KERN CO CUPA, Date of Government Version: 01/30/2023				

EXECUTIVE SUMMARY

There were no unmapped sites in this report.

OVERVIEW MAP - 7341071.2S



0 1/4 1/2 1 Miles

- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Power transmission lines
- Special Flood Hazard Area (1%)
- 0.2% Annual Chance Flood Hazard
- National Wetland Inventory
- State Wetlands
- Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME:	Bakersfield - Project Milo	CLIENT:	GeoSyntec Consultants
ADDRESS:	2909 Houghton Road Bakersfield CA 93313	CONTACT:	Jackie Hyman
		INQUIRY #:	7341071.2s
LAT/LONG:	35.233991 / 119.036038	DATE:	May 18, 2023 1:25 pm

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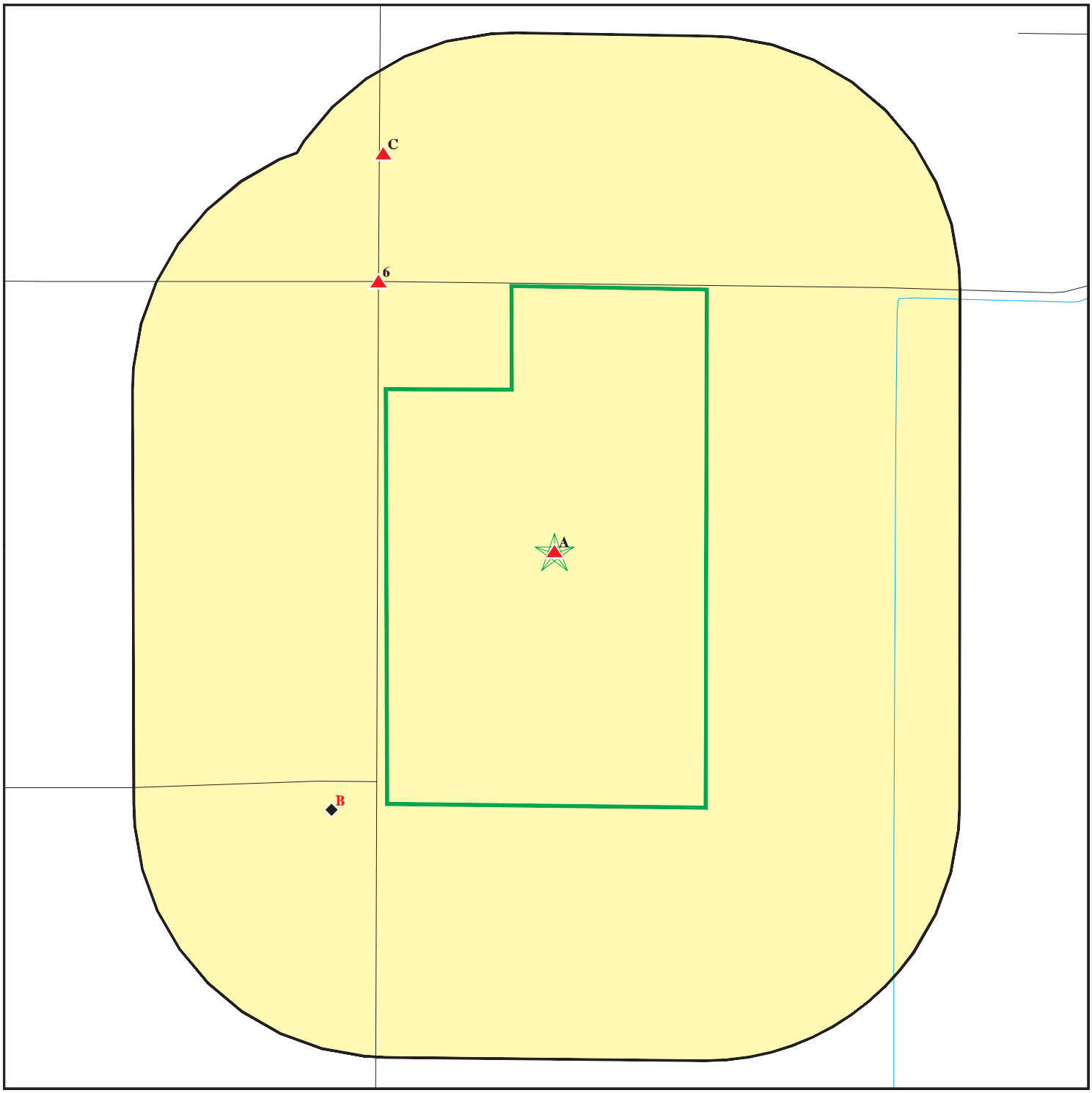
DETAIL MAP - 7341071.2S



Target Property

Sites at elevations higher than or equal to the target property

Sites at elevations lower than the target property

Manufactured Gas Plants

Sensitive Receptors

National Priority List Sites

Dept. Defense Sites

0 1/8 1/4 1/2 Miles

Indian Reservations BIA

Special Flood Hazard Area (1%)

0.2% Annual Chance Flood Hazard

Areas of Concern

N

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME:	Bakersfield - Project Milo	CLIENT:	GeoSyntec Consultants
ADDRESS:	2909 Houghton Road Bakersfield CA 93313	CONTACT:	Jackie Hyman
LAT/LONG:	35.233991 / 119.036038	INQUIRY #:	7341071.2s
		DATE:	May 18, 2023 1:26 pm

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MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Lists of Federal NPL (Superfund) sites								
NPL	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	1.000		0	0	0	0	NR	0
Lists of Federal Delisted NPL sites								
Delisted NPL	1.000		0	0	0	0	NR	0
Lists of Federal sites subject to CERCLA removals and CERCLA orders								
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
SEMS	0.500		0	0	0	NR	NR	0
Lists of Federal CERCLA sites with NFRAP								
SEMS-ARCHIVE	0.500		0	0	0	NR	NR	0
Lists of Federal RCRA facilities undergoing Corrective Action								
CORRACTS	1.000		0	0	0	0	NR	0
Lists of Federal RCRA TSD facilities								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
Lists of Federal RCRA generators								
RCRA-LQG	0.250		0	0	NR	NR	NR	0
RCRA-SQG	0.250		0	0	NR	NR	NR	0
RCRA-VSQG	0.250		0	0	NR	NR	NR	0
Federal institutional controls / engineering controls registries								
LUCIS	0.500		0	0	0	NR	NR	0
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROLS	0.500		0	0	0	NR	NR	0
Federal ERNS list								
ERNS	0.001		0	NR	NR	NR	NR	0
Lists of state- and tribal (Superfund) equivalent sites								
RESPONSE	1.000		0	0	0	0	NR	0
Lists of state- and tribal hazardous waste facilities								
ENVIROSTOR	1.000		0	0	0	2	NR	2
Lists of state and tribal landfills and solid waste disposal facilities								
SWF/LF	0.500		0	1	0	NR	NR	1

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
Lists of state and tribal leaking storage tanks								
LUST	0.500		0	0	0	NR	NR	0
INDIAN LUST	0.500		0	0	0	NR	NR	0
CPS-SLIC	0.500		0	0	0	NR	NR	0
Lists of state and tribal registered storage tanks								
FEMA UST	0.250		0	0	NR	NR	NR	0
UST	0.250		1	0	NR	NR	NR	1
AST	0.250		1	2	NR	NR	NR	3
INDIAN UST	0.250		0	0	NR	NR	NR	0
Lists of state and tribal voluntary cleanup sites								
INDIAN VCP	0.500		0	0	0	NR	NR	0
VCP	0.500		0	0	0	NR	NR	0
Lists of state and tribal brownfield sites								
BROWNFIELDS	0.500		0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
WMUDS/SWAT	0.500		0	0	0	NR	NR	0
SWRCY	0.500		0	0	0	NR	NR	0
HAULERS	0.001		0	NR	NR	NR	NR	0
INDIAN ODI	0.500		0	0	0	NR	NR	0
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
ODI	0.500		0	0	0	NR	NR	0
IHS OPEN DUMPS	0.500		0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US HIST CDL	0.001		0	NR	NR	NR	NR	0
HIST Cal-Sites	1.000		0	0	0	0	NR	0
SCH	0.250		0	0	NR	NR	NR	0
CDL	0.001		0	NR	NR	NR	NR	0
CERS HAZ WASTE	0.250		0	1	NR	NR	NR	1
Toxic Pits	1.000		0	0	0	0	NR	0
US CDL	0.001		0	NR	NR	NR	NR	0
Local Lists of Registered Storage Tanks								
SWEEPS UST	0.250		0	0	NR	NR	NR	0
HIST UST	0.250		0	0	NR	NR	NR	0
CA FID UST	0.250		0	0	NR	NR	NR	0
CERS TANKS	0.250		0	1	NR	NR	NR	1
Local Land Records								
LIENS	0.001		0	NR	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
LIENS 2	0.001		0	NR	NR	NR	NR	0
DEED	0.500		0	0	0	NR	NR	0
Records of Emergency Release Reports								
HMIRS	0.001		0	NR	NR	NR	NR	0
CHMIRS	0.001		0	NR	NR	NR	NR	0
LDS	0.001		0	NR	NR	NR	NR	0
MCS	0.001		0	NR	NR	NR	NR	0
SPILLS 90	0.001		0	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.250		0	1	NR	NR	NR	1
FUDS	1.000		0	0	0	0	NR	0
DOD	1.000		0	0	0	0	NR	0
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
US FIN ASSUR	0.001		0	NR	NR	NR	NR	0
EPA WATCH LIST	0.001		0	NR	NR	NR	NR	0
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
TSCA	0.001		0	NR	NR	NR	NR	0
TRIS	0.001		0	NR	NR	NR	NR	0
SSTS	0.001		0	NR	NR	NR	NR	0
ROD	1.000		0	0	0	0	NR	0
RMP	0.001		0	NR	NR	NR	NR	0
RAATS	0.001		0	NR	NR	NR	NR	0
PRP	0.001		0	NR	NR	NR	NR	0
PADS	0.001		0	NR	NR	NR	NR	0
ICIS	0.001		0	NR	NR	NR	NR	0
FTTS	0.001		0	NR	NR	NR	NR	0
MLTS	0.001		0	NR	NR	NR	NR	0
COAL ASH DOE	0.001		0	NR	NR	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
PCB TRANSFORMER	0.001		0	NR	NR	NR	NR	0
RADINFO	0.001		0	NR	NR	NR	NR	0
HIST FTTS	0.001		0	NR	NR	NR	NR	0
DOT OPS	0.001		0	NR	NR	NR	NR	0
CONSENT	1.000		0	0	0	0	NR	0
INDIAN RESERV	1.000		0	0	0	0	NR	0
FUSRAP	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
LEAD SMELTERS	0.001		0	NR	NR	NR	NR	0
US AIRS	0.001		0	NR	NR	NR	NR	0
US MINES	0.250		0	0	NR	NR	NR	0
ABANDONED MINES	0.250		0	0	NR	NR	NR	0
FINDS	0.001	1	0	NR	NR	NR	NR	1
DOCKET HWC	0.001		0	NR	NR	NR	NR	0
UXO	1.000		0	0	0	0	NR	0
ECHO	0.001		0	NR	NR	NR	NR	0
FUELS PROGRAM	0.250		0	0	NR	NR	NR	0
PFAS NPL	0.250		0	0	NR	NR	NR	0
PFAS FEDERAL SITES	0.250		0	0	NR	NR	NR	0
PFAS TSCA	0.250		0	0	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
PFAS RCRA MANIFEST	0.250		0	0	NR	NR	NR	0
PFAS ATSDR	0.250		0	0	NR	NR	NR	0
PFAS WQP	0.250		0	0	NR	NR	NR	0
PFAS NPDES	0.250		0	0	NR	NR	NR	0
PFAS ECHO	0.250		0	0	NR	NR	NR	0
PFAS ECHO FIRE TRAINING	0.250		0	0	NR	NR	NR	0
PFAS PART 139 AIRPORT	0.250		0	0	NR	NR	NR	0
AQUEOUS FOAM NRC	0.250		0	0	NR	NR	NR	0
PFAS	0.250		0	0	NR	NR	NR	0
AQUEOUS FOAM	TP		NR	NR	NR	NR	NR	0
CA BOND EXP. PLAN	1.000		0	0	0	0	NR	0
Cortese	0.500		0	0	0	NR	NR	0
CUPA Listings	0.250	1	1	1	NR	NR	NR	3
DRYCLEANERS	0.250		0	0	NR	NR	NR	0
EMI	0.001		0	NR	NR	NR	NR	0
ENF	0.001		0	NR	NR	NR	NR	0
Financial Assurance	0.001		0	NR	NR	NR	NR	0
ICE	0.001		0	NR	NR	NR	NR	0
HIST CORTESE	0.500		0	0	0	NR	NR	0
HWP	1.000		0	0	0	0	NR	0
HWT	0.250		0	0	NR	NR	NR	0
HAZNET	0.001		0	NR	NR	NR	NR	0
MINES	0.250		0	0	NR	NR	NR	0
MWMP	0.250		0	0	NR	NR	NR	0
NPDES	0.001		0	NR	NR	NR	NR	0
PEST LIC	0.001		0	NR	NR	NR	NR	0
PROC	0.500		0	0	0	NR	NR	0
Notify 65	1.000		0	0	0	0	NR	0
HAZMAT	0.250		0	0	NR	NR	NR	0
UIC	0.001		0	NR	NR	NR	NR	0
UIC GEO	0.001		0	NR	NR	NR	NR	0
WASTEWATER PITS	0.500		0	0	0	NR	NR	0
WDS	0.001		0	NR	NR	NR	NR	0
WIP	0.250		0	0	NR	NR	NR	0
MILITARY PRIV SITES	0.001		0	NR	NR	NR	NR	0
PROJECT	0.001		0	NR	NR	NR	NR	0
WDR	0.001		0	NR	NR	NR	NR	0
CIWQS	0.001	1	0	NR	NR	NR	NR	1
CERS	0.001	1	0	NR	NR	NR	NR	1
NON-CASE INFO	0.001		0	NR	NR	NR	NR	0
OTHER OIL GAS	0.001		0	NR	NR	NR	NR	0
PROD WATER PONDS	0.001		0	NR	NR	NR	NR	0
SAMPLING POINT	0.001		0	NR	NR	NR	NR	0
WELL STIM PROJ	0.001		0	NR	NR	NR	NR	0
PFAS TRIS	0.250		0	0	NR	NR	NR	0
HWTS	TP		NR	NR	NR	NR	NR	0
MINES MRDS	0.001		0	NR	NR	NR	NR	0
EDR HIGH RISK HISTORICAL RECORDS								
EDR Exclusive Records								
EDR MGP	1.000		0	0	0	0	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
EDR Hist Auto	0.125		0	NR	NR	NR	NR	0
EDR Hist Cleaner	0.125		0	NR	NR	NR	NR	0
EDR RECOVERED GOVERNMENT ARCHIVES								
Exclusive Recovered Govt. Archives								
RGA LF	0.001		0	NR	NR	NR	NR	0
RGA LUST	0.001		0	NR	NR	NR	NR	0
- Totals --		4	3	7	0	2	0	16

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

A1 **TBS PROPERTIES** **CUPA Listings** **S121776205**
Target **2909 HOUGHTON RD** **CERS** **N/A**
Property **BAKERSFIELD, CA 93313**

Site 1 of 3 in cluster A

Actual:
333 ft.

KERN CO CUPA:

Facility ID:	FA0038505
CERS ID:	10445257
Name:	TBS PROPERTIES
Address:	2909 HOUGHTON RD
Address 2:	Not reported
City,State,Zip:	BAKERSFIELD, CA
Billing Status:	Active, billable
Program Element:	BUS PLAN SMALL LOW RISK 1 UNIT
Program Element Code:	CB1T
HMIRRP Due Date:	Not reported
Current Inspection Date:	6/1/2023
Employee:	IWUCHUKWU
Mailing Address:	5100 California Ave. Suite 230
Mailing Address 2:	Not reported
Mailing City:	Bakersfield
Mailing State:	CA
Mailing Zip:	93309

CERS:

Name:	TBS PROPERTIES
Address:	2909 HOUGHTON RD
City,State,Zip:	BAKERSFIELD, CA 93313
Site ID:	403561
CERS ID:	10445257
CERS Description:	Chemical Storage Facilities

Evaluation:

Eval General Type:	Compliance Evaluation Inspection
Eval Date:	06-13-2017
Violations Found:	No
Eval Type:	Routine done by local agency
Eval Notes:	Not reported
Eval Division:	Kern County Env Health Services Department
Eval Program:	HMRRP
Eval Source:	CERS,

Eval General Type:	Compliance Evaluation Inspection
Eval Date:	11-04-2013
Violations Found:	No
Eval Type:	Routine done by local agency
Eval Notes:	Not reported
Eval Division:	Kern County Env Health Services Department
Eval Program:	HMRRP
Eval Source:	CERS,

Eval General Type:	Other/Unknown
Eval Date:	10-28-2013
Violations Found:	No
Eval Type:	Other, not routine, done by local agency
Eval Notes:	Not reported
Eval Division:	Kern County Env Health Services Department
Eval Program:	HMRRP

TBS PROPERTIES (Continued) **S121776205**

Eval Source: CERS,

Eval General Type: Compliance Evaluation Inspection
Eval Date: 06-17-2020
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Kern County Env Health Services Department
Eval Program: HMRRP
Eval Source: CERS,

Coordinates:
Site ID: 403561
Facility Name: TBS Properties
Env Int Type Code: HMBP
Program ID: 10445257
Coord Name: Not reported
Ref Point Type Desc: Center of a facility or station.,
Latitude: 35.237800
Longitude: -119.034680

Affiliation:
Affiliation Type Desc: Environmental Contact
Entity Name: TIM ANTONGIOVANNI
Entity Title: Not reported
Affiliation Address: 5100 California Ave. Suite 230
Affiliation City: Bakersfield
Affiliation State: CA
Affiliation Country: Not reported
Affiliation Zip: 93309
Affiliation Phone: ,

Affiliation Type Desc: Identification Signer
Entity Name: TIM ANTONGIOVANNI
Entity Title: Manager
Affiliation Address: Not reported
Affiliation City: Not reported
Affiliation State: Not reported
Affiliation Country: Not reported
Affiliation Zip: Not reported
Affiliation Phone: ,

Affiliation Type Desc: Operator
Entity Name: Ten Star Farming, Inc.
Entity Title: Not reported
Affiliation Address: Not reported
Affiliation City: Not reported
Affiliation State: Not reported
Affiliation Country: Not reported
Affiliation Zip: Not reported
Affiliation Phone: (661) 834-5173,

Affiliation Type Desc: CUPA District
Entity Name: Kern County Environmental Health Services Departme
Entity Title: Not reported
Affiliation Address: 2700 M Street, Suite 300

TBS PROPERTIES (Continued) **S121776205**

Affiliation City:	Bakersfield
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	93301-2370
Affiliation Phone:	(661) 862-8740,
Affiliation Type Desc:	Document Preparer
Entity Name:	Tim Antongiovanni
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	,
Affiliation Type Desc:	Property Owner
Entity Name:	TBS Properties
Entity Title:	Not reported
Affiliation Address:	5100 California Ave. Suite 230
Affiliation City:	Bakersfield
Affiliation State:	CA
Affiliation Country:	United States
Affiliation Zip:	93309
Affiliation Phone:	(661) 834-5173,
Affiliation Type Desc:	Legal Owner
Entity Name:	TBS Properties LLC
Entity Title:	Not reported
Affiliation Address:	5100 California Ave. Suite 230
Affiliation City:	Bakersfield
Affiliation State:	CA
Affiliation Country:	United States
Affiliation Zip:	93309
Affiliation Phone:	(661) 834-5173,
Affiliation Type Desc:	Facility Mailing Address
Entity Name:	Mailing Address
Entity Title:	Not reported
Affiliation Address:	5100 California Ave. Suite 230
Affiliation City:	Bakersfield
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	93309
Affiliation Phone:	,
Affiliation Type Desc:	Parent Corporation
Entity Name:	Ten Star Farming INC.
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	,

A2 **PG&E HYDROTEST SEGMENT TEST-1385, L-300A** **CIWQS** **S121663765**
Target **2909 HOUGHTON ROAD** **N/A**
Property **BAKERSFIELD, CA 93313**

Site 2 of 3 in cluster A

Actual: **333 ft.**

CIWQS:

Name:	PG&E HYDROTEST SEGMENT TEST-1385, L-300A
Address:	2909 HOUGHTON ROAD
City,State,Zip:	BAKERSFIELD, CA 93313
Agency:	Pacific Gas & Electric Company San Ramon
Agency Address:	6111 Bollinger Canyon Road, San Ramon, CA 94583
Place/Project Type:	Domestic Site NEC
SIC/NAICS:	1623
Region:	5F
Program:	WDRNONMUNIPRCS
Regulatory Measure Status:	Historical
Regulatory Measure Type:	Enrollee - WDR
Order Number:	2003-0003-DWQ
WDID:	5C15NC00228
NPDES Number:	Not reported
Adoption Date:	Not reported
Effective Date:	12/13/2017
Termination Date:	03/26/2018
Expiration/Review Date:	12/12/2022
Design Flow:	Not reported
Major/Minor:	Not reported
Complexity:	C
TTWQ:	3
Enforcement Actions within 5 years:	0
Violations within 5 years:	0
Latitude:	35.23052
Longitude:	-119.03025

A3 **TBS PROPERTIES** **FINDS** **1023232552**
Target **2909 HOUGHTON RD** **N/A**
Property **BAKERSFIELD, CA 93313**

Site 3 of 3 in cluster A

Actual: **333 ft.**

FINDS:
Registry ID: 110065198422

Click Here for FRS Facility Detail Report:

Environmental Interest/Information System:
STATE MASTER

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

B4 **CERRO FARMS** **AST** **A100339972**
SW **13717 WIBLE** **N/A**
< 1/8 **BAKERSFIELD, CA**
0.055 mi.
291 ft. **Site 1 of 2 in cluster B**

Relative: **Lower**
Actual: **330 ft.**

AST:

Name:	CERRO FARMS
Address:	13717 WIBLE
City/Zip:	BAKERSFIELD,
Certified Unified Program Agencies:	Kern
Owner:	CERRO FARMS
Total Gallons:	4,385
CERSID:	Not reported
Facility ID:	Not reported
Business Name:	Not reported
Phone:	Not reported
Fax:	Not reported
Mailing Address:	Not reported
Mailing Address City:	Not reported
Mailing Address State:	Not reported
Mailing Address Zip Code:	Not reported
Operator Name:	Not reported
Operator Phone:	Not reported
Owner Phone:	Not reported
Owner Mail Address:	Not reported
Owner State:	Not reported
Owner Zip Code:	Not reported
Owner Country:	Not reported
Property Owner Name:	Not reported
Property Owner Phone:	Not reported
Property Owner Mailing Address:	Not reported
Property Owner City:	Not reported
Property Owner Stat :	Not reported
Property Owner Zip Code:	Not reported
Property Owner Country:	Not reported
EPAID:	Not reported

B5 **CERRO FARMS** **CUPA Listings** **S124832647**
SW **13717 WIBLE RD** **HWTS** **N/A**
< 1/8 **BAKERSFIELD, CA 93313**
0.055 mi.
291 ft. **Site 2 of 2 in cluster B**

Relative: **Lower**
Actual: **330 ft.**

KERN CO CUPA:

Facility ID:	FA0002034
CERS ID:	10233031
Name:	CERRO FARMS
Address:	13717 WIBLE RD
Address 2:	13717 WIBLE RD
City,State,Zip:	BAKERSFIELD, CA
Billing Status:	Inactive, non-billable
Program Element:	BUS PLAN SMALL LOW RISK 1 UNIT
Program Element Code:	CB1T
HMIRRP Due Date:	10/31/2013
Current Inspection Date:	12/1/2016
Employee:	IWUCHUKWU
Mailing Address:	13717 WIBLE RD
Mailing Address 2:	Not reported
Mailing City:	BAKERSFIELD

CERRO FARMS (Continued) **S124832647**

Mailing State: CA
Mailing Zip: 93313

HWTS:
Name: CERRO FARMS
Address: 13717 WIBLE RD
Address 2: Not reported
City,State,Zip: BAKERSFIELD, CA 93313
EPA ID: CAL000244838
Inactive Date: 06/30/2015
Create Date: 02/08/2002
Last Act Date: Not reported
Mailing Name: Not reported
Mailing Address: 13717 WIBLE RD
Mailing Address 2: Not reported
Mailing City,State,Zip: BAKERSFIELD, CA 933130000
Owner Name: PHIL CERRO
Owner Address: 13717 WIBLE RD
Owner Address 2: Not reported
Owner City,State,Zip: BAKERSFIELD, CA 933130000
Contact Name: PHIL CERRO
Contact Address: 13717 WIBLE RD
Contact Address 2: Not reported
City,State,Zip: BAKERSFIELD, CA 93313
Facility Status: Inactive
Facility Type: PERMANENT
Category: STATE
Latitude: 35.230669
Longitude: -119.039264

NAICS:
EPA ID: CAL000244838
Create Date: 2003-10-23 13:13:52.000
NAICS Code: 11192
NAICS Description: Cotton Farming
Issued EPA ID Date: 2002-02-08 00:00:00
Inactive Date: 2015-06-30 00:00:00
Facility Name: CERRO FARMS
Facility Address: 13717 WIBLE RD
Facility Address 2: Not reported
Facility City: BAKERSFIELD
Facility County: Not reported
Facility State: CA
Facility Zip: 933130000

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6 **OLD RIVER GIN** **UST** **U004112348**
NNW **HOUGHTON & WIBLE** **N/A**
< 1/8 **BAKERSFIELD, CA**
0.106 mi.
562 ft.

Relative:
Higher

Actual:
333 ft.

KERN CO. UST:
Name: OLD RIVER GIN
Address: HOUGHTON & WIBLE
City: BAKERSFIELD
Region: Kern
Facility ID: Not reported

OLD RIVER GIN (Continued) **U004112348**

CERSID:	Not reported
Owner Id:	320035
Owner Name:	ANDERSON CLAYTON & COMPANY
Tank Num:	1
Tank Capacity:	0
Common Name:	Not reported
Description:	Not reported
Number of Compartments:	Not reported
Install Date:	Not reported
Date of Closure:	Not reported
Billing Status:	Not reported
Mailing Address:	Not reported
Mailing Address (care of):	Not reported
Mailing City/State/Zip:	Not reported

C7 **MARTIN FEED INC** **AST** **A100422209**
NNW **12838 WIBLE RD** **N/A**
1/8-1/4 **BAKERSFIELD, CA 93313**
0.182 mi.
961 ft. **Site 1 of 5 in cluster C**

Relative: **Higher**

Actual: **334 ft.**

AST:

Name:	MARTIN FEED INC
Address:	12838 WIBLE RD
City/Zip:	BAKERSFIELD,93313
Certified Unified Program Agencies:	Not reported
Owner:	TIM MARTIN
Total Gallons:	Not reported
CERSID:	10232140
Facility ID:	Not reported
Business Name:	MARTIN FEED INC
Phone:	(661) 836-1497
Fax:	661-836-1763
Mailing Address:	12838 WIBLE RD
Mailing Address City:	BAKERSFIELD
Mailing Address State:	CA
Mailing Address Zip Code:	93313
Operator Name:	Tim Martin
Operator Phone:	661-836-1497
Owner Phone:	(661) 836-1497
Owner Mail Address:	12838 WIBLE RD
Owner State:	CA
Owner Zip Code:	93313
Owner Country:	United States
Property Owner Name:	Not reported
Property Owner Phone:	Not reported
Property Owner Mailing Address:	Not reported
Property Owner City:	Not reported
Property Owner Stat :	Not reported
Property Owner Zip Code:	Not reported
Property Owner Country:	Not reported
EPAID:	cal000266960

C8
NNW
1/8-1/4
0.182 mi.
961 ft.

MARTIN FEED, INC. T/P FACILITY
12838 WIBLE ROAD
PUMPKIN CENTER, CA 93313

Site 2 of 5 in cluster C

SWF/LF **S108985745**
N/A

Relative:
Higher

Actual:
334 ft.

SWF/LF (SWIS):

Name:	MARTIN FEED, INC. T/P FACILITY
Address:	12838 WIBLE ROAD
City,State,Zip:	PUMPKIN CENTER, CA 93313
Region:	STATE
Facility ID:	15-AA-0390
SWIS Number:	15-AA-0390
Point of Contact:	Christine Karl
Is Archived:	No
Is Closed Illegal Abandoned:	No
Is Site Inert Debris Engineered Fill:	No
Is Financial Assurances Responsible:	No
Absorbed On:	Not reported
Operational Status:	Active
Absorbed By:	Not reported
Closed Illegal Abandoned Category:	Not reported
EPA Federal Registry ID:	Not reported
ARB District:	San Joaquin Valley Unified
SWRCB Region:	Central Valley
Local Government:	Kern County (Unincorporated)
Reporting Agency Legal Name:	County of Kern
Reporting Agency Department:	Environmental Health Division
Enforcing Agency Legal Name:	County of Kern
Enforcing Agency Department:	Environmental Health Division
Regulation Status:	Permitted

Activity:

SWIS Number:	15-AA-0390
Site Name:	Martin Feed, Inc. T/P Facility
Activity:	Medium Volume Transfer/Processing Facility
Activity Is Archived:	No
Category:	Transfer/Processing
Activity Classification:	Solid Waste Facility
WDR Number:	Not reported
WDR Landfill Class:	Not reported
Cease Operation:	Not reported
Cease Operation Type:	Not reported
Inspection Frequency:	Monthly
Throughput:	100
Throughput Units:	Tons per day
Remaining Capacity:	Not reported
Remaining Capacity Date:	Not reported
Capacity:	12000
Capacity Units:	Tons per year
Total Acreage:	28.4
Disposal Acreage:	Not reported
Permitted Elevation:	331
Permitted Elevation Type:	MSL
Permitted Depth:	Not reported
Permitted Depth Type:	Not reported
Point of Contact:	Christine Karl
Site Operational Status:	Active
Site Regulatory Status:	Permitted
Site Is Archived:	No

MARTIN FEED, INC. T/P FACILITY (Continued) **S108985745**

Is Closed Illegal Abandoned:	No
Is Site Inert Debris Engineered Fill:	No
Is Financial Assurances Responsible:	No
Absorbed On:	Not reported
Absorbed By:	Not reported
Closed Illegal Abandoned Category:	Not reported
EPA Federal Registry ID:	Not reported
County:	Kern
ARB District:	San Joaquin Valley Unified
SWRCB Region:	Central Valley
Local Government:	Kern County (Unincorporated)
Street Address:	12838 Wible Road
City:	Pumpkin Center
State:	CA
ZIP Code:	93313
Reporting Agency Legal Name:	County of Kern
Reporting Agency Department:	Environmental Health Division
Enforcing Agency Legal Name:	County of Kern
Enforcing Agency Department:	Environmental Health Division

Operator:

SWIS Number:	15-AA-0390
Site Name:	Martin Feed, Inc. T/P Facility
Site Operational Status:	Active
Site Type:	Non-Disposal Only
Site Regulatory Status:	Permitted
Latitude:	35.2933
Longitude:	-119.0374
Is Archived:	No
Operator:	Martin Feed, Inc.
Started On:	Not reported
Contact Name:	Not reported
Contact Title:	Not reported
Contact Email:	Not reported
Contact Phone:	(661) 331-8749
Street Address:	12838 Wible Rd
Operator City:	Bakersfield
Operator State:	CA
Operator Zip:	93313-9690

Owner:

SWIS Number:	15-AA-0390
Owner:	Martin Feed, Inc.
Owner Address:	3844 Monroe St
Owner City:	Riverside
Owner State:	CA
Owner Zip:	92504-2937
Site Name:	Martin Feed, Inc. T/P Facility
Site Operational Status:	Active
Site Type:	Non-Disposal Only
Site Regulatory Status:	Permitted
Latitude:	35.2933
Longitude:	-119.0374
Is Archived:	No
Started On:	Not reported
Contact Name:	Not reported

MARTIN FEED, INC. T/P FACILITY (Continued) **S108985745**

Contact Title:	Not reported
Contact Email:	Not reported
Contact Phone:	(661) 836-1497

Waste:

SWIS Number:	15-AA-0390
Site Name:	Martin Feed, Inc. T/P Facility
Activity:	Medium Volume Transfer/Processing Facility
Waste Type:	Food Wastes
Site Is Archived:	No
Site Operational Status:	Active
Site Regulatory Status:	Permitted
Site Type:	Non-Disposal Only
Point of Contact:	Christine Karl
Activity Is Archived:	No
Activity Operational Status:	Active
Activity Regulatory Status:	Permitted
Activity Category:	Transfer/Processing
Activity Classification:	Solid Waste Facility

C9 **MARTIN FEED INC** **RCRA NonGen / NLR** **1024806060**
NNW **12838 WIBLE RD** **CAL000266960**
1/8-1/4 **BAKERSFIELD, CA 93313**
0.182 mi.
961 ft. **Site 3 of 5 in cluster C**

Relative: **Higher**
Actual: **334 ft.**

RCRA Listings:

Date Form Received by Agency:	20030227
Handler Name:	Martin Feed Inc
Handler Address:	12838 WIBLE RD
Handler City,State,Zip:	BAKERSFIELD, CA 93313
EPA ID:	CAL000266960
Contact Name:	TIM MARTIN/MGR
Contact Address:	12838 WIBLE RD
Contact City,State,Zip:	BAKERSFIELD, CA 93313
Contact Telephone:	661-836-1497
Contact Fax:	661-836-1763
Contact Email:	MARTINFEEDINC@AOL.COM
Contact Title:	Not reported
EPA Region:	09
Land Type:	Not reported
Federal Waste Generator Description:	Not a generator, verified
Non-Notifier:	Not reported
Biennial Report Cycle:	Not reported
Accessibility:	Not reported
Active Site Indicator:	Handler Activities
State District Owner:	Not reported
State District:	Not reported
Mailing Address:	12838 WIBLE RD
Mailing City,State,Zip:	BAKERSFIELD, CA 93313-0000
Owner Name:	Tim Martin Feed Inc
Owner Type:	Other
Operator Name:	Tim Martin/Mgr
Operator Type:	Other
Short-Term Generator Activity:	No
Importer Activity:	No

MARTIN FEED INC (Continued) **1024806060**

Mixed Waste Generator:	No
Transporter Activity:	No
Transfer Facility Activity:	No
Recycler Activity with Storage:	No
Small Quantity On-Site Burner Exemption:	No
Smelting Melting and Refining Furnace Exemption:	No
Underground Injection Control:	No
Off-Site Waste Receipt:	No
Universal Waste Indicator:	Yes
Universal Waste Destination Facility:	Yes
Federal Universal Waste:	No
Active Site State-Reg Handler:	---
Federal Facility Indicator:	Not reported
Hazardous Secondary Material Indicator:	N
Sub-Part K Indicator:	Not reported
2018 GPRA Permit Baseline:	Not on the Baseline
2018 GPRA Renewals Baseline:	Not on the Baseline
202 GPRA Corrective Action Baseline:	No
Subject to Corrective Action Universe:	No
Non-TSDFs Where RCRA CA has Been Imposed Universe:	No
Corrective Action Priority Ranking:	No NCAPS ranking
Environmental Control Indicator:	No
Institutional Control Indicator:	No
Human Exposure Controls Indicator:	N/A
Groundwater Controls Indicator:	N/A
Significant Non-Complier Universe:	No
Unaddressed Significant Non-Complier Universe:	No
Addressed Significant Non-Complier Universe:	No
Significant Non-Complier With a Compliance Schedule Universe:	No
Financial Assurance Required:	Not reported
Handler Date of Last Change:	20180905
Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	No
Manifest Broker:	No
Sub-Part P Indicator:	No

Handler - Owner Operator:

Owner/Operator Indicator:	Owner
Owner/Operator Name: TIM MARTIN FEED INC	
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	12838 WIBLE RD
Owner/Operator City,State,Zip:	BAKERSFIELD, CA 93313-0000
Owner/Operator Telephone:	661-836-1497
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported
Owner/Operator Indicator:	Operator
Owner/Operator Name: TIM MARTIN/MGR	
Legal Status:	Other
Date Became Current:	Not reported

MARTIN FEED INC (Continued) **1024806060**

Date Ended Current:	Not reported
Owner/Operator Address:	12838 WIBLE RD
Owner/Operator City,State,Zip:	BAKERSFIELD, CA 93313
Owner/Operator Telephone:	661-836-1497
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Historic Generators:

Receive Date:	20030227
Handler Name: MARTIN FEED INC	
Federal Waste Generator Description:	Not a generator, verified
State District Owner:	Not reported
Large Quantity Handler of Universal Waste:	No
Recognized Trader Importer:	No
Recognized Trader Exporter:	No
Spent Lead Acid Battery Importer:	No
Spent Lead Acid Battery Exporter:	No
Current Record:	Yes
Non Storage Recycler Activity:	Not reported
Electronic Manifest Broker:	Not reported

List of NAICS Codes and Descriptions:

NAICS Code:	112111
NAICS Description:	BEEF CATTLE RANCHING AND FARMING
NAICS Code:	311611
NAICS Description:	ANIMAL (EXCEPT POULTRY) SLAUGHTERING

Facility Has Received Notices of Violations:

Violations:	No Violations Found

Evaluation Action Summary:

Evaluations:	No Evaluations Found

C10 **MARTIN FEED INC** **AST** **A100338491**
NNW **12838 WIBLE** **N/A**
1/8-1/4 **BAKERSFIELD, CA**
0.182 mi.
961 ft. **Site 4 of 5 in cluster C**

Relative: AST:
Higher

Actual: Name:	MARTIN FEED INC
334 ft. Address:	12838 WIBLE
City/Zip:	BAKERSFIELD,
Certified Unified Program Agencies:	Kern
Owner:	MICHAEL & THOMAS & TIM MARTIN
Total Gallons:	1,532
CERSID:	Not reported
Facility ID:	Not reported
Business Name:	Not reported
Phone:	Not reported
Fax:	Not reported
Mailing Address:	Not reported
Mailing Address City:	Not reported

MARTIN FEED INC (Continued) **A100338491**

Mailing Address State:	Not reported
Mailing Address Zip Code:	Not reported
Operator Name:	Not reported
Operator Phone:	Not reported
Owner Phone:	Not reported
Owner Mail Address:	Not reported
Owner State:	Not reported
Owner Zip Code:	Not reported
Owner Country:	Not reported
Property Owner Name:	Not reported
Property Owner Phone:	Not reported
Property Owner Mailing Address:	Not reported
Property Owner City:	Not reported
Property Owner Stat :	Not reported
Property Owner Zip Code:	Not reported
Property Owner Country:	Not reported
EPAID:	Not reported

C11 **MARTIN FEED INC** **CERS HAZ WASTE** **S121743052**
NNW **12838 WIBLE RD** **CERS TANKS** **N/A**
1/8-1/4 **BAKERSFIELD, CA 93313** **CUPA Listings**
0.182 mi. **CERS**
961 ft. **Site 5 of 5 in cluster C** **HWTS**

Relative: Higher

Actual: 334 ft.

CERS HAZ WASTE:

Name:	MARTIN FEED INC
Address:	12838 WIBLE RD
City,State,Zip:	BAKERSFIELD, CA 93313
Site ID:	133176
CERS ID:	10232140
CERS Description:	Hazardous Waste Generator

CERS TANKS:

Name:	MARTIN FEED INC
Address:	12838 WIBLE RD
City,State,Zip:	BAKERSFIELD, CA 93313
Site ID:	133176
CERS ID:	10232140
CERS Description:	Aboveground Petroleum Storage

KERN CO CUPA:

Facility ID:	FA0001226
CERS ID:	10232140
Name:	MARTIN FEED INC
Address:	12838 WIBLE RD
Address 2:	Not reported
City,State,Zip:	BAKERSFIELD, CA
Billing Status:	Active, billable
Program Element:	BUS PLAN SMALL LOW RISK 1 UNIT
Program Element Code:	CB1T
HMIRRP Due Date:	3/31/2013
Current Inspection Date:	5/1/2023
Employee:	IWUCHUKWU
Mailing Address:	P.O. Box 78761
Mailing Address 2:	Not reported
Mailing City:	BAKERSFIELD
Mailing State:	CA

MARTIN FEED INC (Continued) **S121743052**

Mailing Zip: 93383

CERS:
Name: MARTIN FEED INC
Address: 12838 WIBLE RD
City,State,Zip: BAKERSFIELD, CA 93313
Site ID: 133176
CERS ID: 10232140
CERS Description: Chemical Storage Facilities

Violations:
Site ID: 133176
Site Name: MARTIN FEED INC
Violation Date: 02-25-2014
Citation: HSC 6.95 25505(a) - California Health and Safety Code, Chapter 6.95, Section(s) 25505(a)
Violation Description: Owner/Operator failed to complete and/or submit a Hazardous Materials Business Plan when storing hazardous materials at or above the thresholds quantities of 55 gallons/500 lbs/200 cubic feet.
Violation Notes: Returned to compliance on 03/07/2014. Failure to submit in CERS
Violation Division: Kern County Env Health Services Department
Violation Program: HMRRP
Violation Source: CERS,

Site ID: 133176
Site Name: MARTIN FEED INC
Violation Date: 06-11-2014
Citation: HSC 6.67 25270.4.5(a) - California Health and Safety Code, Chapter 6.67, Section(s) 25270.4.5(a)
Violation Description: Failure to maintain SPCC plan onsite (applies if facility is manned at least four (4) hours per day).
Violation Notes: Returned to compliance on 06/23/2014. The facility has not prepared an SPCC Plan. Please prepare a Tier I SPCC Plan and once completed, maintain a copy on site.
Violation Division: Kern County Env Health Services Department
Violation Program: APSA
Violation Source: CERS,

Site ID: 133176
Site Name: MARTIN FEED INC
Violation Date: 06-11-2014
Citation: HSC 6.67 25270.4.5(a) - California Health and Safety Code, Chapter 6.67, Section(s) 25270.4.5(a)
Violation Description: Failure to prepare and implement a Spill Prevention Control and Countermeasure (SPCC) Plan .
Violation Notes: Returned to compliance on 06/23/2014. The operator has not prepared an Spill Prevention Control and Countermeasure (SPCC) Plan. Please prepare a Tier I SPCC plan. A template is available at www.co.kern.ca.us
Violation Division: Kern County Env Health Services Department
Violation Program: APSA
Violation Source: CERS,

Evaluation:
Eval General Type: Compliance Evaluation Inspection
Eval Date: 05-26-2020
Violations Found: No

MARTIN FEED INC (Continued) **S121743052**

Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Kern County Env Health Services Department
Eval Program: APSA
Eval Source: CERS,

Eval General Type: Compliance Evaluation Inspection
Eval Date: 05-26-2020
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Kern County Env Health Services Department
Eval Program: HW
Eval Source: CERS,

Eval General Type: Other/Unknown
Eval Date: 06-02-2014
Violations Found: No
Eval Type: Other, not routine, done by local agency
Eval Notes: Not reported
Eval Division: Kern County Env Health Services Department
Eval Program: HW
Eval Source: CERS,

Eval General Type: Compliance Evaluation Inspection
Eval Date: 06-13-2017
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Kern County Env Health Services Department
Eval Program: HMRRP
Eval Source: CERS,

Eval General Type: Other/Unknown
Eval Date: 02-25-2014
Violations Found: Yes
Eval Type: Other, not routine, done by local agency
Eval Notes: Not reported
Eval Division: Kern County Env Health Services Department
Eval Program: HMRRP
Eval Source: CERS,

Eval General Type: Other/Unknown
Eval Date: 06-02-2014
Violations Found: No
Eval Type: Other, not routine, done by local agency
Eval Notes: Not reported
Eval Division: Kern County Env Health Services Department
Eval Program: APSA
Eval Source: CERS,

Eval General Type: Compliance Evaluation Inspection
Eval Date: 06-11-2014
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Kern County Env Health Services Department

MARTIN FEED INC (Continued) **S121743052**

Eval Program: HW
Eval Source: CERS,

Eval General Type: Compliance Evaluation Inspection
Eval Date: 05-26-2020
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Kern County Env Health Services Department
Eval Program: HMRRP
Eval Source: CERS,

Eval General Type: Other/Unknown
Eval Date: 06-02-2014
Violations Found: No
Eval Type: Other, not routine, done by local agency
Eval Notes: Not reported
Eval Division: Kern County Env Health Services Department
Eval Program: HMRRP
Eval Source: CERS,

Eval General Type: Compliance Evaluation Inspection
Eval Date: 06-11-2014
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Kern County Env Health Services Department
Eval Program: HMRRP
Eval Source: CERS,

Eval General Type: Compliance Evaluation Inspection
Eval Date: 06-11-2014
Violations Found: Yes
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Kern County Env Health Services Department
Eval Program: APSA
Eval Source: CERS,

Eval General Type: Compliance Evaluation Inspection
Eval Date: 06-13-2017
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Kern County Env Health Services Department
Eval Program: HW
Eval Source: CERS,

Eval General Type: Compliance Evaluation Inspection
Eval Date: 06-13-2017
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Kern County Env Health Services Department
Eval Program: APSA
Eval Source: CERS,

MARTIN FEED INC (Continued) **S121743052**

Enforcement Action:

Site ID:	133176
Site Name:	MARTIN FEED INC
Site Address:	12838 WIBLE RD
Site City:	BAKERSFIELD
Site Zip:	93313
Enf Action Date:	02-25-2014
Enf Action Type:	Notice of Violation (Unified Program)
Enf Action Description:	Notice of Violation Issued by the Inspector at the Time of Inspection
Enf Action Notes:	Not reported
Enf Action Division:	Kern County Env Health Services Department
Enf Action Program:	HMRRP
Enf Action Source:	CERS,

Site ID:	133176
Site Name:	MARTIN FEED INC
Site Address:	12838 WIBLE RD
Site City:	BAKERSFIELD
Site Zip:	93313
Enf Action Date:	06-11-2014
Enf Action Type:	Notice of Violation (Unified Program)
Enf Action Description:	Notice of Violation Issued by the Inspector at the Time of Inspection
Enf Action Notes:	Not reported
Enf Action Division:	Kern County Env Health Services Department
Enf Action Program:	APSA
Enf Action Source:	CERS,

Coordinates:

Site ID:	133176
Facility Name:	MARTIN FEED INC
Env Int Type Code:	HWG
Program ID:	10232140
Coord Name:	Not reported
Ref Point Type Desc:	Center of a facility or station.,
Latitude:	35.238460
Longitude:	-119.039010

Affiliation:

Affiliation Type Desc:	CUPA District
Entity Name:	Kern County Environmental Health Services Departme
Entity Title:	Not reported
Affiliation Address:	2700 M Street, Suite 300
Affiliation City:	Bakersfield
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	93301-2370
Affiliation Phone:	(661) 862-8740,

Affiliation Type Desc:	Environmental Contact
Entity Name:	TIM MARTIN
Entity Title:	Not reported
Affiliation Address:	12838 WIBLE RD
Affiliation City:	BAKERSFIELD
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	93313

MARTIN FEED INC (Continued) **S121743052**

Affiliation Phone: ,

Affiliation Type Desc: Identification Signer
Entity Name: TIM MARTIN
Entity Title: Owner
Affiliation Address: Not reported
Affiliation City: Not reported
Affiliation State: Not reported
Affiliation Country: Not reported
Affiliation Zip: Not reported
Affiliation Phone: ,

Affiliation Type Desc: Operator
Entity Name: TIM MARTIN
Entity Title: Not reported
Affiliation Address: Not reported
Affiliation City: Not reported
Affiliation State: Not reported
Affiliation Country: Not reported
Affiliation Zip: Not reported
Affiliation Phone: (661) 836-1497,

Affiliation Type Desc: Facility Mailing Address
Entity Name: Mailing Address
Entity Title: Not reported
Affiliation Address: P.O. Box 78761
Affiliation City: BAKERSFIELD
Affiliation State: CA
Affiliation Country: Not reported
Affiliation Zip: 93383
Affiliation Phone: ,

Affiliation Type Desc: Legal Owner
Entity Name: TIM MARTIN
Entity Title: Not reported
Affiliation Address: 12838 WIBLE RD
Affiliation City: BAKERSFIELD
Affiliation State: CA
Affiliation Country: United States
Affiliation Zip: 93313
Affiliation Phone: (661) 836-1497,

Affiliation Type Desc: Parent Corporation
Entity Name: MARTIN FEED INC
Entity Title: Not reported
Affiliation Address: Not reported
Affiliation City: Not reported
Affiliation State: Not reported
Affiliation Country: Not reported
Affiliation Zip: Not reported
Affiliation Phone: ,

HWTS:
Name: MARTIN FEED INC
Address: 12838 WIBLE RD
Address 2: Not reported

MARTIN FEED INC (Continued) **S121743052**

City,State,Zip: BAKERSFIELD, CA 93313
EPA ID: CAL000266960
Inactive Date: Not reported
Create Date: 02/27/2003
Last Act Date: Not reported
Mailing Name: Not reported
Mailing Address: P.O. BOX 78761
Mailing Address 2: Not reported
Mailing City,State,Zip: BAKERSFIELD, CA 933838761
Owner Name: TIM MARTIN FEED INC
Owner Address: 12838 WIBLE RD
Owner Address 2: Not reported
Owner City,State,Zip: BAKERSFIELD, CA 933130000
Contact Name: TIM MARTIN/PRESIDENT
Contact Address: 12838 WIBLE RD
Contact Address 2: Not reported
City,State,Zip: BAKERSFIELD, CA 93313
Facility Status: Active
Facility Type: PERMANENT
Category: STATE
Latitude: 35.219793
Longitude: -119.039183

NAICS:
EPA ID: CAL000266960
Create Date: 2003-02-27 08:29:26.077
NAICS Code: 112111
NAICS Description: Beef Cattle Ranching and Farming
Issued EPA ID Date: 2003-02-27 08:29:26.01300
Inactive Date: Not reported
Facility Name: MARTIN FEED INC
Facility Address: 12838 WIBLE RD
Facility Address 2: Not reported
Facility City: BAKERSFIELD
Facility County: Not reported
Facility State: CA
Facility Zip: 93313

EPA ID: CAL000266960
Create Date: 2016-09-09 14:21:19.807
NAICS Code: 311611
NAICS Description: Animal (except Poultry) Slaughtering
Issued EPA ID Date: 2003-02-27 08:29:26.01300
Inactive Date: Not reported
Facility Name: MARTIN FEED INC
Facility Address: 12838 WIBLE RD
Facility Address 2: Not reported
Facility City: BAKERSFIELD
Facility County: Not reported
Facility State: CA
Facility Zip: 93313

EPA ID: CAL000266960
Create Date: 2016-09-09 14:21:19.807
NAICS Code: 311611
NAICS Description: Animal (except Poultry) Slaughtering
Issued EPA ID Date: 2003-02-27 08:29:26.01300
Inactive Date: Not reported

MARTIN FEED INC (Continued) **S121743052**

Facility Name:	MARTIN FEED INC
Facility Address:	12838 WIBLE RD
Facility Address 2:	Not reported
Facility City:	BAKERSFIELD
Facility County:	Not reported
Facility State:	CA
Facility Zip:	93313
EPA ID:	CAL000266960
Create Date:	2016-09-09 14:21:19.807
NAICS Code:	311611
NAICS Description:	Animal (except Poultry) Slaughtering
Issued EPA ID Date:	2003-02-27 08:29:26.01300
Inactive Date:	Not reported
Facility Name:	MARTIN FEED INC
Facility Address:	12838 WIBLE RD
Facility Address 2:	Not reported
Facility City:	BAKERSFIELD
Facility County:	Not reported
Facility State:	CA
Facility Zip:	93313

12
SE
1/2-1
0.853 mi.
4502 ft.

30-ACRE SCHOOL SITE **ENVIROSTOR** **S105628431**
SHAFTER ROAD/SOUTH H STREET **SCH** **N/A**
BAKERSFIELD, CA 93313

Relative:
Lower

Actual:
323 ft.

ENVIROSTOR:

Name:	30-ACRE SCHOOL SITE
Address:	SHAFTER ROAD/SOUTH H STREET
City,State,Zip:	BAKERSFIELD, CA 93313
Facility ID:	15010017
Status:	No Further Action
Status Date:	05/15/2002
Site Code:	104189
Site Type:	School Investigation
Site Type Detailed:	School
Acres:	30
NPL:	NO
Regulatory Agencies:	SMBRP
Lead Agency:	SMBRP
Program Manager:	Not reported
Supervisor:	Juan Koponen
Division Branch:	Northern California Schools & Santa Susana
Assembly:	32
Senate:	14
Special Program:	Not reported
Restricted Use:	NO
Site Mgmt Req:	NONE SPECIFIED
Funding:	School District
Latitude:	35.2216
Longitude:	-119.0227
APN:	NONE SPECIFIED
Past Use:	AGRICULTURAL - ROW CROPS
Potential COC:	Arsenic Chlordane DDD DDE DDT Lead
Confirmed COC:	No Contaminants found

30-ACRE SCHOOL SITE (Continued) **S105628431**

Potential Description: SOIL
Alias Name: 30-ACRE SCHOOL SITE
Alias Type: Alternate Name
Alias Name: GENERAL SHAFTER ELEMENTARY SCHOOL DIST.
Alias Type: Alternate Name
Alias Name: SHAFTER GENERAL SD- SHAFTER RD & S H ST
Alias Type: Alternate Name
Alias Name: 104189
Alias Type: Project Code (Site Code)
Alias Name: 15010017
Alias Type: Envirostor ID Number

Completed Info:
Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Preliminary Endangerment Assessment Report
Completed Date: 05/15/2002
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: * Workplan
Completed Date: 06/01/2001
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Cost Recovery Closeout Memo
Completed Date: 06/26/2002
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Environmental Oversight Agreement
Completed Date: 02/20/2001
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Site Inspections/Visit (Non LUR)
Completed Date: 07/06/2001
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: * Public Participation
Completed Date: 03/21/2002
Comments: Not reported

Future Area Name: Not reported
Future Sub Area Name: Not reported
Future Document Type: Not reported
Future Due Date: Not reported
Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

30-ACRE SCHOOL SITE (Continued) **S105628431**

SCH:

Name:	30-ACRE SCHOOL SITE
Address:	SHAFTER ROAD/SOUTH H STREET
City,State,Zip:	BAKERSFIELD, CA 93313
Facility ID:	15010017
Site Type:	School Investigation
Site Type Detail:	School
Site Mgmt. Req.:	NONE SPECIFIED
Acres:	30
National Priorities List:	NO
Cleanup Oversight Agencies:	SMBRP
Lead Agency:	SMBRP
Lead Agency Description:	DTSC - Site Cleanup Program
Project Manager:	Not reported
Supervisor:	Juan Koponen
Division Branch:	Northern California Schools & Santa Susana
Site Code:	104189
Assembly:	32
Senate:	14
Special Program Status:	Not reported
Status:	No Further Action
Status Date:	05/15/2002
Restricted Use:	NO
Funding:	School District
Latitude:	35.2216
Longitude:	-119.0227
APN:	NONE SPECIFIED
Past Use:	AGRICULTURAL - ROW CROPS
Potential COC:	Arsenic, Arsenic, Chlordane, DDD, DDE, DDT, Lead
Confirmed COC:	No Contaminants found
Potential Description:	SOIL
Alias Name:	30-ACRE SCHOOL SITE
Alias Type:	Alternate Name
Alias Name:	GENERAL SHAFTER ELEMENTARY SCHOOL DIST.
Alias Type:	Alternate Name
Alias Name:	SHAFTER GENERAL SD- SHAFTER RD & S H ST
Alias Type:	Alternate Name
Alias Name:	104189
Alias Type:	Project Code (Site Code)
Alias Name:	15010017
Alias Type:	Envirostor ID Number

Completed Info:

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Preliminary Endangerment Assessment Report
Completed Date:	05/15/2002
Comments:	Not reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	* Workplan
Completed Date:	06/01/2001
Comments:	Not reported
Completed Area Name:	PROJECT WIDE

30-ACRE SCHOOL SITE (Continued) **S105628431**

Completed Sub Area Name:	Not reported
Completed Document Type:	Cost Recovery Closeout Memo
Completed Date:	06/26/2002
Comments:	Not reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Environmental Oversight Agreement
Completed Date:	02/20/2001
Comments:	Not reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Site Inspections/Visit (Non LUR)
Completed Date:	07/06/2001
Comments:	Not reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	* Public Participation
Completed Date:	03/21/2002
Comments:	Not reported
Future Area Name:	Not reported
Future Sub Area Name:	Not reported
Future Document Type:	Not reported
Future Due Date:	Not reported
Schedule Area Name:	Not reported
Schedule Sub Area Name:	Not reported
Schedule Document Type:	Not reported
Schedule Due Date:	Not reported
Schedule Revised Date:	Not reported

13
North
1/2-1
0.981 mi.
5178 ft.

KERN HSD - WIBLE / ENGLE HIGH SCHOOL **ENVIROSTOR** **S122495082**
SOUTHEAST OF WIBLE ROAD AND ENGLE ROAD **SCH** **N/A**
BAKERSFIELD, CA 93313

Relative: Higher

Actual: 343 ft.

ENVIROSTOR:

Name:	KERN HSD - WIBLE / ENGLE HIGH SCHOOL
Address:	SOUTHEAST OF WIBLE ROAD AND ENGLE ROAD
City,State,Zip:	BAKERSFIELD, CA 93313
Facility ID:	60002689
Status:	Inactive - Needs Evaluation
Status Date:	08/27/2020
Site Code:	104789
Site Type:	School Investigation
Site Type Detailed:	School
Acres:	120
NPL:	NO
Regulatory Agencies:	SMBRP
Lead Agency:	SMBRP
Program Manager:	Johnson Abraham
Supervisor:	Shahir Haddad
Division Branch:	Southern California Schools & Brownfields Outreach
Assembly:	, 34
Senate:	, 16

KERN HSD - WIBLE / ENGLE HIGH SCHOOL (Continued) **S122495082**

Special Program: Not reported
Restricted Use: NO
Site Mgmt Req: NONE SPECIFIED
Funding: School District
Latitude: 35.25196
Longitude: -119.0383
APN: NONE SPECIFIED
Past Use: AGRICULTURAL - LIVESTOCK, AGRICULTURAL - ORCHARD, FUEL - VEHICLE STORAGE/ REFUELING, VEHICLE MAINTENANCE
Potential COC: Arsenic DDD DDE DDT Dioxin (as 2,3,7,8-TCDD TEQ Lead Polychlorinated biphenyls (PCBs TPH-gas TPH-JET FUEL 1,1,1-Trichloroethane (TCA Trichloroethylene (TCE Polybrominated biphenyls
Confirmed COC: Arsenic DDD DDE DDT Lead Polychlorinated biphenyls (PCBs TPH-gas
Potential Description: SOIL
Alias Name: Proposed Southwest High School Site
Alias Type: Alternate Name
Alias Name: Wible Rd. & Engle Rd. School
Alias Type: Alternate Name
Alias Name: 104789
Alias Type: Project Code (Site Code)
Alias Name: 60002689
Alias Type: Envirostor ID Number

Completed Info:

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Environmental Oversight Agreement
Completed Date: 07/26/2018
Comments: Fully executed EOA sent to District.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 07/18/2018
Comments: REW finalized for EOA.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Site Inspections/Visit (Non LUR)
Completed Date: 09/11/2018
Comments: DTSC conducted a site visit.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Project Management
Completed Date: 06/30/2021
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Agreement Terminated Notification
Completed Date: 08/18/2020
Comments: PROJECT ON-HOLD BY DISTRICT FOR 6 MOS.

Completed Area Name: Southern 80 Acres
Completed Sub Area Name: Not reported
Completed Document Type: Supplemental Site Investigation Tech Memo
Completed Date: 04/18/2019

KERN HSD - WIBLE / ENGLE HIGH SCHOOL (Continued) **S122495082**

Comments: Not reported

Completed Area Name: Northern 40 Acres
Completed Sub Area Name: Not reported
Completed Document Type: Supplemental Site Investigation Workplan
Completed Date: 05/18/2020
Comments: Not reported

Completed Area Name: Southern 80 Acres
Completed Sub Area Name: Not reported
Completed Document Type: Supplemental Site Investigation Report
Completed Date: 11/15/2019
Comments: DTSC approved the SSI Report with a partial approval of the 80 acres a
Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Environmental Oversight Agreement Application
Completed Date: 07/10/2018
Comments: EOP Application and PEA Equivalent submitted 7/10/18.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Preliminary Endangerment Assessment Report
Completed Date: 10/10/2018
Comments: DTSC determined further action is required at the Site.

Completed Area Name: Northern 40 Acres
Completed Sub Area Name: Not reported
Completed Document Type: School Cleanup Agreement
Completed Date: 07/06/2020
Comments: DTSC and the District signed the SCA.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 03/28/2019
Comments: DTSC completed and mailed out.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 08/29/2019
Comments: DTSC prepared the Cost Estimate.

Future Area Name: Not reported
Future Sub Area Name: Not reported
Future Document Type: Not reported
Future Due Date: Not reported
Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

SCH:

KERN HSD - WIBLE / ENGLE HIGH SCHOOL (Continued) **S122495082**

Name:	KERN HSD - WIBLE / ENGLE HIGH SCHOOL
Address:	SOUTHEAST OF WIBLE ROAD AND ENGLE ROAD
City,State,Zip:	BAKERSFIELD, CA 93313
Facility ID:	60002689
Site Type:	School Investigation
Site Type Detail:	School
Site Mgmt. Req.:	NONE SPECIFIED
Acres:	120
National Priorities List:	NO
Cleanup Oversight Agencies:	SMBRP
Lead Agency:	SMBRP
Lead Agency Description:	DTSC - Site Cleanup Program
Project Manager:	Johnson Abraham
Supervisor:	Shahir Haddad
Division Branch:	Southern California Schools & Brownfields Outreach
Site Code:	104789
Assembly:	, 34
Senate:	, 16
Special Program Status:	Not reported
Status:	Inactive - Needs Evaluation
Status Date:	08/27/2020
Restricted Use:	NO
Funding:	School District
Latitude:	35.25196
Longitude:	-119.0383
APN:	NONE SPECIFIED
Past Use:	AGRICULTURAL - LIVESTOCK, AGRICULTURAL - ORCHARD, FUEL - VEHICLE STORAGE/ REFUELING, VEHICLE MAINTENANCE
Potential COC:	Arsenic, DDD, DDE, DDT, Dioxin (as 2,3,7,8-TCDD TEQ, Lead, Polychlorinated biphenyls (PCBs, TPH-gas, TPH-JET FUEL, 1,1,1-Trichloroethane (TCA, Trichloroethylene (TCE, Polybrominated biphenyls
Confirmed COC:	Arsenic, DDD, DDE, DDT, Lead, Polychlorinated biphenyls (PCBs, TPH-gas
Potential Description:	SOIL
Alias Name:	Proposed Southwest High School Site
Alias Type:	Alternate Name
Alias Name:	Wible Rd. & Engle Rd. School
Alias Type:	Alternate Name
Alias Name:	104789
Alias Type:	Project Code (Site Code)
Alias Name:	60002689
Alias Type:	Envirostor ID Number

Completed Info:

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Environmental Oversight Agreement
Completed Date:	07/26/2018
Comments:	Fully executed EOA sent to District.
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Annual Oversight Cost Estimate
Completed Date:	07/18/2018
Comments:	REW finalized for EOA.
Completed Area Name:	PROJECT WIDE

KERN HSD - WIBLE / ENGLE HIGH SCHOOL (Continued) **S122495082**

Completed Sub Area Name: Not reported
Completed Document Type: Site Inspections/Visit (Non LUR)
Completed Date: 09/11/2018
Comments: DTSC conducted a site visit.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Project Management
Completed Date: 06/30/2021
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Agreement Terminated Notification
Completed Date: 08/18/2020
Comments: PROJECT ON-HOLD BY DISTRICT FOR 6 MOS.

Completed Area Name: Southern 80 Acres
Completed Sub Area Name: Not reported
Completed Document Type: Supplemental Site Investigation Tech Memo
Completed Date: 04/18/2019
Comments: Not reported

Completed Area Name: Northern 40 Acres
Completed Sub Area Name: Not reported
Completed Document Type: Supplemental Site Investigation Workplan
Completed Date: 05/18/2020
Comments: Not reported

Completed Area Name: Southern 80 Acres
Completed Sub Area Name: Not reported
Completed Document Type: Supplemental Site Investigation Report
Completed Date: 11/15/2019
Comments: DTSC approved the SSI Report with a partial approval of the 80 acres a
Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Environmental Oversight Agreement Application
Completed Date: 07/10/2018
Comments: EOP Application and PEA Equivalent submitted 7/10/18.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Preliminary Endangerment Assessment Report
Completed Date: 10/10/2018
Comments: DTSC determined further action is required at the Site.

Completed Area Name: Northern 40 Acres
Completed Sub Area Name: Not reported
Completed Document Type: School Cleanup Agreement
Completed Date: 07/06/2020
Comments: DTSC and the District signed the SCA.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate

KERN HSD - WIBLE / ENGLE HIGH SCHOOL (Continued) **S122495082**

Completed Date:	03/28/2019
Comments:	DTSC completed and mailed out.
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Annual Oversight Cost Estimate
Completed Date:	08/29/2019
Comments:	DTSC prepared the Cost Estimate.
Future Area Name:	Not reported
Future Sub Area Name:	Not reported
Future Document Type:	Not reported
Future Due Date:	Not reported
Schedule Area Name:	Not reported
Schedule Sub Area Name:	Not reported
Schedule Document Type:	Not reported
Schedule Due Date:	Not reported
Schedule Revised Date:	Not reported

Count: 0 records.

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
		NO SITES FOUND			

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Lists of Federal NPL (Superfund) sites

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 04/26/2023
Date Data Arrived at EDR: 05/02/2023
Date Made Active in Reports: 05/17/2023
Number of Days to Update: 15

Source: EPA
Telephone: N/A
Last EDR Contact: 05/02/2023
Next Scheduled EDR Contact: 07/10/2023
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 7
Telephone: 913-551-7247

EPA Region 4
Telephone 404-562-8033

EPA Region 8
Telephone: 303-312-6774

EPA Region 5
Telephone 312-886-6686

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 04/26/2023
Date Data Arrived at EDR: 05/02/2023
Date Made Active in Reports: 05/17/2023
Number of Days to Update: 15

Source: EPA
Telephone: N/A
Last EDR Contact: 05/02/2023
Next Scheduled EDR Contact: 07/10/2023
Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

Lists of Federal Delisted NPL sites

Delisted NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 04/26/2023
Date Data Arrived at EDR: 05/02/2023
Date Made Active in Reports: 05/17/2023
Number of Days to Update: 15

Source: EPA
Telephone: N/A
Last EDR Contact: 05/02/2023
Next Scheduled EDR Contact: 07/10/2023
Data Release Frequency: Quarterly

Lists of Federal sites subject to CERCLA removals and CERCLA orders

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 12/20/2022
Date Data Arrived at EDR: 12/21/2022
Date Made Active in Reports: 03/10/2023
Number of Days to Update: 79

Source: Environmental Protection Agency
Telephone: 703-603-8704
Last EDR Contact: 03/28/2023
Next Scheduled EDR Contact: 07/10/2023
Data Release Frequency: Varies

SEMS: Superfund Enterprise Management System

SEMS (Superfund Enterprise Management System) tracks hazardous waste sites, potentially hazardous waste sites, and remedial activities performed in support of EPA's Superfund Program across the United States. The list was formerly know as CERCLIS, renamed to SEMS by the EPA in 2015. The list contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This dataset also contains sites which are either proposed to or on the National Priorities List (NPL) and the sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 04/26/2023
Date Data Arrived at EDR: 05/02/2023
Date Made Active in Reports: 05/17/2023
Number of Days to Update: 15

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 05/02/2023
Next Scheduled EDR Contact: 07/24/2023
Data Release Frequency: Quarterly

Lists of Federal CERCLA sites with NFRAP

SEMS-ARCHIVE: Superfund Enterprise Management System Archive

SEMS-ARCHIVE (Superfund Enterprise Management System Archive) tracks sites that have no further interest under the Federal Superfund Program based on available information. The list was formerly known as the CERCLIS-NFRAP, renamed to SEMS ARCHIVE by the EPA in 2015. EPA may perform a minimal level of assessment work at a site while it is archived if site conditions change and/or new information becomes available. Archived sites have been removed and archived from the inventory of SEMS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list the site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. The decision does not necessarily mean that there is no hazard associated with a given site; it only means that. based upon available information, the location is not judged to be potential NPL site.

Date of Government Version: 04/26/2023
Date Data Arrived at EDR: 05/02/2023
Date Made Active in Reports: 05/17/2023
Number of Days to Update: 15

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 05/02/2023
Next Scheduled EDR Contact: 07/24/2023
Data Release Frequency: Quarterly

Lists of Federal RCRA facilities undergoing Corrective Action

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 03/06/2023
Date Data Arrived at EDR: 03/09/2023
Date Made Active in Reports: 03/20/2023
Number of Days to Update: 11

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 03/09/2023
Next Scheduled EDR Contact: 07/03/2023
Data Release Frequency: Quarterly

Lists of Federal RCRA TSD facilities

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 03/06/2023
Date Data Arrived at EDR: 03/09/2023
Date Made Active in Reports: 03/20/2023
Number of Days to Update: 11

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 03/09/2023
Next Scheduled EDR Contact: 07/03/2023
Data Release Frequency: Quarterly

Lists of Federal RCRA generators

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 03/06/2023
Date Data Arrived at EDR: 03/09/2023
Date Made Active in Reports: 03/20/2023
Number of Days to Update: 11

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 03/09/2023
Next Scheduled EDR Contact: 07/03/2023
Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 03/06/2023
Date Data Arrived at EDR: 03/09/2023
Date Made Active in Reports: 03/20/2023
Number of Days to Update: 11

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 03/09/2023
Next Scheduled EDR Contact: 07/03/2023
Data Release Frequency: Quarterly

RCRA-VSQG: RCRA - Very Small Quantity Generators (Formerly Conditionally Exempt Small Quantity Generators)

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Very small quantity generators (VSQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 03/06/2023
Date Data Arrived at EDR: 03/09/2023
Date Made Active in Reports: 03/20/2023
Number of Days to Update: 11

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 03/09/2023
Next Scheduled EDR Contact: 07/03/2023
Data Release Frequency: Quarterly

Federal institutional controls / engineering controls registries

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 02/08/2023
Date Data Arrived at EDR: 02/09/2023
Date Made Active in Reports: 05/02/2023
Number of Days to Update: 82

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 05/03/2023
Next Scheduled EDR Contact: 08/21/2023
Data Release Frequency: Varies

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 02/20/2023
Date Data Arrived at EDR: 02/21/2023
Date Made Active in Reports: 05/02/2023
Number of Days to Update: 70

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 02/21/2023
Next Scheduled EDR Contact: 06/05/2023
Data Release Frequency: Varies

US INST CONTROLS: Institutional Controls Sites List

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 02/20/2023
Date Data Arrived at EDR: 02/21/2023
Date Made Active in Reports: 05/02/2023
Number of Days to Update: 70

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 02/21/2023
Next Scheduled EDR Contact: 06/05/2023
Data Release Frequency: Varies

Federal ERNS list

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 12/12/2022
Date Data Arrived at EDR: 12/14/2022
Date Made Active in Reports: 12/19/2022
Number of Days to Update: 5

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 03/21/2023
Next Scheduled EDR Contact: 07/03/2023
Data Release Frequency: Quarterly

Lists of state- and tribal (Superfund) equivalent sites

RESPONSE: State Response Sites

Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk.

Date of Government Version: 01/23/2023
Date Data Arrived at EDR: 01/24/2023
Date Made Active in Reports: 04/10/2023
Number of Days to Update: 76

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 04/25/2023
Next Scheduled EDR Contact: 08/07/2023
Data Release Frequency: Quarterly

Lists of state- and tribal hazardous waste facilities

ENVIROSTOR: EnviroStor Database

The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

Date of Government Version: 01/23/2023
Date Data Arrived at EDR: 01/24/2023
Date Made Active in Reports: 04/10/2023
Number of Days to Update: 76

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 04/25/2023
Next Scheduled EDR Contact: 08/07/2023
Data Release Frequency: Quarterly

Lists of state and tribal landfills and solid waste disposal facilities

SWF/LF (SWIS): Solid Waste Information System

Active, Closed and Inactive Landfills. SWF/LF records typically contain an inve ntory of solid waste disposal facilities or landfills. These may be active or i nactive facilities or open dumps that failed to meet RCRA Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 02/06/2023
Date Data Arrived at EDR: 02/07/2023
Date Made Active in Reports: 04/26/2023
Number of Days to Update: 78

Source: Department of Resources Recycling and Recovery
Telephone: 916-341-6320
Last EDR Contact: 05/08/2023
Next Scheduled EDR Contact: 08/21/2023
Data Release Frequency: Quarterly

Lists of state and tribal leaking storage tanks

LUST REG 4: Underground Storage Tank Leak List

Los Angeles, Ventura counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6710
Last EDR Contact: 09/06/2011
Next Scheduled EDR Contact: 12/19/2011
Data Release Frequency: No Update Planned

LUST REG 5: Leaking Underground Storage Tank Database

Leaking Underground Storage Tank locations. Alameda, Alpine, Amador, Butte, Colusa, Contra Costa, Calveras, El Dorado, Fresno, Glenn, Kern, Kings, Lake, Lassen, Madera, Mariposa, Merced, Modoc, Napa, Nevada, Placer, Plumas, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Tuolumne, Yolo, Yuba counties.

Date of Government Version: 07/01/2008
Date Data Arrived at EDR: 07/22/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 9

Source: California Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-4834
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: No Update Planned

LUST REG 7: Leaking Underground Storage Tank Case Listing

Leaking Underground Storage Tank locations. Imperial, Riverside, San Diego, Santa Barbara counties.

Date of Government Version: 02/26/2004
Date Data Arrived at EDR: 02/26/2004
Date Made Active in Reports: 03/24/2004
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Colorado River Basin Region (7)
Telephone: 760-776-8943
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST REG 8: Leaking Underground Storage Tanks

California Regional Water Quality Control Board Santa Ana Region (8). For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/14/2005
Date Data Arrived at EDR: 02/15/2005
Date Made Active in Reports: 03/28/2005
Number of Days to Update: 41

Source: California Regional Water Quality Control Board Santa Ana Region (8)
Telephone: 909-782-4496
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

LUST REG 3: Leaking Underground Storage Tank Database

Leaking Underground Storage Tank locations. Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz counties.

Date of Government Version: 05/19/2003
Date Data Arrived at EDR: 05/19/2003
Date Made Active in Reports: 06/02/2003
Number of Days to Update: 14

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-542-4786
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: No Update Planned

LUST REG 2: Fuel Leak List

Leaking Underground Storage Tank locations. Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma counties.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: California Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-622-2433
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: No Update Planned

LUST REG 1: Active Toxic Site Investigation

Del Norte, Humboldt, Lake, Mendocino, Modoc, Siskiyou, Sonoma, Trinity counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/01/2001
Date Data Arrived at EDR: 02/28/2001
Date Made Active in Reports: 03/29/2001
Number of Days to Update: 29

Source: California Regional Water Quality Control Board North Coast (1)
Telephone: 707-570-3769
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST REG 6V: Leaking Underground Storage Tank Case Listing

Leaking Underground Storage Tank locations. Inyo, Kern, Los Angeles, Mono, San Bernardino counties.

Date of Government Version: 06/07/2005
Date Data Arrived at EDR: 06/07/2005
Date Made Active in Reports: 06/29/2005
Number of Days to Update: 22

Source: California Regional Water Quality Control Board Victorville Branch Office (6)
Telephone: 760-241-7365
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST: Leaking Underground Fuel Tank Report (GEOTRACKER)

Leaking Underground Storage Tank (LUST) Sites included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 03/06/2023
Date Data Arrived at EDR: 03/07/2023
Date Made Active in Reports: 03/30/2023
Number of Days to Update: 23

Source: State Water Resources Control Board
Telephone: see region list
Last EDR Contact: 03/07/2023
Next Scheduled EDR Contact: 06/19/2023
Data Release Frequency: Quarterly

LUST REG 6L: Leaking Underground Storage Tank Case Listing

For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/09/2003
Date Data Arrived at EDR: 09/10/2003
Date Made Active in Reports: 10/07/2003
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Lahontan Region (6)
Telephone: 530-542-5572
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST REG 9: Leaking Underground Storage Tank Report

Orange, Riverside, San Diego counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 03/01/2001
Date Data Arrived at EDR: 04/23/2001
Date Made Active in Reports: 05/21/2001
Number of Days to Update: 28

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-637-5595
Last EDR Contact: 09/26/2011
Next Scheduled EDR Contact: 01/09/2012
Data Release Frequency: No Update Planned

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 11/23/2022
Date Data Arrived at EDR: 12/06/2022
Date Made Active in Reports: 03/03/2023
Number of Days to Update: 87

Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 05/09/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Varies

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 10/14/2022
Date Data Arrived at EDR: 12/06/2022
Date Made Active in Reports: 03/03/2023
Number of Days to Update: 87

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 05/09/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Varies

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 11/23/2022
Date Data Arrived at EDR: 12/06/2022
Date Made Active in Reports: 03/03/2023
Number of Days to Update: 87

Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 05/08/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Varies

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 11/23/2022
Date Data Arrived at EDR: 12/06/2022
Date Made Active in Reports: 03/03/2023
Number of Days to Update: 87

Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 05/09/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Varies

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 11/26/2022
Date Data Arrived at EDR: 12/06/2022
Date Made Active in Reports: 03/03/2023
Number of Days to Update: 87

Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 05/09/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Varies

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 10/19/2022
Date Data Arrived at EDR: 12/06/2022
Date Made Active in Reports: 03/03/2023
Number of Days to Update: 87

Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 05/09/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Varies

INDIAN LUST R5: Leaking Underground Storage Tanks on Indian Land
Leaking underground storage tanks located on Indian Land in Michigan, Minnesota and Wisconsin.

Date of Government Version: 10/14/2022
Date Data Arrived at EDR: 12/06/2022
Date Made Active in Reports: 03/03/2023
Number of Days to Update: 87

Source: EPA, Region 5
Telephone: 312-886-7439
Last EDR Contact: 05/09/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Varies

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 11/23/2022
Date Data Arrived at EDR: 12/06/2022
Date Made Active in Reports: 04/19/2023
Number of Days to Update: 134

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 05/09/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Varies

CPS-SLIC: Statewide SLIC Cases (GEOTRACKER)

Cleanup Program Sites (CPS; also known as Site Cleanups [SC] and formerly known as Spills, Leaks, Investigations, and Cleanups [SLIC] sites) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 03/06/2023
Date Data Arrived at EDR: 03/07/2023
Date Made Active in Reports: 03/31/2023
Number of Days to Update: 24

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/07/2023
Next Scheduled EDR Contact: 06/19/2023
Data Release Frequency: Varies

SLIC REG 1: Active Toxic Site Investigations

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2003
Date Data Arrived at EDR: 04/07/2003
Date Made Active in Reports: 04/25/2003
Number of Days to Update: 18

Source: California Regional Water Quality Control Board, North Coast Region (1)
Telephone: 707-576-2220
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 2: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-286-0457
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: No Update Planned

SLIC REG 3: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/18/2006
Date Data Arrived at EDR: 05/18/2006
Date Made Active in Reports: 06/15/2006
Number of Days to Update: 28

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-549-3147
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: No Update Planned

SLIC REG 4: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/17/2004
Date Data Arrived at EDR: 11/18/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 47

Source: Region Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6600
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: No Update Planned

SLIC REG 5: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/01/2005
Date Data Arrived at EDR: 04/05/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 16

Source: Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-3291
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

SLIC REG 6V: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/24/2005
Date Data Arrived at EDR: 05/25/2005
Date Made Active in Reports: 06/16/2005
Number of Days to Update: 22

Source: Regional Water Quality Control Board, Victorville Branch
Telephone: 619-241-6583
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

SLIC REG 6L: SLIC Sites
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board, Lahontan Region
Telephone: 530-542-5574
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

SLIC REG 7: SLIC List
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/24/2004
Date Data Arrived at EDR: 11/29/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 36

Source: California Regional Quality Control Board, Colorado River Basin Region
Telephone: 760-346-7491
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 8: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2008
Date Data Arrived at EDR: 04/03/2008
Date Made Active in Reports: 04/14/2008
Number of Days to Update: 11

Source: California Region Water Quality Control Board Santa Ana Region (8)
Telephone: 951-782-3298
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

SLIC REG 9: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/10/2007
Date Data Arrived at EDR: 09/11/2007
Date Made Active in Reports: 09/28/2007
Number of Days to Update: 17

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-467-2980
Last EDR Contact: 08/08/2011
Next Scheduled EDR Contact: 11/21/2011
Data Release Frequency: No Update Planned

Lists of state and tribal registered storage tanks

FEMA UST: Underground Storage Tank Listing
A listing of all FEMA owned underground storage tanks.

Date of Government Version: 10/14/2021
Date Data Arrived at EDR: 11/05/2021
Date Made Active in Reports: 02/01/2022
Number of Days to Update: 88

Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 03/29/2023
Next Scheduled EDR Contact: 07/17/2023
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

UST: Active UST Facilities
Active UST facilities gathered from the local regulatory agencies

Date of Government Version: 12/02/2022
Date Data Arrived at EDR: 12/02/2022
Date Made Active in Reports: 02/22/2023
Number of Days to Update: 82
Source: SWRCB
Telephone: 916-341-5851
Last EDR Contact: 03/07/2023
Next Scheduled EDR Contact: 06/19/2023
Data Release Frequency: Semi-Annually

UST CLOSURE: Proposed Closure of Underground Storage Tank (UST) Cases
UST cases that are being considered for closure by either the State Water Resources Control Board or the Executive Director have been posted for a 60-day public comment period. UST Case Closures being proposed for consideration by the State Water Resources Control Board. These are primarily UST cases that meet closure criteria under the decisional framework in State Water Board Resolution No. 92-49 and other Board orders. UST Case Closures proposed for consideration by the Executive Director pursuant to State Water Board Resolution No. 2012-0061. These are cases that meet the criteria of the Low-Threat UST Case Closure Policy. UST Case Closure Review Denials and Approved Orders.

Date of Government Version: 11/28/2022
Date Data Arrived at EDR: 12/02/2022
Date Made Active in Reports: 02/23/2023
Number of Days to Update: 83
Source: State Water Resources Control Board
Telephone: 916-327-7844
Last EDR Contact: 03/07/2023
Next Scheduled EDR Contact: 06/19/2023
Data Release Frequency: Varies

MILITARY UST SITES: Military UST Sites (GEOTRACKER)
Military ust sites

Date of Government Version: 03/06/2023
Date Data Arrived at EDR: 03/07/2023
Date Made Active in Reports: 03/31/2023
Number of Days to Update: 24
Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/07/2023
Next Scheduled EDR Contact: 06/19/2023
Data Release Frequency: Varies

AST: Aboveground Petroleum Storage Tank Facilities
A listing of aboveground storage tank petroleum storage tank locations.

Date of Government Version: 07/06/2016
Date Data Arrived at EDR: 07/12/2016
Date Made Active in Reports: 09/19/2016
Number of Days to Update: 69
Source: California Environmental Protection Agency
Telephone: 916-327-5092
Last EDR Contact: 03/09/2023
Next Scheduled EDR Contact: 06/26/2023
Data Release Frequency: Varies

INDIAN UST R6: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 11/23/2022
Date Data Arrived at EDR: 12/06/2022
Date Made Active in Reports: 03/03/2023
Number of Days to Update: 87
Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 05/09/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Varies

INDIAN UST R5: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 10/14/2022
Date Data Arrived at EDR: 12/06/2022
Date Made Active in Reports: 03/03/2023
Number of Days to Update: 87
Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 05/09/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Varies

INDIAN UST R1: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 10/19/2022
Date Data Arrived at EDR: 12/06/2022
Date Made Active in Reports: 03/03/2023
Number of Days to Update: 87

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 05/09/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Varies

INDIAN UST R8: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 11/23/2022
Date Data Arrived at EDR: 12/06/2022
Date Made Active in Reports: 03/03/2023
Number of Days to Update: 87

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 05/09/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Varies

INDIAN UST R9: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 11/23/2022
Date Data Arrived at EDR: 12/06/2022
Date Made Active in Reports: 03/03/2023
Number of Days to Update: 87

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 05/09/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Varies

INDIAN UST R4: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 11/23/2022
Date Data Arrived at EDR: 12/06/2022
Date Made Active in Reports: 03/03/2023
Number of Days to Update: 87

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 05/09/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Varies

INDIAN UST R10: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 11/23/2022
Date Data Arrived at EDR: 12/06/2022
Date Made Active in Reports: 04/19/2023
Number of Days to Update: 134

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 05/09/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Varies

INDIAN UST R7: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 10/14/2022
Date Data Arrived at EDR: 12/06/2022
Date Made Active in Reports: 03/03/2023
Number of Days to Update: 87

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 05/09/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Varies

Lists of state and tribal voluntary cleanup sites

INDIAN VCP R7: Voluntary Cleanup Priority Lisitng
A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27
Source: EPA, Region 7
Telephone: 913-551-7365
Last EDR Contact: 07/08/2021
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

VCP: Voluntary Cleanup Program Properties
Contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs.

Date of Government Version: 01/23/2023
Date Data Arrived at EDR: 01/24/2023
Date Made Active in Reports: 04/10/2023
Number of Days to Update: 76
Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 04/25/2023
Next Scheduled EDR Contact: 08/07/2023
Data Release Frequency: Quarterly

INDIAN VCP R1: Voluntary Cleanup Priority Listing
A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 07/27/2015
Date Data Arrived at EDR: 09/29/2015
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 142
Source: EPA, Region 1
Telephone: 617-918-1102
Last EDR Contact: 03/17/2023
Next Scheduled EDR Contact: 07/03/2023
Data Release Frequency: Varies

Lists of state and tribal brownfield sites

BROWNFIELDS: Considered Brownfieds Sites Listing
A listing of sites the SWRCB considers to be Brownfields since these are sites have come to them through the MOA Process.

Date of Government Version: 12/14/2022
Date Data Arrived at EDR: 12/14/2022
Date Made Active in Reports: 03/07/2023
Number of Days to Update: 83
Source: State Water Resources Control Board
Telephone: 916-323-7905
Last EDR Contact: 03/21/2023
Next Scheduled EDR Contact: 07/03/2023
Data Release Frequency: Quarterly

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites
Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 04/06/2023
Date Data Arrived at EDR: 04/13/2023
Date Made Active in Reports: 04/19/2023
Number of Days to Update: 6
Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 04/06/2023
Next Scheduled EDR Contact: 06/26/2023
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

WMUDS/SWAT: Waste Management Unit Database

Waste Management Unit Database System. WMUDS is used by the State Water Resources Control Board staff and the Regional Water Quality Control Boards for program tracking and inventory of waste management units. WMUDS is composed of the following databases: Facility Information, Scheduled Inspections Information, Waste Management Unit Information, SWAT Program Information, SWAT Report Summary Information, SWAT Report Summary Data, Chapter 15 (formerly Subchapter 15) Information, Chapter 15 Monitoring Parameters, TPCA Program Information, RCRA Program Information, Closure Information, and Interested Parties Information.

Date of Government Version: 04/01/2000
Date Data Arrived at EDR: 04/10/2000
Date Made Active in Reports: 05/10/2000
Number of Days to Update: 30

Source: State Water Resources Control Board
Telephone: 916-227-4448
Last EDR Contact: 04/19/2023
Next Scheduled EDR Contact: 08/07/2023
Data Release Frequency: No Update Planned

SWRCY: Recycler Database

A listing of recycling facilities in California.

Date of Government Version: 12/02/2022
Date Data Arrived at EDR: 12/02/2022
Date Made Active in Reports: 02/22/2023
Number of Days to Update: 82

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 03/07/2023
Next Scheduled EDR Contact: 06/19/2023
Data Release Frequency: Quarterly

HAULERS: Registered Waste Tire Haulers Listing

A listing of registered waste tire haulers.

Date of Government Version: 11/16/2022
Date Data Arrived at EDR: 11/22/2022
Date Made Active in Reports: 02/13/2023
Number of Days to Update: 83

Source: Integrated Waste Management Board
Telephone: 916-341-6422
Last EDR Contact: 05/17/2023
Next Scheduled EDR Contact: 08/21/2023
Data Release Frequency: Varies

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands

Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52

Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 04/19/2023
Next Scheduled EDR Contact: 08/07/2023
Data Release Frequency: Varies

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations

A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137

Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 04/12/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: No Update Planned

ODI: Open Dump Inventory

An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

IHS OPEN DUMPS: Open Dumps on Indian Land
A listing of all open dumps located on Indian Land in the United States.

Date of Government Version: 04/01/2014
Date Data Arrived at EDR: 08/06/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 176
Source: Department of Health & Human Serivces, Indian Health Service
Telephone: 301-443-1452
Last EDR Contact: 04/27/2023
Next Scheduled EDR Contact: 08/07/2023
Data Release Frequency: Varies

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL: National Clandestine Laboratory Register
A listing of clandestine drug lab locations that have been removed from the DEAs National Clandestine Laboratory Register.

Date of Government Version: 01/06/2023
Date Data Arrived at EDR: 02/02/2023
Date Made Active in Reports: 02/10/2023
Number of Days to Update: 8
Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 02/02/2023
Next Scheduled EDR Contact: 06/05/2023
Data Release Frequency: No Update Planned

HIST CAL-SITES: Calsites Database
The Calsites database contains potential or confirmed hazardous substance release properties. In 1996, California EPA reevaluated and significantly reduced the number of sites in the Calsites database. No longer updated by the state agency. It has been replaced by ENVIROSTOR.

Date of Government Version: 08/08/2005
Date Data Arrived at EDR: 08/03/2006
Date Made Active in Reports: 08/24/2006
Number of Days to Update: 21
Source: Department of Toxic Substance Control
Telephone: 916-323-3400
Last EDR Contact: 02/23/2009
Next Scheduled EDR Contact: 05/25/2009
Data Release Frequency: No Update Planned

SCH: School Property Evaluation Program
This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category depending on the level of threat to public health and safety or the environment they pose.

Date of Government Version: 01/23/2023
Date Data Arrived at EDR: 01/24/2023
Date Made Active in Reports: 04/10/2023
Number of Days to Update: 76
Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 04/25/2023
Next Scheduled EDR Contact: 08/07/2023
Data Release Frequency: Quarterly

CDL: Clandestine Drug Labs
A listing of drug lab locations. Listing of a location in this database does not indicate that any illegal drug lab materials were or were not present there, and does not constitute a determination that the location either requires or does not require additional cleanup work.

Date of Government Version: 12/31/2020
Date Data Arrived at EDR: 11/30/2022
Date Made Active in Reports: 02/09/2023
Number of Days to Update: 71
Source: Department of Toxic Substances Control
Telephone: 916-255-6504
Last EDR Contact: 05/10/2023
Next Scheduled EDR Contact: 08/14/2023
Data Release Frequency: Varies

TOXIC PITS: Toxic Pits Cleanup Act Sites
Toxic PITS Cleanup Act Sites. TOXIC PITS identifies sites suspected of containing hazardous substances where cleanup has not yet been completed.

Date of Government Version: 07/01/1995
Date Data Arrived at EDR: 08/30/1995
Date Made Active in Reports: 09/26/1995
Number of Days to Update: 27
Source: State Water Resources Control Board
Telephone: 916-227-4364
Last EDR Contact: 01/26/2009
Next Scheduled EDR Contact: 04/27/2009
Data Release Frequency: No Update Planned

CERS HAZ WASTE: CERS HAZ WASTE

List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the Hazardous Chemical Management, Hazardous Waste Onsite Treatment, Household Hazardous Waste Collection, Hazardous Waste Generator, and RCRA LQ HW Generator programs.

Date of Government Version: 01/05/2023
Date Data Arrived at EDR: 01/06/2023
Date Made Active in Reports: 01/11/2023
Number of Days to Update: 5

Source: CalEPA
Telephone: 916-323-2514
Last EDR Contact: 04/18/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Quarterly

US CDL: Clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 01/06/2023
Date Data Arrived at EDR: 02/02/2023
Date Made Active in Reports: 02/10/2023
Number of Days to Update: 8

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 02/02/2023
Next Scheduled EDR Contact: 06/05/2023
Data Release Frequency: Quarterly

Local Lists of Registered Storage Tanks

SWEEPS UST: SWEEPS UST Listing

Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

Date of Government Version: 06/01/1994
Date Data Arrived at EDR: 07/07/2005
Date Made Active in Reports: 08/11/2005
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/03/2005
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

HIST UST: Hazardous Substance Storage Container Database

The Hazardous Substance Storage Container Database is a historical listing of UST sites. Refer to local/county source for current data.

Date of Government Version: 10/15/1990
Date Data Arrived at EDR: 01/25/1991
Date Made Active in Reports: 02/12/1991
Number of Days to Update: 18

Source: State Water Resources Control Board
Telephone: 916-341-5851
Last EDR Contact: 07/26/2001
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SAN FRANCISCO AST: Aboveground Storage Tank Site Listing

Aboveground storage tank sites

Date of Government Version: 02/03/2023
Date Data Arrived at EDR: 02/07/2023
Date Made Active in Reports: 04/25/2023
Number of Days to Update: 77

Source: San Francisco County Department of Public Health
Telephone: 415-252-3896
Last EDR Contact: 04/26/2023
Next Scheduled EDR Contact: 08/14/2023
Data Release Frequency: Varies

CERS TANKS: California Environmental Reporting System (CERS) Tanks

List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the Aboveground Petroleum Storage and Underground Storage Tank regulatory programs.

Date of Government Version: 01/06/2023
Date Data Arrived at EDR: 01/06/2023
Date Made Active in Reports: 01/11/2023
Number of Days to Update: 5

Source: California Environmental Protection Agency
Telephone: 916-323-2514
Last EDR Contact: 04/18/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Quarterly

CA FID UST: Facility Inventory Database

The Facility Inventory Database (FID) contains a historical listing of active and inactive underground storage tank locations from the State Water Resource Control Board. Refer to local/county source for current data.

Date of Government Version: 10/31/1994
Date Data Arrived at EDR: 09/05/1995
Date Made Active in Reports: 09/29/1995
Number of Days to Update: 24

Source: California Environmental Protection Agency
Telephone: 916-341-5851
Last EDR Contact: 12/28/1998
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Local Land Records

LIENS: Environmental Liens Listing

A listing of property locations with environmental liens for California where DTSC is a lien holder.

Date of Government Version: 02/23/2023
Date Data Arrived at EDR: 02/24/2023
Date Made Active in Reports: 03/23/2023
Number of Days to Update: 27

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 02/23/2023
Next Scheduled EDR Contact: 06/12/2023
Data Release Frequency: Varies

LIENS 2: CERCLA Lien Information

A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 04/26/2023
Date Data Arrived at EDR: 05/02/2023
Date Made Active in Reports: 05/17/2023
Number of Days to Update: 15

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 05/02/2023
Next Scheduled EDR Contact: 07/10/2023
Data Release Frequency: Semi-Annually

DEED: Deed Restriction Listing

Site Mitigation and Brownfields Reuse Program Facility Sites with Deed Restrictions & Hazardous Waste Management Program Facility Sites with Deed / Land Use Restriction. The DTSC Site Mitigation and Brownfields Reuse Program (SMBRP) list includes sites cleaned up under the program's oversight and generally does not include current or former hazardous waste facilities that required a hazardous waste facility permit. The list represents deed restrictions that are active. Some sites have multiple deed restrictions. The DTSC Hazardous Waste Management Program (HWMP) has developed a list of current or former hazardous waste facilities that have a recorded land use restriction at the local county recorder's office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain on site after the facility (or part of the facility) has been closed or cleaned up. The types of land use restriction include deed notice, deed restriction, or a land use restriction that binds current and future owners.

Date of Government Version: 02/27/2023
Date Data Arrived at EDR: 02/28/2023
Date Made Active in Reports: 05/17/2023
Number of Days to Update: 78

Source: DTSC and SWRCB
Telephone: 916-323-3400
Last EDR Contact: 02/28/2023
Next Scheduled EDR Contact: 06/12/2023
Data Release Frequency: Semi-Annually

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System
Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 12/13/2022
Date Data Arrived at EDR: 12/14/2022
Date Made Active in Reports: 03/10/2023
Number of Days to Update: 86
Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 03/21/2023
Next Scheduled EDR Contact: 07/03/2023
Data Release Frequency: Quarterly

CHMIRS: California Hazardous Material Incident Report System
California Hazardous Material Incident Reporting System. CHMIRS contains information on reported hazardous material incidents (accidental releases or spills).

Date of Government Version: 08/02/2022
Date Data Arrived at EDR: 10/17/2022
Date Made Active in Reports: 01/04/2023
Number of Days to Update: 79
Source: Office of Emergency Services
Telephone: 916-845-8400
Last EDR Contact: 04/20/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Semi-Annually

LDS: Land Disposal Sites Listing (GEOTRACKER)
Land Disposal sites (Landfills) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 03/06/2023
Date Data Arrived at EDR: 03/07/2023
Date Made Active in Reports: 03/30/2023
Number of Days to Update: 23
Source: State Water Qualilty Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/07/2023
Next Scheduled EDR Contact: 06/19/2023
Data Release Frequency: Quarterly

MCS: Military Cleanup Sites Listing (GEOTRACKER)
Military sites (consisting of: Military UST sites; Military Privatized sites; and Military Cleanup sites [formerly known as DoD non UST]) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 03/06/2023
Date Data Arrived at EDR: 03/07/2023
Date Made Active in Reports: 03/31/2023
Number of Days to Update: 24
Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/07/2023
Next Scheduled EDR Contact: 06/19/2023
Data Release Frequency: Quarterly

SPILLS 90: SPILLS90 data from FirstSearch
Spills 90 includes those spill and release records available exclusively from FirstSearch databases. Typically, they may include chemical, oil and/or hazardous substance spills recorded after 1990. Duplicate records that are already included in EDR incident and release records are not included in Spills 90.

Date of Government Version: 06/06/2012
Date Data Arrived at EDR: 01/03/2013
Date Made Active in Reports: 02/22/2013
Number of Days to Update: 50
Source: FirstSearch
Telephone: N/A
Last EDR Contact: 01/03/2013
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Other Ascertainable Records

RCRA NonGen / NLR: RCRA - Non Generators / No Longer Regulated
RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 03/06/2023
Date Data Arrived at EDR: 03/09/2023
Date Made Active in Reports: 03/20/2023
Number of Days to Update: 11

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 03/09/2023
Next Scheduled EDR Contact: 07/03/2023
Data Release Frequency: Quarterly

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 02/01/2023
Date Data Arrived at EDR: 02/14/2023
Date Made Active in Reports: 05/02/2023
Number of Days to Update: 77

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 05/16/2023
Next Scheduled EDR Contact: 08/28/2023
Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 06/07/2021
Date Data Arrived at EDR: 07/13/2021
Date Made Active in Reports: 03/09/2022
Number of Days to Update: 239

Source: USGS
Telephone: 888-275-8747
Last EDR Contact: 04/11/2023
Next Scheduled EDR Contact: 07/24/2023
Data Release Frequency: Varies

FEDLAND: Federal and Indian Lands

Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 04/02/2018
Date Data Arrived at EDR: 04/11/2018
Date Made Active in Reports: 11/06/2019
Number of Days to Update: 574

Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 04/03/2023
Next Scheduled EDR Contact: 07/17/2023
Data Release Frequency: N/A

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 07/30/2021
Date Data Arrived at EDR: 02/03/2023
Date Made Active in Reports: 02/10/2023
Number of Days to Update: 7

Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 05/11/2023
Next Scheduled EDR Contact: 08/21/2023
Data Release Frequency: Varies

US FIN ASSUR: Financial Assurance Information

All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

Date of Government Version: 12/13/2022
Date Data Arrived at EDR: 12/14/2022
Date Made Active in Reports: 03/10/2023
Number of Days to Update: 86

Source: Environmental Protection Agency
Telephone: 202-566-1917
Last EDR Contact: 03/21/2023
Next Scheduled EDR Contact: 07/03/2023
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

EPA WATCH LIST: EPA WATCH LIST

EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 08/30/2013
Date Data Arrived at EDR: 03/21/2014
Date Made Active in Reports: 06/17/2014
Number of Days to Update: 88

Source: Environmental Protection Agency
Telephone: 617-520-3000
Last EDR Contact: 05/01/2023
Next Scheduled EDR Contact: 08/14/2023
Data Release Frequency: Quarterly

2020 COR ACTION: 2020 Corrective Action Program List

The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 09/30/2017
Date Data Arrived at EDR: 05/08/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 73

Source: Environmental Protection Agency
Telephone: 703-308-4044
Last EDR Contact: 05/04/2023
Next Scheduled EDR Contact: 08/14/2023
Data Release Frequency: Varies

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2020
Date Data Arrived at EDR: 06/14/2022
Date Made Active in Reports: 03/24/2023
Number of Days to Update: 283

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 03/13/2023
Next Scheduled EDR Contact: 06/26/2023
Data Release Frequency: Every 4 Years

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2021
Date Data Arrived at EDR: 02/16/2023
Date Made Active in Reports: 05/02/2023
Number of Days to Update: 75

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 02/16/2023
Next Scheduled EDR Contact: 05/29/2023
Data Release Frequency: Annually

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 01/17/2023
Date Data Arrived at EDR: 01/18/2023
Date Made Active in Reports: 04/19/2023
Number of Days to Update: 91

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 04/18/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Annually

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 04/26/2023
Date Data Arrived at EDR: 05/02/2023
Date Made Active in Reports: 05/17/2023
Number of Days to Update: 15

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 05/02/2023
Next Scheduled EDR Contact: 06/12/2023
Data Release Frequency: Annually

RMP: Risk Management Plans

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: 04/27/2022
Date Data Arrived at EDR: 05/04/2022
Date Made Active in Reports: 05/10/2022
Number of Days to Update: 6

Source: Environmental Protection Agency
Telephone: 202-564-8600
Last EDR Contact: 04/13/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Varies

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

PRP: Potentially Responsible Parties

A listing of verified Potentially Responsible Parties

Date of Government Version: 04/26/2023
Date Data Arrived at EDR: 05/02/2023
Date Made Active in Reports: 05/17/2023
Number of Days to Update: 15

Source: EPA
Telephone: 202-564-6023
Last EDR Contact: 05/02/2023
Next Scheduled EDR Contact: 08/14/2023
Data Release Frequency: Quarterly

PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 11/03/2022
Date Data Arrived at EDR: 01/04/2023
Date Made Active in Reports: 04/03/2023
Number of Days to Update: 89

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 04/04/2023
Next Scheduled EDR Contact: 07/17/2023
Data Release Frequency: Annually

ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 11/18/2016
Date Data Arrived at EDR: 11/23/2016
Date Made Active in Reports: 02/10/2017
Number of Days to Update: 79

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 03/29/2023
Next Scheduled EDR Contact: 07/17/2023
Data Release Frequency: Quarterly

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: No Update Planned

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: No Update Planned

MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 10/26/2022
Date Data Arrived at EDR: 11/22/2022
Date Made Active in Reports: 12/05/2022
Number of Days to Update: 13

Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 04/13/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Quarterly

COAL ASH DOE: Steam-Electric Plant Operation Data

A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2020
Date Data Arrived at EDR: 11/30/2021
Date Made Active in Reports: 02/22/2022
Number of Days to Update: 84

Source: Department of Energy
Telephone: 202-586-8719
Last EDR Contact: 03/03/2023
Next Scheduled EDR Contact: 06/12/2023
Data Release Frequency: Varies

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List

A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 01/12/2017
Date Data Arrived at EDR: 03/05/2019
Date Made Active in Reports: 11/11/2019
Number of Days to Update: 251

Source: Environmental Protection Agency
Telephone: N/A
Last EDR Contact: 02/27/2023
Next Scheduled EDR Contact: 06/12/2023
Data Release Frequency: Varies

PCB TRANSFORMER: PCB Transformer Registration Database
The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 09/13/2019
Date Data Arrived at EDR: 11/06/2019
Date Made Active in Reports: 02/10/2020
Number of Days to Update: 96
Source: Environmental Protection Agency
Telephone: 202-566-0517
Last EDR Contact: 05/04/2023
Next Scheduled EDR Contact: 08/14/2023
Data Release Frequency: Varies

RADINFO: Radiation Information Database
The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 07/01/2019
Date Data Arrived at EDR: 07/01/2019
Date Made Active in Reports: 09/23/2019
Number of Days to Update: 84
Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 03/23/2023
Next Scheduled EDR Contact: 07/10/2023
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing
A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40
Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing
A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40
Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

DOT OPS: Incident and Accident Data
Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 01/02/2020
Date Data Arrived at EDR: 01/28/2020
Date Made Active in Reports: 04/17/2020
Number of Days to Update: 80
Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 04/25/2023
Next Scheduled EDR Contact: 08/07/2023
Data Release Frequency: Quarterly

CONSENT: Superfund (CERCLA) Consent Decrees
Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 12/31/2022
Date Data Arrived at EDR: 01/12/2023
Date Made Active in Reports: 04/07/2023
Number of Days to Update: 85

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 04/03/2023
Next Scheduled EDR Contact: 07/17/2023
Data Release Frequency: Varies

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2021
Date Data Arrived at EDR: 03/09/2023
Date Made Active in Reports: 03/20/2023
Number of Days to Update: 11

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 03/09/2023
Next Scheduled EDR Contact: 07/03/2023
Data Release Frequency: Biennially

INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 07/14/2015
Date Made Active in Reports: 01/10/2017
Number of Days to Update: 546

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 04/06/2023
Next Scheduled EDR Contact: 07/17/2023
Data Release Frequency: Semi-Annually

FUSRAP: Formerly Utilized Sites Remedial Action Program

DOE established the Formerly Utilized Sites Remedial Action Program (FUSRAP) in 1974 to remediate sites where radioactive contamination remained from Manhattan Project and early U.S. Atomic Energy Commission (AEC) operations.

Date of Government Version: 07/26/2021
Date Data Arrived at EDR: 07/27/2021
Date Made Active in Reports: 10/22/2021
Number of Days to Update: 87

Source: Department of Energy
Telephone: 202-586-3559
Last EDR Contact: 04/26/2023
Next Scheduled EDR Contact: 08/14/2023
Data Release Frequency: Varies

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 08/30/2019
Date Data Arrived at EDR: 11/15/2019
Date Made Active in Reports: 01/28/2020
Number of Days to Update: 74

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 05/10/2023
Next Scheduled EDR Contact: 08/28/2023
Data Release Frequency: Varies

LEAD SMELTER 1: Lead Smelter Sites

A listing of former lead smelter site locations.

Date of Government Version: 04/26/2023
Date Data Arrived at EDR: 05/02/2023
Date Made Active in Reports: 05/17/2023
Number of Days to Update: 15

Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 05/02/2023
Next Scheduled EDR Contact: 07/10/2023
Data Release Frequency: Varies

LEAD SMELTER 2: Lead Smelter Sites

A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

Date of Government Version: 04/05/2001
Date Data Arrived at EDR: 10/27/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 36

Source: American Journal of Public Health
Telephone: 703-305-6451
Last EDR Contact: 12/02/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)

The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

US AIRS MINOR: Air Facility System Data

A listing of minor source facilities.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

US MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 02/02/2023
Date Data Arrived at EDR: 02/22/2023
Date Made Active in Reports: 05/17/2023
Number of Days to Update: 84

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 02/22/2023
Next Scheduled EDR Contact: 06/05/2023
Data Release Frequency: Semi-Annually

MINES VIOLATIONS: MSHA Violation Assessment Data

Mines violation and assessment information. Department of Labor, Mine Safety & Health Administration.

Date of Government Version: 02/27/2023
Date Data Arrived at EDR: 03/01/2023
Date Made Active in Reports: 03/24/2023
Number of Days to Update: 23

Source: DOL, Mine Safety & Health Admi
Telephone: 202-693-9424
Last EDR Contact: 04/04/2023
Next Scheduled EDR Contact: 06/12/2023
Data Release Frequency: Quarterly

US MINES 2: Ferrous and Nonferrous Metal Mines Database Listing

This map layer includes ferrous (ferrous metal mines are facilities that extract ferrous metals, such as iron ore or molybdenum) and nonferrous (Nonferrous metal mines are facilities that extract nonferrous metals, such as gold, silver, copper, zinc, and lead) metal mines in the United States.

Date of Government Version: 01/07/2022
Date Data Arrived at EDR: 02/24/2023
Date Made Active in Reports: 05/17/2023
Number of Days to Update: 82

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 02/24/2023
Next Scheduled EDR Contact: 06/05/2023
Data Release Frequency: Varies

US MINES 3: Active Mines & Mineral Plants Database Listing

Active Mines and Mineral Processing Plant operations for commodities monitored by the Minerals Information Team of the USGS.

Date of Government Version: 04/14/2011
Date Data Arrived at EDR: 06/08/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 97

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 02/24/2023
Next Scheduled EDR Contact: 06/05/2023
Data Release Frequency: Varies

ABANDONED MINES: Abandoned Mines

An inventory of land and water impacted by past mining (primarily coal mining) is maintained by OSMRE to provide information needed to implement the Surface Mining Control and Reclamation Act of 1977 (SMCRA). The inventory contains information on the location, type, and extent of AML impacts, as well as, information on the cost associated with the reclamation of those problems. The inventory is based upon field surveys by State, Tribal, and OSMRE program officials. It is dynamic to the extent that it is modified as new problems are identified and existing problems are reclaimed.

Date of Government Version: 12/20/2022
Date Data Arrived at EDR: 12/20/2022
Date Made Active in Reports: 03/10/2023
Number of Days to Update: 80

Source: Department of Interior
Telephone: 202-208-2609
Last EDR Contact: 03/16/2023
Next Scheduled EDR Contact: 06/19/2023
Data Release Frequency: Quarterly

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 02/02/2023
Date Data Arrived at EDR: 02/28/2023
Date Made Active in Reports: 03/24/2023
Number of Days to Update: 24

Source: EPA
Telephone: (415) 947-8000
Last EDR Contact: 02/28/2023
Next Scheduled EDR Contact: 06/12/2023
Data Release Frequency: Quarterly

DOCKET HWC: Hazardous Waste Compliance Docket Listing

A complete list of the Federal Agency Hazardous Waste Compliance Docket Facilities.

Date of Government Version: 05/06/2021
Date Data Arrived at EDR: 05/21/2021
Date Made Active in Reports: 08/11/2021
Number of Days to Update: 82

Source: Environmental Protection Agency
Telephone: 202-564-0527
Last EDR Contact: 05/17/2023
Next Scheduled EDR Contact: 09/04/2023
Data Release Frequency: Varies

UXO: Unexploded Ordnance Sites

A listing of unexploded ordnance site locations

Date of Government Version: 11/09/2021
Date Data Arrived at EDR: 10/20/2022
Date Made Active in Reports: 01/10/2023
Number of Days to Update: 82

Source: Department of Defense
Telephone: 703-704-1564
Last EDR Contact: 04/27/2023
Next Scheduled EDR Contact: 07/24/2023
Data Release Frequency: Varies

ECHO: Enforcement & Compliance History Information

ECHO provides integrated compliance and enforcement information for about 800,000 regulated facilities nationwide.

Date of Government Version: 01/01/2023
Date Data Arrived at EDR: 01/04/2023
Date Made Active in Reports: 04/03/2023
Number of Days to Update: 89

Source: Environmental Protection Agency
Telephone: 202-564-2280
Last EDR Contact: 03/31/2023
Next Scheduled EDR Contact: 07/17/2023
Data Release Frequency: Quarterly

FUELS PROGRAM: EPA Fuels Program Registered Listing

This listing includes facilities that are registered under the Part 80 (Code of Federal Regulations) EPA Fuels Programs. All companies now are required to submit new and updated registrations.

Date of Government Version: 02/13/2023
Date Data Arrived at EDR: 02/14/2023
Date Made Active in Reports: 04/19/2023
Number of Days to Update: 64

Source: EPA
Telephone: 800-385-6164
Last EDR Contact: 05/17/2023
Next Scheduled EDR Contact: 08/28/2023
Data Release Frequency: Quarterly

PFAS NPL: Superfund Sites with PFAS Detections Information

EPA's Office of Land and Emergency Management and EPA Regional Offices maintain data describing what is known about site investigations, contamination, and remedial actions under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) where PFAS is present in the environment.

Date of Government Version: 02/23/2022
Date Data Arrived at EDR: 07/08/2022
Date Made Active in Reports: 11/08/2022
Number of Days to Update: 123

Source: Environmental Protection Agency
Telephone: 703-603-8895
Last EDR Contact: 04/04/2023
Next Scheduled EDR Contact: 07/17/2023
Data Release Frequency: Varies

PFAS FEDERAL SITES: Federal Sites PFAS Information

Several federal entities, such as the federal Superfund program, Department of Defense, National Aeronautics and Space Administration, Department of Transportation, and Department of Energy provided information for sites with known or suspected detections at federal facilities.

Date of Government Version: 03/30/2023
Date Data Arrived at EDR: 03/30/2023
Date Made Active in Reports: 04/07/2023
Number of Days to Update: 8

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 03/30/2023
Next Scheduled EDR Contact: 07/17/2023
Data Release Frequency: Varies

PFAS TSCA: PFAS Manufacture and Imports Information

EPA issued the Chemical Data Reporting (CDR) Rule under the Toxic Substances Control Act (TSCA) and requires chemical manufacturers and facilities that manufacture or import chemical substances to report data to EPA. EPA publishes non-confidential business information (non-CBI) and includes descriptive information about each site, corporate parent, production volume, other manufacturing information, and processing and use information.

Date of Government Version: 01/03/2022
Date Data Arrived at EDR: 03/31/2022
Date Made Active in Reports: 11/08/2022
Number of Days to Update: 222

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 03/30/2023
Next Scheduled EDR Contact: 07/17/2023
Data Release Frequency: Varies

PFAS RCRA MANIFEST: PFAS Transfers Identified In the RCRA Database Listing

To work around the lack of PFAS waste codes in the RCRA database, EPA developed the PFAS Transfers dataset by mining e-Manifest records containing at least one of these common PFAS keywords: PFAS, PFOA, PFOS, PERFL, AFFF, GENX, GEN-X (plus the VT waste codes). These keywords were searched for in the following text fields: Manifest handling instructions (MANIFEST_HANDLING_INSTR), Non-hazardous waste description (NON_HAZ_WASTE_DESCRIPTION), DOT printed information (DOT_PRINTED_INFORMATION), Waste line handling instructions (WASTE_LINE_HANDLING_INSTR), Waste residue comments (WASTE_RESIDUE_COMMENTS).

Date of Government Version: 03/30/2023
Date Data Arrived at EDR: 03/30/2023
Date Made Active in Reports: 05/02/2023
Number of Days to Update: 33

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 03/30/2023
Next Scheduled EDR Contact: 07/17/2023
Data Release Frequency: Varies

PFAS ATSDR: PFAS Contamination Site Location Listing

PFAS contamination site locations from the Department of Health & Human Services, Center for Disease Control & Prevention. ATSDR is involved at a number of PFAS-related sites, either directly or through assisting state and federal partners. As of now, most sites are related to drinking water contamination connected with PFAS production facilities or fire training areas where aqueous film-forming firefighting foam (AFFF) was regularly used.

Date of Government Version: 06/24/2020
Date Data Arrived at EDR: 03/17/2021
Date Made Active in Reports: 11/08/2022
Number of Days to Update: 601

Source: Department of Health & Human Services
Telephone: 202-741-5770
Last EDR Contact: 04/20/2023
Next Scheduled EDR Contact: 08/07/2023
Data Release Frequency: Varies

PFAS WQP: Ambient Environmental Sampling for PFAS

The Water Quality Portal (WQP) is a part of a modernized repository storing ambient sampling data for all environmental media and tissue samples. A wide range of federal, state, tribal and local governments, academic and non-governmental organizations and individuals submit project details and sampling results to this public repository. The information is commonly used for research and assessments of environmental quality.

Date of Government Version: 03/30/2023
Date Data Arrived at EDR: 03/30/2023
Date Made Active in Reports: 05/02/2023
Number of Days to Update: 33

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 03/30/2023
Next Scheduled EDR Contact: 07/17/2023
Data Release Frequency: Varies

PFAS NPDES: Clean Water Act Discharge Monitoring Information

Any discharger of pollutants to waters of the United States from a point source must have a National Pollutant Discharge Elimination System (NPDES) permit. The process for obtaining limits involves the regulated entity (permittee) disclosing releases in a NPDES permit application and the permitting authority (typically the state but sometimes EPA) deciding whether to require monitoring or monitoring with limits.

Date of Government Version: 03/30/2023
Date Data Arrived at EDR: 03/30/2023
Date Made Active in Reports: 04/07/2023
Number of Days to Update: 8

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 03/30/2023
Next Scheduled EDR Contact: 07/17/2023
Data Release Frequency: Varies

PFAS ECHO: Facilities in Industries that May Be Handling PFAS Listing

Regulators and the public have expressed interest in knowing which regulated entities may be using PFAS. EPA has developed a dataset from various sources that show which industries may be handling PFAS. Approximately 120,000 facilities subject to federal environmental programs have operated or currently operate in industry sectors with processes that may involve handling and/or release of PFAS.

Date of Government Version: 03/30/2023
Date Data Arrived at EDR: 03/30/2023
Date Made Active in Reports: 04/03/2023
Number of Days to Update: 4

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 03/30/2023
Next Scheduled EDR Contact: 07/17/2023
Data Release Frequency: Varies

PFAS ECHO FIRE TRAINING: Facilities in Industries that May Be Handling PFAS Listing

A list of fire training sites was added to the Industry Sectors dataset using a keyword search on the permitted facilitys name to identify sites where fire-fighting foam may have been used in training exercises. Additionally, you may view an example spreadsheet of the subset of fire training facility data, as well as the keywords used in selecting or deselecting a facility for the subset. as well as the keywords used in selecting or deselecting a facility for the subset. These keywords were tested to maximize accuracy in selecting facilities that may use fire-fighting foam in training exercises, however, due to the lack of a required reporting field in the data systems for designating fire training sites, this methodology may not identify all fire training sites or may potentially misidentify them.

Date of Government Version: 03/30/2023
Date Data Arrived at EDR: 03/30/2023
Date Made Active in Reports: 04/03/2023
Number of Days to Update: 4

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 03/30/2023
Next Scheduled EDR Contact: 07/17/2023
Data Release Frequency: Varies

PFAS PART 139 AIRPORT: All Certified Part 139 Airports PFAS Information Listing

Since July 1, 2006, all certified part 139 airports are required to have fire-fighting foam onsite that meet military specifications (MIL-F-24385) (14 CFR 139.317). To date, these military specification fire-fighting foams are fluorinated and have been historically used for training and extinguishing. The 2018 FAA Reauthorization Act has a provision stating that no later than October 2021, FAA shall not require the use of fluorinated AFFF. This provision does not prohibit the use of fluorinated AFFF at Part 139 civilian airports; it only prohibits FAA from mandating its use. The Federal Aviation Administration?s document AC 150/5210-6D - Aircraft Fire Extinguishing Agents provides guidance on Aircraft Fire Extinguishing Agents, which includes Aqueous Film Forming Foam (AFFF).

Date of Government Version: 03/30/2023
Date Data Arrived at EDR: 03/30/2023
Date Made Active in Reports: 04/03/2023
Number of Days to Update: 4

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 03/30/2023
Next Scheduled EDR Contact: 07/17/2023
Data Release Frequency: Varies

AQUEOUS FOAM NRC: Aqueous Foam Related Incidents Listing

The National Response Center (NRC) serves as an emergency call center that fields initial reports for pollution and railroad incidents and forwards that information to appropriate federal/state agencies for response. The spreadsheets posted to the NRC website contain initial incident data that has not been validated or investigated by a federal/state response agency. Response center calls from 1990 to the most recent complete calendar year where there was indication of Aqueous Film Forming Foam (AFFF) usage are included in this dataset. NRC calls may reference AFFF usage in the ?Material Involved? or ?Incident Description? fields.

Date of Government Version: 04/27/2023
Date Data Arrived at EDR: 04/27/2023
Date Made Active in Reports: 05/02/2023
Number of Days to Update: 5

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 04/27/2023
Next Scheduled EDR Contact: 07/17/2023
Data Release Frequency: Varies

PFAS: PFAS Contamination Site Location Listing

A listing of PFAS contaminated sites included in the GeoTracker database.

Date of Government Version: 03/06/2023
Date Data Arrived at EDR: 03/07/2023
Date Made Active in Reports: 05/05/2023
Number of Days to Update: 59

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/07/2023
Next Scheduled EDR Contact: 06/19/2023
Data Release Frequency: Varies

AQUEOUS FOAM: Former Fire Training Facility Assessments Listing

Airports shown on this list are those believed to use Aqueous Film Forming Foam (AFFF), and certified by the Federal Aviation Administration (FAA) under Title 14, Code of Federal Regulations (CFR), Part 139 (14 CFR Part 139). This list was created by SWRCB using information available from the FAA. Location points shown are from the latitude and longitude listed on the FAA airport master record.

Date of Government Version: 09/06/2022
Date Data Arrived at EDR: 09/06/2022
Date Made Active in Reports: 10/26/2022
Number of Days to Update: 50

Source: State Water Resources Control Board
Telephone: 916-341-5455
Last EDR Contact: 03/07/2023
Next Scheduled EDR Contact: 06/19/2023
Data Release Frequency: Varies

CA BOND EXP. PLAN: Bond Expenditure Plan

Department of Health Services developed a site-specific expenditure plan as the basis for an appropriation of Hazardous Substance Cleanup Bond Act funds. It is not updated.

Date of Government Version: 01/01/1989
Date Data Arrived at EDR: 07/27/1994
Date Made Active in Reports: 08/02/1994
Number of Days to Update: 6

Source: Department of Health Services
Telephone: 916-255-2118
Last EDR Contact: 05/31/1994
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

CORTESE: "Cortese" Hazardous Waste & Substances Sites List
The sites for the list are designated by the State Water Resource Control Board (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites).

Date of Government Version: 12/14/2022
Date Data Arrived at EDR: 12/14/2022
Date Made Active in Reports: 03/07/2023
Number of Days to Update: 83
Source: CAL EPA/Office of Emergency Information
Telephone: 916-323-3400
Last EDR Contact: 03/21/2023
Next Scheduled EDR Contact: 07/03/2023
Data Release Frequency: Quarterly

CUPA LIVERMORE-PLEASANTON: CUPA Facility Listing
list of facilities associated with the various CUPA programs in Livermore-Pleasanton

Date of Government Version: 12/07/2021
Date Data Arrived at EDR: 05/09/2022
Date Made Active in Reports: 05/17/2022
Number of Days to Update: 8
Source: Livermore-Pleasanton Fire Department
Telephone: 925-454-2361
Last EDR Contact: 05/08/2023
Next Scheduled EDR Contact: 08/21/2023
Data Release Frequency: Varies

DRYCLEAN AVAQMD: Antelope Valley Air Quality Management District Drycleaner Listing
A listing of dry cleaners in the Antelope Valley Air Quality Management District.

Date of Government Version: 02/23/2023
Date Data Arrived at EDR: 02/24/2023
Date Made Active in Reports: 05/15/2023
Number of Days to Update: 80
Source: Antelope Valley Air Quality Management District
Telephone: 661-723-8070
Last EDR Contact: 02/23/2023
Next Scheduled EDR Contact: 06/12/2023
Data Release Frequency: Varies

DRYCLEAN SAN DIEGO CO DIST: San Diego County Air Pollution Control District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the San Diego County Air Pollution Control District.

Date of Government Version: 02/01/2019
Date Data Arrived at EDR: 05/01/2019
Date Made Active in Reports: 05/01/2023
Number of Days to Update: 1461
Source: San Diego County Air Pollution Control District
Telephone: 858-586-2616
Last EDR Contact: 04/25/2023
Next Scheduled EDR Contact: 06/12/2023
Data Release Frequency: Varies

DRYCLEAN SACRAMENTO METO DIST: Sacramento Metropolitan Air Quality Management DistrictDrycleaner Facility Listing
A listing of drycleaner facility locations, for the Sacramento Metropolitan Air Quality Management District.

Date of Government Version: 04/24/2019
Date Data Arrived at EDR: 04/25/2019
Date Made Active in Reports: 05/01/2023
Number of Days to Update: 1467
Source: Sacramento Metropolitan Air Quality Management District
Telephone: 916-874-3958
Last EDR Contact: 04/25/2023
Next Scheduled EDR Contact: 06/12/2023
Data Release Frequency: Varies

DRYCLEAN SANTA BARB CO DIST: Santa Barbara County Air Pollution Control District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Santa Barbara County Air Pollution Control District.

Date of Government Version: 02/19/2019
Date Data Arrived at EDR: 04/17/2019
Date Made Active in Reports: 05/01/2023
Number of Days to Update: 1475
Source: Santa Barbara County Air Pollution Control District
Telephone: 805-961-8867
Last EDR Contact: 04/25/2023
Next Scheduled EDR Contact: 06/12/2023
Data Release Frequency: Varies

DRYCLEAN SAN JOAQ VAL DIST: San Joaquin Valley Air Pollution Control District District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the San Joaquin Valley Air Pollution Control District.

Date of Government Version: 05/01/2019
Date Data Arrived at EDR: 05/03/2019
Date Made Active in Reports: 05/01/2023
Number of Days to Update: 1459
Source: San Joaquin Valley Air Pollution Control District
Telephone: 559-230-6001
Last EDR Contact: 05/11/2023
Next Scheduled EDR Contact: 09/16/2019
Data Release Frequency: Varies

DRYCLEAN SAN LUIS OB CO DIST: San Luis Obispo County Air Pollution Control District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the San Luis Obispo County Air Pollution Control District.

Date of Government Version: 04/23/2019
Date Data Arrived at EDR: 04/25/2019
Date Made Active in Reports: 05/01/2023
Number of Days to Update: 1467
Source: San Luis Obispo County Air Pollution Control District
Telephone: 805-781-5756
Last EDR Contact: 04/25/2023
Next Scheduled EDR Contact: 06/12/2023
Data Release Frequency: Varies

DRYCLEAN SHASTA CO DIST: Shasta County Air Quality Management District District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Shasta County Air Quality Management District.

Date of Government Version: 04/17/2019
Date Data Arrived at EDR: 04/19/2019
Date Made Active in Reports: 05/01/2023
Number of Days to Update: 1473
Source: Shasta County Air Quality Management District
Telephone: 530-225-5674
Last EDR Contact: 04/25/2023
Next Scheduled EDR Contact: 06/12/2023
Data Release Frequency: Varies

DRYCLEAN TEHAMA CO DIST: Tehama County Air Pollution Control District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Tehama County Air Pollution Control District.

Date of Government Version: 04/24/2019
Date Data Arrived at EDR: 04/24/2019
Date Made Active in Reports: 05/01/2023
Number of Days to Update: 1468
Source: Tehama County Air Pollution Control District
Telephone: 530-527-3717
Last EDR Contact: 04/25/2023
Next Scheduled EDR Contact: 09/16/2019
Data Release Frequency: Varies

DRYCLEAN YOLO-SOLANO DIST: Yolo-Solano Air Quality Management District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Yolo-Solano Air Quality Management District.

Date of Government Version: 05/31/2019
Date Data Arrived at EDR: 06/06/2019
Date Made Active in Reports: 05/01/2023
Number of Days to Update: 1425
Source: Yolo-Solano Air Quality Management District
Telephone: 530-757-3650
Last EDR Contact: 04/25/2023
Next Scheduled EDR Contact: 06/12/2023
Data Release Frequency: Varies

DRYCLEANERS: Cleaner Facilities
A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial; garment pressing and cleaner's agents; linen supply; coin-operated laundries and cleaning; drycleaning plants, except rugs; carpet and upholster cleaning; industrial launderers; laundry and garment services.

Date of Government Version: 08/27/2021
Date Data Arrived at EDR: 09/01/2021
Date Made Active in Reports: 11/19/2021
Number of Days to Update: 79
Source: Department of Toxic Substance Control
Telephone: 916-327-4498
Last EDR Contact: 01/24/2023
Next Scheduled EDR Contact: 06/12/2023
Data Release Frequency: Annually

DRYCLEAN VENTURA CO DIST: Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Ventura County Air Pollution Control District.

Date of Government Version: 04/16/2019
Date Data Arrived at EDR: 04/17/2019
Date Made Active in Reports: 05/01/2023
Number of Days to Update: 1475
Source: Ventura County Air Pollution Control District
Telephone: 805-645-1421
Last EDR Contact: 04/25/2023
Next Scheduled EDR Contact: 06/12/2023
Data Release Frequency: Varies

DRYCLEAN SOUTH COAST: South Coast Air Quality Management District Drycleaner Listing
A listing of dry cleaners in the South Coast Air Quality Management District

Date of Government Version: 02/17/2023
Date Data Arrived at EDR: 02/17/2023
Date Made Active in Reports: 05/09/2023
Number of Days to Update: 81
Source: South Coast Air Quality Management District
Telephone: 909-396-3211
Last EDR Contact: 05/17/2023
Next Scheduled EDR Contact: 09/04/2023
Data Release Frequency: Varies

DRYCLEAN NO SONOMA CO DIST: Norther Sonoma County County Air Pollution Control District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Northern Sonoma County Air Pollution Control District.,

Date of Government Version: 04/17/2019
Date Data Arrived at EDR: 04/17/2019
Date Made Active in Reports: 05/01/2023
Number of Days to Update: 1475
Source: Santa Barbara County Air Pollution Control District
Telephone: 707-433-5911
Last EDR Contact: 04/25/2023
Next Scheduled EDR Contact: 06/12/2023
Data Release Frequency: Varies

DRYCLEAN PLACER CO DIST: Placer County Air Quality Management District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Placer County Air Quality Management District.

Date of Government Version: 01/16/2018
Date Data Arrived at EDR: 04/19/2019
Date Made Active in Reports: 05/01/2023
Number of Days to Update: 1473
Source: Placer County Air Quality Management District
Telephone: 530-745-2335
Last EDR Contact: 05/11/2023
Next Scheduled EDR Contact: 06/12/2023
Data Release Frequency: Varies

DRYCLEAN BAY AREA DIST: Bay Area Air Quality Management District Drycleaner Facility Listing
Bay Area Air Quality Management District Drycleaner Facility Listing.

Date of Government Version: 02/20/2019
Date Data Arrived at EDR: 05/30/2019
Date Made Active in Reports: 05/01/2023
Number of Days to Update: 1432
Source: Bay Area Air Quality Management District
Telephone: 415-516-1916
Last EDR Contact: 04/24/2023
Next Scheduled EDR Contact: 06/12/2023
Data Release Frequency: Varies

DRYCLEAN BUTTE CO DIST: Butte County Air Quality Management DistrictDrycleaner Facility Listing
Butte County Air Quality Management DistrictDrycleaner Facility Listing.

Date of Government Version: 12/31/2018
Date Data Arrived at EDR: 04/23/2019
Date Made Active in Reports: 05/01/2023
Number of Days to Update: 1469
Source: Butte County Air Quality Management District
Telephone: 530-332-9400
Last EDR Contact: 04/24/2023
Next Scheduled EDR Contact: 06/12/2023
Data Release Frequency: Varies

DRYCLEAN CALAVERAS CO DIST: Calaveras County Environmental Management Agency Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Calaveras County Environmental Management Agency.

Date of Government Version: 06/17/2019
Date Data Arrived at EDR: 06/19/2019
Date Made Active in Reports: 05/01/2023
Number of Days to Update: 1412
Source: Calaveras County Environmental Management Agency
Telephone: 209-754-6399
Last EDR Contact: 04/24/2023
Next Scheduled EDR Contact: 09/16/2019
Data Release Frequency: Varies

DRYCLEAN EAST KERN DIST: Eastern Kern Air Pollution Control District District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Eastern Kern Air Pollution Control District.

Date of Government Version: 04/17/2019
Date Data Arrived at EDR: 04/17/2019
Date Made Active in Reports: 05/01/2023
Number of Days to Update: 1475
Source: Eastern Kern Air Pollution Control District
Telephone: 661-862-9684
Last EDR Contact: 04/25/2023
Next Scheduled EDR Contact: 06/12/2023
Data Release Frequency: Varies

DRYCLEAN GLENN CO DIST: Glenn County Air Pollution Control District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Glenn County Air Pollution Control District.

Date of Government Version: 04/17/2019
Date Data Arrived at EDR: 04/17/2019
Date Made Active in Reports: 05/01/2023
Number of Days to Update: 1475
Source: Glenn County Air Pollution Control District
Telephone: 530-934-6500
Last EDR Contact: 04/16/2019
Next Scheduled EDR Contact: 06/12/2023
Data Release Frequency: Varies

DRYCLEAN GRANT: Grant Recipients List
Assembly Bill 998 (AB 998) established the Non-Toxic Dry Cleaning Incentive Program to provide financial assistance to the dry cleaning industry to switch from systems using perchloroethylene (Perc), an identified toxic air contaminant and potential human carcinogen, to non-toxic and non-smog forming alternatives.

Date of Government Version: 12/31/2020
Date Data Arrived at EDR: 02/04/2021
Date Made Active in Reports: 05/01/2023
Number of Days to Update: 816
Source: California Air Resources Board
Telephone: 916-323-0006
Last EDR Contact: 05/11/2023
Next Scheduled EDR Contact: 08/07/2023
Data Release Frequency: Varies

DRYCLEAN IMPERIAL CO DIST: Imperial County Air Pollution Control District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Imperial County Air Pollution Control District

Date of Government Version: 05/14/2019
Date Data Arrived at EDR: 05/17/2019
Date Made Active in Reports: 05/01/2023
Number of Days to Update: 1445
Source: Imperial County Air Pollution Control District
Telephone: 442-265-1800
Last EDR Contact: 04/25/2023
Next Scheduled EDR Contact: 06/12/2023
Data Release Frequency: Varies

DRYCLEAN LAKE CO DIST: Lake County Air Quality Management District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Lake County Air Quality Management District,

Date of Government Version: 04/29/2019
Date Data Arrived at EDR: 05/07/2019
Date Made Active in Reports: 05/01/2023
Number of Days to Update: 1455
Source: Lake County Air Quality Management District
Telephone: 707-263-7000
Last EDR Contact: 05/11/2023
Next Scheduled EDR Contact: 06/12/2023
Data Release Frequency: Varies

DRYCLEAN MENDO CO DIST: Mendocino County Air Quality Management District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Mendocino County Air Quality Management District.

Date of Government Version: 02/08/2019
Date Data Arrived at EDR: 05/21/2019
Date Made Active in Reports: 05/01/2023
Number of Days to Update: 1441
Source: Mendocino County Air Quality Management District
Telephone: 707-463-4354
Last EDR Contact: 04/25/2023
Next Scheduled EDR Contact: 06/12/2023
Data Release Frequency: Varies

DRYCLEAN MOJAVE DESERT DIST: Mojave Desert Air Quality Management District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Mojave Desert Air Quality Management District.

Date of Government Version: 04/17/2019
Date Data Arrived at EDR: 04/17/2019
Date Made Active in Reports: 05/01/2023
Number of Days to Update: 1475
Source: Mojave Desert Air Quality Management District
Telephone: 760-245-1661
Last EDR Contact: 04/25/2023
Next Scheduled EDR Contact: 06/12/2023
Data Release Frequency: Varies

DRYCLEAN MONTEREY BAY DIST: Monterey Bay Air Quality Management District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Monterey Bay Air Quality Management District.

Date of Government Version: 04/17/2019
Date Data Arrived at EDR: 04/17/2019
Date Made Active in Reports: 05/01/2023
Number of Days to Update: 1475
Source: Monterey Bay Air Quality Management District
Telephone: 831-647-9411
Last EDR Contact: 04/25/2023
Next Scheduled EDR Contact: 06/12/2023
Data Release Frequency: Varies

DRYCLEAN NO COAST UNIFIED DIST: North Coast Unified Air Quality Management District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the North Coast Unified Air Quality Management District.

Date of Government Version: 11/30/2016
Date Data Arrived at EDR: 04/19/2019
Date Made Active in Reports: 05/01/2023
Number of Days to Update: 1473
Source: North Coast Unified Air Quality Management District
Telephone: 707-443-3093
Last EDR Contact: 04/25/2023
Next Scheduled EDR Contact: 06/12/2023
Data Release Frequency: Varies

DRYCLEAN NO SIERRA DIST: Northern Sierra Air Quality Management District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Northern Sierra Air Quality Management District,

Date of Government Version: 05/07/2019
Date Data Arrived at EDR: 05/07/2019
Date Made Active in Reports: 05/01/2023
Number of Days to Update: 1455
Source: Northern Sierra Air Quality Management District
Telephone: 530-274-9350
Last EDR Contact: 04/25/2023
Next Scheduled EDR Contact: 06/12/2023
Data Release Frequency: Varies

EMI: Emissions Inventory Data
Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies.

Date of Government Version: 12/31/2020
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/30/2022
Number of Days to Update: 78
Source: California Air Resources Board
Telephone: 916-322-2990
Last EDR Contact: 03/16/2023
Next Scheduled EDR Contact: 06/26/2023
Data Release Frequency: Varies

ENF: Enforcement Action Listing
A listing of Water Board Enforcement Actions. Formal is everything except Oral/Verbal Communication, Notice of Violation, Expedited Payment Letter, and Staff Enforcement Letter.

Date of Government Version: 01/10/2023
Date Data Arrived at EDR: 01/18/2023
Date Made Active in Reports: 04/04/2023
Number of Days to Update: 76
Source: State Water Resoruces Control Board
Telephone: 916-445-9379
Last EDR Contact: 04/18/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Varies

Financial Assurance 1: Financial Assurance Information Listing
Financial Assurance information

Date of Government Version: 01/11/2023
Date Data Arrived at EDR: 01/17/2023
Date Made Active in Reports: 04/04/2023
Number of Days to Update: 77
Source: Department of Toxic Substances Control
Telephone: 916-255-3628
Last EDR Contact: 04/12/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Varies

Financial Assurance 2: Financial Assurance Information Listing
A listing of financial assurance information for solid waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 02/06/2023
Date Data Arrived at EDR: 02/15/2023
Date Made Active in Reports: 05/09/2023
Number of Days to Update: 83
Source: California Integrated Waste Management Board
Telephone: 916-341-6066
Last EDR Contact: 05/17/2023
Next Scheduled EDR Contact: 08/21/2023
Data Release Frequency: Varies

ICE: ICE
Contains data pertaining to the Permitted Facilities with Inspections / Enforcements sites tracked in Envirostor.

Date of Government Version: 02/13/2023
Date Data Arrived at EDR: 02/14/2023
Date Made Active in Reports: 05/08/2023
Number of Days to Update: 83

Source: Department of Toxic Subsances Control
Telephone: 877-786-9427
Last EDR Contact: 05/16/2023
Next Scheduled EDR Contact: 08/28/2023
Data Release Frequency: Quarterly

HIST CORTESE: Hazardous Waste & Substance Site List

The sites for the list are designated by the State Water Resource Control Board [LUST], the Integrated Waste Board [SWF/LS], and the Department of Toxic Substances Control [CALSITES]. This listing is no longer updated by the state agency.

Date of Government Version: 04/01/2001
Date Data Arrived at EDR: 01/22/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 76

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/22/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

HWP: EnviroStor Permitted Facilities Listing

Detailed information on permitted hazardous waste facilities and corrective action ("cleanups") tracked in EnviroStor.

Date of Government Version: 02/13/2023
Date Data Arrived at EDR: 02/14/2023
Date Made Active in Reports: 05/08/2023
Number of Days to Update: 83

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 05/16/2023
Next Scheduled EDR Contact: 08/28/2023
Data Release Frequency: Quarterly

HWT: Registered Hazardous Waste Transporter Database

A listing of hazardous waste transporters. In California, unless specifically exempted, it is unlawful for any person to transport hazardous wastes unless the person holds a valid registration issued by DTSC. A hazardous waste transporter registration is valid for one year and is assigned a unique registration number.

Date of Government Version: 01/03/2023
Date Data Arrived at EDR: 01/04/2023
Date Made Active in Reports: 03/21/2023
Number of Days to Update: 76

Source: Department of Toxic Substances Control
Telephone: 916-440-7145
Last EDR Contact: 04/04/2023
Next Scheduled EDR Contact: 07/17/2023
Data Release Frequency: Quarterly

HAZNET: Facility and Manifest Data

Facility and Manifest Data. The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000 - 1,000,000 annually, representing approximately 350,000 - 500,000 shipments. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, and disposal method. This database begins with calendar year 1993.

Date of Government Version: 12/31/2021
Date Data Arrived at EDR: 07/05/2022
Date Made Active in Reports: 09/19/2022
Number of Days to Update: 76

Source: California Environmental Protection Agency
Telephone: 916-255-1136
Last EDR Contact: 04/06/2023
Next Scheduled EDR Contact: 07/17/2023
Data Release Frequency: Annually

MINES: Mines Site Location Listing

A listing of mine site locations from the Office of Mine Reclamation.

Date of Government Version: 12/02/2022
Date Data Arrived at EDR: 12/02/2022
Date Made Active in Reports: 02/22/2023
Number of Days to Update: 82

Source: Department of Conservation
Telephone: 916-322-1080
Last EDR Contact: 03/07/2023
Next Scheduled EDR Contact: 06/19/2023
Data Release Frequency: Quarterly

MWMP: Medical Waste Management Program Listing

The Medical Waste Management Program (MWMP) ensures the proper handling and disposal of medical waste by permitting and inspecting medical waste Offsite Treatment Facilities (PDF) and Transfer Stations (PDF) throughout the state. MWMP also oversees all Medical Waste Transporters.

Date of Government Version: 01/09/2023
Date Data Arrived at EDR: 02/28/2023
Date Made Active in Reports: 05/17/2023
Number of Days to Update: 78

Source: Department of Public Health
Telephone: 916-558-1784
Last EDR Contact: 02/28/2023
Next Scheduled EDR Contact: 06/12/2023
Data Release Frequency: Varies

NPDES: NPDES Permits Listing

A listing of NPDES permits, including stormwater.

Date of Government Version: 02/06/2023
Date Data Arrived at EDR: 02/07/2023
Date Made Active in Reports: 04/28/2023
Number of Days to Update: 80

Source: State Water Resources Control Board
Telephone: 916-445-9379
Last EDR Contact: 05/08/2023
Next Scheduled EDR Contact: 08/21/2023
Data Release Frequency: Quarterly

PEST LIC: Pesticide Regulation Licenses Listing

A listing of licenses and certificates issued by the Department of Pesticide Regulation. The DPR issues licenses and/or certificates to: Persons and businesses that apply or sell pesticides; Pest control dealers and brokers; Persons who advise on agricultural pesticide applications.

Date of Government Version: 11/28/2022
Date Data Arrived at EDR: 11/29/2022
Date Made Active in Reports: 02/14/2023
Number of Days to Update: 77

Source: Department of Pesticide Regulation
Telephone: 916-445-4038
Last EDR Contact: 02/28/2023
Next Scheduled EDR Contact: 06/12/2023
Data Release Frequency: Quarterly

PROC: Certified Processors Database

A listing of certified processors.

Date of Government Version: 03/06/2023
Date Data Arrived at EDR: 03/07/2023
Date Made Active in Reports: 03/31/2023
Number of Days to Update: 24

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 03/07/2023
Next Scheduled EDR Contact: 06/19/2023
Data Release Frequency: Quarterly

NOTIFY 65: Proposition 65 Records

Listings of all Proposition 65 incidents reported to counties by the State Water Resources Control Board and the Regional Water Quality Control Board. This database is no longer updated by the reporting agency.

Date of Government Version: 12/07/2022
Date Data Arrived at EDR: 12/07/2022
Date Made Active in Reports: 03/01/2023
Number of Days to Update: 84

Source: State Water Resources Control Board
Telephone: 916-445-3846
Last EDR Contact: 03/09/2023
Next Scheduled EDR Contact: 06/26/2023
Data Release Frequency: No Update Planned

SAN JOSE HAZMAT: Hazardous Material Facilities

Hazardous material facilities, including underground storage tank sites.

Date of Government Version: 11/03/2020
Date Data Arrived at EDR: 11/05/2020
Date Made Active in Reports: 01/26/2021
Number of Days to Update: 82

Source: City of San Jose Fire Department
Telephone: 408-535-7694
Last EDR Contact: 04/26/2023
Next Scheduled EDR Contact: 08/14/2023
Data Release Frequency: Annually

UIC: UIC Listing
A listing of wells identified as underground injection wells, in the California Oil and Gas Wells database.

Date of Government Version: 03/06/2023
Date Data Arrived at EDR: 03/07/2023
Date Made Active in Reports: 03/31/2023
Number of Days to Update: 24
Source: Deaprtment of Conservation
Telephone: 916-445-2408
Last EDR Contact: 03/07/2023
Next Scheduled EDR Contact: 06/19/2023
Data Release Frequency: Varies

UIC GEO: Underground Injection Control Sites (GEOTRACKER)
Underground control injection sites

Date of Government Version: 03/06/2023
Date Data Arrived at EDR: 03/07/2023
Date Made Active in Reports: 03/31/2023
Number of Days to Update: 24
Source: State Water Resource Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/07/2023
Next Scheduled EDR Contact: 06/19/2023
Data Release Frequency: Varies

WASTEWATER PITS: Oil Wastewater Pits Listing
Water officials discovered that oil producers have been dumping chemical-laden wastewater into hundreds of unlined pits that are operating without proper permits. Inspections completed by the Central Valley Regional Water Quality Control Board revealed the existence of previously unidentified waste sites. The water boards review found that more than one-third of the region's active disposal pits are operating without permission.

Date of Government Version: 02/11/2021
Date Data Arrived at EDR: 07/01/2021
Date Made Active in Reports: 09/29/2021
Number of Days to Update: 90
Source: RWQCB, Central Valley Region
Telephone: 559-445-5577
Last EDR Contact: 04/06/2023
Next Scheduled EDR Contact: 07/17/2023
Data Release Frequency: Varies

WDS: Waste Discharge System
Sites which have been issued waste discharge requirements.

Date of Government Version: 06/19/2007
Date Data Arrived at EDR: 06/20/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 9
Source: State Water Resources Control Board
Telephone: 916-341-5227
Last EDR Contact: 05/10/2023
Next Scheduled EDR Contact: 08/28/2023
Data Release Frequency: No Update Planned

WIP: Well Investigation Program Case List
Well Investigation Program case in the San Gabriel and San Fernando Valley area.

Date of Government Version: 07/03/2009
Date Data Arrived at EDR: 07/21/2009
Date Made Active in Reports: 08/03/2009
Number of Days to Update: 13
Source: Los Angeles Water Quality Control Board
Telephone: 213-576-6726
Last EDR Contact: 03/16/2023
Next Scheduled EDR Contact: 07/03/2023
Data Release Frequency: No Update Planned

MILITARY PRIV SITES: Military Privatized Sites (GEOTRACKER)
Military privatized sites

Date of Government Version: 03/06/2023
Date Data Arrived at EDR: 03/07/2023
Date Made Active in Reports: 03/31/2023
Number of Days to Update: 24
Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/07/2023
Next Scheduled EDR Contact: 06/19/2023
Data Release Frequency: Varies

PROJECT: Project Sites (GEOTRACKER)
Projects sites

Date of Government Version: 03/06/2023
Date Data Arrived at EDR: 03/07/2023
Date Made Active in Reports: 03/31/2023
Number of Days to Update: 24

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/07/2023
Next Scheduled EDR Contact: 06/19/2023
Data Release Frequency: Varies

WDR: Waste Discharge Requirements Listing

In general, the Waste Discharge Requirements (WDRs) Program (sometimes also referred to as the "Non Chapter 15 (Non 15) Program") regulates point discharges that are exempt pursuant to Subsection 20090 of Title 27 and not subject to the Federal Water Pollution Control Act. Exemptions from Title 27 may be granted for nine categories of discharges (e.g., sewage, wastewater, etc.) that meet, and continue to meet, the preconditions listed for each specific exemption. The scope of the WDRs Program also includes the discharge of wastes classified as inert, pursuant to section 20230 of Title 27.

Date of Government Version: 12/02/2022
Date Data Arrived at EDR: 12/02/2022
Date Made Active in Reports: 02/23/2023
Number of Days to Update: 83

Source: State Water Resources Control Board
Telephone: 916-341-5810
Last EDR Contact: 03/07/2023
Next Scheduled EDR Contact: 06/19/2023
Data Release Frequency: Quarterly

CIWQS: California Integrated Water Quality System

The California Integrated Water Quality System (CIWQS) is a computer system used by the State and Regional Water Quality Control Boards to track information about places of environmental interest, manage permits and other orders, track inspections, and manage violations and enforcement activities.

Date of Government Version: 02/27/2023
Date Data Arrived at EDR: 02/28/2023
Date Made Active in Reports: 05/17/2023
Number of Days to Update: 78

Source: State Water Resources Control Board
Telephone: 866-794-4977
Last EDR Contact: 02/28/2023
Next Scheduled EDR Contact: 06/12/2023
Data Release Frequency: Varies

CERS: CalEPA Regulated Site Portal Data

The CalEPA Regulated Site Portal database combines data about environmentally regulated sites and facilities in California into a single database. It combines data from a variety of state and federal databases, and provides an overview of regulated activities across the spectrum of environmental programs for any given location in California. These activities include hazardous materials and waste, state and federal cleanups, impacted ground and surface waters, and toxic materials

Date of Government Version: 01/05/2023
Date Data Arrived at EDR: 01/06/2023
Date Made Active in Reports: 01/10/2023
Number of Days to Update: 4

Source: California Environmental Protection Agency
Telephone: 916-323-2514
Last EDR Contact: 04/18/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Varies

NON-CASE INFO: Non-Case Information Sites (GEOTRACKER)

Non-Case Information sites

Date of Government Version: 03/06/2023
Date Data Arrived at EDR: 03/07/2023
Date Made Active in Reports: 03/31/2023
Number of Days to Update: 24

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/07/2023
Next Scheduled EDR Contact: 06/19/2023
Data Release Frequency: Varies

OTHER OIL GAS: Other Oil & Gas Projects Sites (GEOTRACKER)

Other Oil & Gas Projects sites

Date of Government Version: 03/06/2023
Date Data Arrived at EDR: 03/07/2023
Date Made Active in Reports: 03/31/2023
Number of Days to Update: 24

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/07/2023
Next Scheduled EDR Contact: 06/19/2023
Data Release Frequency: Varies

PROD WATER PONDS: Produced Water Ponds Sites (GEOTRACKER)
Produced water ponds sites

Date of Government Version: 03/06/2023
Date Data Arrived at EDR: 03/07/2023
Date Made Active in Reports: 03/31/2023
Number of Days to Update: 24

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/07/2023
Next Scheduled EDR Contact: 06/19/2023
Data Release Frequency: Varies

SAMPLING POINT: Sampling Point ? Public Sites (GEOTRACKER)
Sampling point - public sites

Date of Government Version: 03/06/2023
Date Data Arrived at EDR: 03/07/2023
Date Made Active in Reports: 03/31/2023
Number of Days to Update: 24

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/07/2023
Next Scheduled EDR Contact: 06/19/2023
Data Release Frequency: Varies

WELL STIM PROJ: Well Stimulation Project (GEOTRACKER)
Includes areas of groundwater monitoring plans, a depiction of the monitoring network, and the facilities, boundaries, and subsurface characteristics of the oilfield and the features (oil and gas wells, produced water ponds, UIC wells, water supply wells, etc?) being monitored

Date of Government Version: 03/06/2023
Date Data Arrived at EDR: 03/07/2023
Date Made Active in Reports: 03/31/2023
Number of Days to Update: 24

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/07/2023
Next Scheduled EDR Contact: 06/19/2023
Data Release Frequency: Varies

MINES MRDS: Mineral Resources Data System
Mineral Resources Data System

Date of Government Version: 08/23/2022
Date Data Arrived at EDR: 11/22/2022
Date Made Active in Reports: 02/28/2023
Number of Days to Update: 98

Source: USGS
Telephone: 703-648-6533
Last EDR Contact: 02/24/2023
Next Scheduled EDR Contact: 06/05/2023
Data Release Frequency: Varies

PCS ENF: Enforcement data
No description is available for this data

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 02/05/2015
Date Made Active in Reports: 03/06/2015
Number of Days to Update: 29

Source: EPA
Telephone: 202-564-2497
Last EDR Contact: 03/30/2023
Next Scheduled EDR Contact: 07/17/2023
Data Release Frequency: Varies

HWTS: Hazardous Waste Tracking System
DTSC maintains the Hazardous Waste Tracking System that stores ID number information since the early 1980s and manifest data since 1993. The system collects both manifest copies from the generator and destination facility.

Date of Government Version: 04/05/2022
Date Data Arrived at EDR: 04/05/2022
Date Made Active in Reports: 04/26/2022
Number of Days to Update: 21

Source: Department of Toxic Substances Control
Telephone: 916-324-2444
Last EDR Contact: 04/13/2023
Next Scheduled EDR Contact: 07/17/2023
Data Release Frequency: Varies

PFAS TRIS: List of PFAS Added to the TRI
Section 7321 of the National Defense Authorization Act for Fiscal Year 2020 (NDAA) immediately added certain per- and polyfluoroalkyl substances (PFAS) to the list of chemicals covered by the Toxics Release Inventory (TRI) under Section 313 of the Emergency Planning and Community Right-to-Know Act (EPCRA) and provided a framework for additional PFAS to be added to TRI on an annual basis.

Date of Government Version: 03/07/2023
Date Data Arrived at EDR: 03/07/2023
Date Made Active in Reports: 03/24/2023
Number of Days to Update: 17

Source: Environmental Protection Agency
Telephone: 202-566-0250
Last EDR Contact: 03/30/2023
Next Scheduled EDR Contact: 07/17/2023
Data Release Frequency: Varies

PCS: Permit Compliance System

PCS is a computerized management information system that contains data on National Pollutant Discharge Elimination System (NPDES) permit holding facilities. PCS tracks the permit, compliance, and enforcement status of NPDES facilities.

Date of Government Version: 07/14/2011
Date Data Arrived at EDR: 08/05/2011
Date Made Active in Reports: 09/29/2011
Number of Days to Update: 55

Source: EPA, Office of Water
Telephone: 202-564-2496
Last EDR Contact: 03/30/2023
Next Scheduled EDR Contact: 07/17/2023
Data Release Frequency: No Update Planned

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

EDR Hist Auto: EDR Exclusive Historical Auto Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR Hist Cleaner: EDR Exclusive Historical Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF: Recovered Government Archive Solid Waste Facilities List

The EDR Recovered Government Archive Landfill database provides a list of landfills derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Resources Recycling and Recovery in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/13/2014
Number of Days to Update: 196

Source: Department of Resources Recycling and Recovery
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

RGA LUST: Recovered Government Archive Leaking Underground Storage Tank

The EDR Recovered Government Archive Leaking Underground Storage Tank database provides a list of LUST incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the State Water Resources Control Board in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 12/30/2013
Number of Days to Update: 182

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

COUNTY RECORDS

ALAMEDA COUNTY:

CS ALAMEDA: Contaminated Sites

A listing of contaminated sites overseen by the Toxic Release Program (oil and groundwater contamination from chemical releases and spills) and the Leaking Underground Storage Tank Program (soil and ground water contamination from leaking petroleum USTs).

Date of Government Version: 01/09/2019
Date Data Arrived at EDR: 01/11/2019
Date Made Active in Reports: 03/05/2019
Number of Days to Update: 53

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 03/29/2023
Next Scheduled EDR Contact: 07/17/2023
Data Release Frequency: Semi-Annually

UST ALAMEDA: Underground Tanks

Underground storage tank sites located in Alameda county.

Date of Government Version: 12/28/2022
Date Data Arrived at EDR: 12/28/2022
Date Made Active in Reports: 03/17/2023
Number of Days to Update: 79

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 03/29/2023
Next Scheduled EDR Contact: 07/17/2023
Data Release Frequency: Semi-Annually

AMADOR COUNTY:

CUPA AMADOR: CUPA Facility List
Cupa Facility List

Date of Government Version: 01/31/2023
Date Data Arrived at EDR: 02/02/2023
Date Made Active in Reports: 04/19/2023
Number of Days to Update: 76

Source: Amador County Environmental Health
Telephone: 209-223-6439
Last EDR Contact: 04/26/2023
Next Scheduled EDR Contact: 08/14/2023
Data Release Frequency: Varies

BUTTE COUNTY:

CUPA BUTTE: CUPA Facility Listing
Cupa facility list.

Date of Government Version: 04/21/2017
Date Data Arrived at EDR: 04/25/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 106

Source: Public Health Department
Telephone: 530-538-7149
Last EDR Contact: 03/29/2023
Next Scheduled EDR Contact: 07/17/2023
Data Release Frequency: No Update Planned

CALVERAS COUNTY:

CUPA CALVERAS: CUPA Facility Listing
Cupa Facility Listing

Date of Government Version: 12/13/2022
Date Data Arrived at EDR: 12/15/2022
Date Made Active in Reports: 12/21/2022
Number of Days to Update: 6

Source: Calveras County Environmental Health
Telephone: 209-754-6399
Last EDR Contact: 03/16/2023
Next Scheduled EDR Contact: 07/03/2023
Data Release Frequency: Quarterly

COLUSA COUNTY:

CUPA COLUSA: CUPA Facility List
Cupa facility list.

Date of Government Version: 04/06/2020
Date Data Arrived at EDR: 04/23/2020
Date Made Active in Reports: 07/10/2020
Number of Days to Update: 78

Source: Health & Human Services
Telephone: 530-458-0396
Last EDR Contact: 04/26/2023
Next Scheduled EDR Contact: 08/14/2023
Data Release Frequency: Semi-Annually

CONTRA COSTA COUNTY:

SL CONTRA COSTA: Site List
List includes sites from the underground tank, hazardous waste generator and business plan/2185 programs.

Date of Government Version: 12/28/2022
Date Data Arrived at EDR: 01/24/2023
Date Made Active in Reports: 04/10/2023
Number of Days to Update: 76

Source: Contra Costa Health Services Department
Telephone: 925-646-2286
Last EDR Contact: 04/19/2023
Next Scheduled EDR Contact: 08/07/2023
Data Release Frequency: Semi-Annually

DEL NORTE COUNTY:

CUPA DEL NORTE: CUPA Facility List
Cupa Facility list

Date of Government Version: 02/13/2023
Date Data Arrived at EDR: 02/14/2023
Date Made Active in Reports: 05/08/2023
Number of Days to Update: 83

Source: Del Norte County Environmental Health Division
Telephone: 707-465-0426
Last EDR Contact: 05/03/2023
Next Scheduled EDR Contact: 08/07/2023
Data Release Frequency: Varies

EL DORADO COUNTY:

CUPA EL DORADO: CUPA Facility List
CUPA facility list.

Date of Government Version: 08/08/2022
Date Data Arrived at EDR: 08/09/2022
Date Made Active in Reports: 09/01/2022
Number of Days to Update: 23

Source: El Dorado County Environmental Management Department
Telephone: 530-621-6623
Last EDR Contact: 04/19/2023
Next Scheduled EDR Contact: 08/07/2023
Data Release Frequency: Varies

FRESNO COUNTY:

CUPA FRESNO: CUPA Resources List
Certified Unified Program Agency. CUPA's are responsible for implementing a unified hazardous materials and hazardous waste management regulatory program. The agency provides oversight of businesses that deal with hazardous materials, operate underground storage tanks or aboveground storage tanks.

Date of Government Version: 06/28/2021
Date Data Arrived at EDR: 12/21/2021
Date Made Active in Reports: 03/03/2022
Number of Days to Update: 72

Source: Dept. of Community Health
Telephone: 559-445-3271
Last EDR Contact: 03/30/2023
Next Scheduled EDR Contact: 07/10/2023
Data Release Frequency: Semi-Annually

GLENN COUNTY:

CUPA GLENN: CUPA Facility List
Cupa facility list

Date of Government Version: 01/22/2018
Date Data Arrived at EDR: 01/24/2018
Date Made Active in Reports: 03/14/2018
Number of Days to Update: 49

Source: Glenn County Air Pollution Control District
Telephone: 830-934-6500
Last EDR Contact: 04/12/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: No Update Planned

HUMBOLDT COUNTY:

CUPA HUMBOLDT: CUPA Facility List
CUPA facility list.

Date of Government Version: 08/12/2021
Date Data Arrived at EDR: 08/12/2021
Date Made Active in Reports: 11/08/2021
Number of Days to Update: 88

Source: Humboldt County Environmental Health
Telephone: N/A
Last EDR Contact: 05/10/2023
Next Scheduled EDR Contact: 08/28/2023
Data Release Frequency: Semi-Annually

IMPERIAL COUNTY:

CUPA IMPERIAL: CUPA Facility List
Cupa facility list.

Date of Government Version: 01/13/2023
Date Data Arrived at EDR: 01/17/2023
Date Made Active in Reports: 04/04/2023
Number of Days to Update: 77

Source: San Diego Border Field Office
Telephone: 760-339-2777
Last EDR Contact: 04/12/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Varies

INYO COUNTY:

CUPA INYO: CUPA Facility List
Cupa facility list.

Date of Government Version: 04/02/2018
Date Data Arrived at EDR: 04/03/2018
Date Made Active in Reports: 06/14/2018
Number of Days to Update: 72

Source: Inyo County Environmental Health Services
Telephone: 760-878-0238
Last EDR Contact: 05/10/2023
Next Scheduled EDR Contact: 08/28/2023
Data Release Frequency: Varies

KERN COUNTY:

CUPA KERN: CUPA Facility List
A listing of sites included in the Kern County Hazardous Material Business Plan.

Date of Government Version: 01/30/2023
Date Data Arrived at EDR: 02/01/2023
Date Made Active in Reports: 04/19/2023
Number of Days to Update: 77

Source: Kern County Public Health
Telephone: 661-321-3000
Last EDR Contact: 05/10/2023
Next Scheduled EDR Contact: 08/14/2023
Data Release Frequency: Varies

UST KERN: Underground Storage Tank Sites & Tank Listing
Kern County Sites and Tanks Listing.

Date of Government Version: 01/30/2023
Date Data Arrived at EDR: 02/01/2023
Date Made Active in Reports: 04/21/2023
Number of Days to Update: 79

Source: Kern County Environment Health Services Department
Telephone: 661-862-8700
Last EDR Contact: 05/10/2023
Next Scheduled EDR Contact: 08/14/2023
Data Release Frequency: Quarterly

KINGS COUNTY:

CUPA KINGS: CUPA Facility List
A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 12/03/2020
Date Data Arrived at EDR: 01/26/2021
Date Made Active in Reports: 04/14/2021
Number of Days to Update: 78

Source: Kings County Department of Public Health
Telephone: 559-584-1411
Last EDR Contact: 05/10/2023
Next Scheduled EDR Contact: 08/28/2023
Data Release Frequency: Varies

LAKE COUNTY:

CUPA LAKE: CUPA Facility List
Cupa facility list

Date of Government Version: 11/04/2022
Date Data Arrived at EDR: 11/07/2022
Date Made Active in Reports: 01/25/2023
Number of Days to Update: 79

Source: Lake County Environmental Health
Telephone: 707-263-1164
Last EDR Contact: 04/05/2023
Next Scheduled EDR Contact: 07/24/2023
Data Release Frequency: Varies

LASSEN COUNTY:

CUPA LASSEN: CUPA Facility List
Cupa facility list

Date of Government Version: 07/31/2020
Date Data Arrived at EDR: 08/21/2020
Date Made Active in Reports: 11/09/2020
Number of Days to Update: 80

Source: Lassen County Environmental Health
Telephone: 530-251-8528
Last EDR Contact: 04/12/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Varies

LOS ANGELES COUNTY:

AOCONCERN: Key Areas of Concerns in Los Angeles County
San Gabriel Valley areas where VOC contamination is at or above the MCL as designated by region 9 EPA office. Date of Government Version: 3/30/2009 Exide Site area is a cleanup plan of lead-impacted soil surrounding the former Exide Facility as designated by the DTSC. Date of Government Version: 7/17/2017

Date of Government Version: 03/30/2009
Date Data Arrived at EDR: 03/31/2009
Date Made Active in Reports: 10/23/2009
Number of Days to Update: 206

Source: N/A
Telephone: N/A
Last EDR Contact: 03/09/2023
Next Scheduled EDR Contact: 06/26/2023
Data Release Frequency: No Update Planned

HMS LOS ANGELES: HMS: Street Number List
Industrial Waste and Underground Storage Tank Sites.

Date of Government Version: 01/09/2023
Date Data Arrived at EDR: 01/12/2023
Date Made Active in Reports: 03/29/2023
Number of Days to Update: 76

Source: Department of Public Works
Telephone: 626-458-3517
Last EDR Contact: 03/29/2023
Next Scheduled EDR Contact: 07/17/2023
Data Release Frequency: Semi-Annually

LF LOS ANGELES: List of Solid Waste Facilities
Solid Waste Facilities in Los Angeles County.

Date of Government Version: 01/09/2023
Date Data Arrived at EDR: 01/10/2023
Date Made Active in Reports: 03/23/2023
Number of Days to Update: 72

Source: La County Department of Public Works
Telephone: 818-458-5185
Last EDR Contact: 04/11/2023
Next Scheduled EDR Contact: 07/24/2023
Data Release Frequency: Varies

LF LOS ANGELES CITY: City of Los Angeles Landfills
Landfills owned and maintained by the City of Los Angeles.

Date of Government Version: 12/31/2022
Date Data Arrived at EDR: 01/12/2023
Date Made Active in Reports: 03/29/2023
Number of Days to Update: 76

Source: Engineering & Construction Division
Telephone: 213-473-7869
Last EDR Contact: 04/05/2023
Next Scheduled EDR Contact: 07/24/2023
Data Release Frequency: Varies

LOS ANGELES AST: Active & Inactive AST Inventory
A listing of active & inactive above ground petroleum storage tank site locations, located in the City of Los Angeles.

Date of Government Version: 06/01/2019
Date Data Arrived at EDR: 06/25/2019
Date Made Active in Reports: 08/22/2019
Number of Days to Update: 58

Source: Los Angeles Fire Department
Telephone: 213-978-3800
Last EDR Contact: 03/16/2023
Next Scheduled EDR Contact: 07/03/2023
Data Release Frequency: Varies

LOS ANGELES CO LF METHANE: Methane Producing Landfills
This data was created on April 30, 2012 to represent known disposal sites in Los Angeles County that may produce and emanate methane gas. The shapefile contains disposal sites within Los Angeles County that once accepted degradable refuse material. Information used to create this data was extracted from a landfill survey performed by County Engineers (Major Waste System Map, 1973) as well as historical records from CalRecycle, Regional Water Quality Control Board, and Los Angeles County Department of Public Health

Date of Government Version: 01/10/2022
Date Data Arrived at EDR: 01/12/2022
Date Made Active in Reports: 04/04/2022
Number of Days to Update: 82

Source: Los Angeles County Department of Public Works
Telephone: 626-458-6973
Last EDR Contact: 04/05/2023
Next Scheduled EDR Contact: 07/24/2023
Data Release Frequency: No Update Planned

LOS ANGELES HM: Active & Inactive Hazardous Materials Inventory
A listing of active & inactive hazardous materials facility locations, located in the City of Los Angeles.

Date of Government Version: 11/01/2022
Date Data Arrived at EDR: 12/14/2022
Date Made Active in Reports: 03/07/2023
Number of Days to Update: 83

Source: Los Angeles Fire Department
Telephone: 213-978-3800
Last EDR Contact: 03/24/2023
Next Scheduled EDR Contact: 07/03/2023
Data Release Frequency: Varies

LOS ANGELES UST: Active & Inactive UST Inventory
A listing of active & inactive underground storage tank site locations and underground storage tank historical sites, located in the City of Los Angeles.

Date of Government Version: 11/01/2022
Date Data Arrived at EDR: 12/14/2022
Date Made Active in Reports: 03/07/2023
Number of Days to Update: 83

Source: Los Angeles Fire Department
Telephone: 213-978-3800
Last EDR Contact: 03/24/2023
Next Scheduled EDR Contact: 07/03/2023
Data Release Frequency: Varies

SITE MIT LOS ANGELES: Site Mitigation List
Industrial sites that have had some sort of spill or complaint.

Date of Government Version: 05/26/2021
Date Data Arrived at EDR: 07/09/2021
Date Made Active in Reports: 09/29/2021
Number of Days to Update: 82

Source: Community Health Services
Telephone: 323-890-7806
Last EDR Contact: 04/18/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Annually

UST EL SEGUNDO: City of El Segundo Underground Storage Tank
Underground storage tank sites located in El Segundo city.

Date of Government Version: 01/21/2017
Date Data Arrived at EDR: 04/19/2017
Date Made Active in Reports: 05/10/2017
Number of Days to Update: 21

Source: City of El Segundo Fire Department
Telephone: 310-524-2236
Last EDR Contact: 04/05/2023
Next Scheduled EDR Contact: 07/24/2023
Data Release Frequency: No Update Planned

UST LONG BEACH: City of Long Beach Underground Storage Tank
Underground storage tank sites located in the city of Long Beach.

Date of Government Version: 04/22/2019
Date Data Arrived at EDR: 04/23/2019
Date Made Active in Reports: 06/27/2019
Number of Days to Update: 65

Source: City of Long Beach Fire Department
Telephone: 562-570-2563
Last EDR Contact: 04/12/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Varies

UST TORRANCE: City of Torrance Underground Storage Tank
Underground storage tank sites located in the city of Torrance.

Date of Government Version: 10/18/2022
Date Data Arrived at EDR: 10/19/2022
Date Made Active in Reports: 01/10/2023
Number of Days to Update: 83

Source: City of Torrance Fire Department
Telephone: 310-618-2973
Last EDR Contact: 04/12/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Semi-Annually

MADERA COUNTY:

CUPA MADERA: CUPA Facility List
A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 08/10/2020
Date Data Arrived at EDR: 08/12/2020
Date Made Active in Reports: 10/23/2020
Number of Days to Update: 72

Source: Madera County Environmental Health
Telephone: 559-675-7823
Last EDR Contact: 05/10/2023
Next Scheduled EDR Contact: 08/28/2023
Data Release Frequency: Varies

MARIN COUNTY:

UST MARIN: Underground Storage Tank Sites
Currently permitted USTs in Marin County.

Date of Government Version: 09/26/2018
Date Data Arrived at EDR: 10/04/2018
Date Made Active in Reports: 11/02/2018
Number of Days to Update: 29

Source: Public Works Department Waste Management
Telephone: 415-473-6647
Last EDR Contact: 03/22/2023
Next Scheduled EDR Contact: 07/10/2023
Data Release Frequency: Semi-Annually

MENDOCINO COUNTY:

UST MENDOCINO: Mendocino County UST Database
A listing of underground storage tank locations in Mendocino County.

Date of Government Version: 09/22/2021
Date Data Arrived at EDR: 11/18/2021
Date Made Active in Reports: 11/22/2021
Number of Days to Update: 4

Source: Department of Public Health
Telephone: 707-463-4466
Last EDR Contact: 05/17/2023
Next Scheduled EDR Contact: 09/04/2023
Data Release Frequency: Annually

MERCED COUNTY:

CUPA MERCED: CUPA Facility List
CUPA facility list.

Date of Government Version: 02/15/2022
Date Data Arrived at EDR: 02/17/2022
Date Made Active in Reports: 05/11/2022
Number of Days to Update: 83

Source: Merced County Environmental Health
Telephone: 209-381-1094
Last EDR Contact: 04/26/2023
Next Scheduled EDR Contact: 08/28/2023
Data Release Frequency: Varies

MONO COUNTY:

CUPA MONO: CUPA Facility List
CUPA Facility List

Date of Government Version: 02/22/2021
Date Data Arrived at EDR: 03/02/2021
Date Made Active in Reports: 05/19/2021
Number of Days to Update: 78

Source: Mono County Health Department
Telephone: 760-932-5580
Last EDR Contact: 05/17/2023
Next Scheduled EDR Contact: 09/04/2023
Data Release Frequency: Varies

MONTEREY COUNTY:

CUPA MONTEREY: CUPA Facility Listing
CUPA Program listing from the Environmental Health Division.

Date of Government Version: 10/04/2021
Date Data Arrived at EDR: 10/06/2021
Date Made Active in Reports: 12/29/2021
Number of Days to Update: 84

Source: Monterey County Health Department
Telephone: 831-796-1297
Last EDR Contact: 03/22/2023
Next Scheduled EDR Contact: 07/10/2023
Data Release Frequency: Varies

NAPA COUNTY:

LUST NAPA: Sites With Reported Contamination
A listing of leaking underground storage tank sites located in Napa county.

Date of Government Version: 01/09/2017
Date Data Arrived at EDR: 01/11/2017
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 50

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 05/17/2023
Next Scheduled EDR Contact: 09/04/2023
Data Release Frequency: No Update Planned

UST NAPA: Closed and Operating Underground Storage Tank Sites
Underground storage tank sites located in Napa county.

Date of Government Version: 09/05/2019
Date Data Arrived at EDR: 09/09/2019
Date Made Active in Reports: 10/31/2019
Number of Days to Update: 52

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 05/17/2023
Next Scheduled EDR Contact: 09/04/2023
Data Release Frequency: No Update Planned

NEVADA COUNTY:

CUPA NEVADA: CUPA Facility List
CUPA facility list.

Date of Government Version: 01/23/2023
Date Data Arrived at EDR: 01/25/2023
Date Made Active in Reports: 04/10/2023
Number of Days to Update: 75

Source: Community Development Agency
Telephone: 530-265-1467
Last EDR Contact: 05/03/2023
Next Scheduled EDR Contact: 08/07/2023
Data Release Frequency: Varies

ORANGE COUNTY:

IND_SITE ORANGE: List of Industrial Site Cleanups
Petroleum and non-petroleum spills.

Date of Government Version: 02/02/2023
Date Data Arrived at EDR: 02/09/2023
Date Made Active in Reports: 05/09/2023
Number of Days to Update: 89

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 05/03/2023
Next Scheduled EDR Contact: 08/14/2023
Data Release Frequency: Annually

LUST ORANGE: List of Underground Storage Tank Cleanups
Orange County Underground Storage Tank Cleanups (LUST).

Date of Government Version: 02/02/2023
Date Data Arrived at EDR: 02/09/2023
Date Made Active in Reports: 05/04/2023
Number of Days to Update: 84

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 05/03/2023
Next Scheduled EDR Contact: 08/14/2023
Data Release Frequency: Quarterly

UST ORANGE: List of Underground Storage Tank Facilities
Orange County Underground Storage Tank Facilities (UST).

Date of Government Version: 02/06/2023
Date Data Arrived at EDR: 02/09/2023
Date Made Active in Reports: 05/03/2023
Number of Days to Update: 83

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 05/03/2023
Next Scheduled EDR Contact: 08/14/2023
Data Release Frequency: Quarterly

PLACER COUNTY:

MS PLACER: Master List of Facilities
List includes aboveground tanks, underground tanks and cleanup sites.

Date of Government Version: 08/26/2022
Date Data Arrived at EDR: 08/29/2022
Date Made Active in Reports: 11/15/2022
Number of Days to Update: 78

Source: Placer County Health and Human Services
Telephone: 530-745-2363
Last EDR Contact: 05/08/2023
Next Scheduled EDR Contact: 06/12/2023
Data Release Frequency: Semi-Annually

PLUMAS COUNTY:

CUPA PLUMAS: CUPA Facility List
Plumas County CUPA Program facilities.

Date of Government Version: 03/31/2019
Date Data Arrived at EDR: 04/23/2019
Date Made Active in Reports: 06/26/2019
Number of Days to Update: 64

Source: Plumas County Environmental Health
Telephone: 530-283-6355
Last EDR Contact: 04/12/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Varies

RIVERSIDE COUNTY:

LUST RIVERSIDE: Listing of Underground Tank Cleanup Sites
Riverside County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 01/18/2023
Date Data Arrived at EDR: 01/19/2023
Date Made Active in Reports: 04/04/2023
Number of Days to Update: 75

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 03/09/2023
Next Scheduled EDR Contact: 06/26/2023
Data Release Frequency: Quarterly

UST RIVERSIDE: Underground Storage Tank Tank List
Underground storage tank sites located in Riverside county.

Date of Government Version: 01/18/2023
Date Data Arrived at EDR: 01/19/2023
Date Made Active in Reports: 04/04/2023
Number of Days to Update: 75

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 03/09/2023
Next Scheduled EDR Contact: 06/26/2023
Data Release Frequency: Quarterly

SACRAMENTO COUNTY:

CS SACRAMENTO: Toxic Site Clean-Up List
List of sites where unauthorized releases of potentially hazardous materials have occurred.

Date of Government Version: 11/07/2022
Date Data Arrived at EDR: 12/21/2022
Date Made Active in Reports: 03/16/2023
Number of Days to Update: 85

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 03/30/2023
Next Scheduled EDR Contact: 07/10/2023
Data Release Frequency: Quarterly

ML SACRAMENTO: Master Hazardous Materials Facility List
Any business that has hazardous materials on site - hazardous material storage sites, underground storage tanks, waste generators.

Date of Government Version: 11/07/2022
Date Data Arrived at EDR: 12/09/2022
Date Made Active in Reports: 03/01/2023
Number of Days to Update: 82

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 03/30/2023
Next Scheduled EDR Contact: 07/10/2023
Data Release Frequency: Quarterly

SAN BENITO COUNTY:

CUPA SAN BENITO: CUPA Facility List
Cupa facility list

Date of Government Version: 02/08/2023
Date Data Arrived at EDR: 02/09/2023
Date Made Active in Reports: 05/04/2023
Number of Days to Update: 84

Source: San Benito County Environmental Health
Telephone: N/A
Last EDR Contact: 04/26/2023
Next Scheduled EDR Contact: 08/14/2023
Data Release Frequency: Varies

SAN BERNARDINO COUNTY:

PERMITS SAN BERNARDINO: Hazardous Material Permits
This listing includes underground storage tanks, medical waste handlers/generators, hazardous materials handlers, hazardous waste generators, and waste oil generators/handlers.

Date of Government Version: 02/15/2023
Date Data Arrived at EDR: 02/15/2023
Date Made Active in Reports: 05/09/2023
Number of Days to Update: 83

Source: San Bernardino County Fire Department Hazardous Materials Division
Telephone: 909-387-3041
Last EDR Contact: 04/26/2023
Next Scheduled EDR Contact: 08/14/2023
Data Release Frequency: Quarterly

SAN DIEGO COUNTY:

HMMD SAN DIEGO: Hazardous Materials Management Division Database

The database includes: HE58 - This report contains the business name, site address, business phone number, establishment 'H' permit number, type of permit, and the business status. HE17 - In addition to providing the same information provided in the HE58 listing, HE17 provides inspection dates, violations received by the establishment, hazardous waste generated, the quantity, method of storage, treatment/disposal of waste and the hauler, and information on underground storage tanks. Unauthorized Release List - Includes a summary of environmental contamination cases in San Diego County (underground tank cases, non-tank cases, groundwater contamination, and soil contamination are included.)

Date of Government Version: 02/27/2023
Date Data Arrived at EDR: 02/28/2023
Date Made Active in Reports: 05/17/2023
Number of Days to Update: 78

Source: Hazardous Materials Management Division
Telephone: 619-338-2268
Last EDR Contact: 02/28/2023
Next Scheduled EDR Contact: 06/12/2023
Data Release Frequency: Quarterly

LF SAN DIEGO: Solid Waste Facilities

San Diego County Solid Waste Facilities.

Date of Government Version: 10/27/2021
Date Data Arrived at EDR: 03/04/2022
Date Made Active in Reports: 05/31/2022
Number of Days to Update: 88

Source: Department of Health Services
Telephone: 619-338-2209
Last EDR Contact: 04/04/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Varies

SAN DIEGO CO LOP: Local Oversight Program Listing

A listing of all LOP release sites that are or were under the County of San Diego's jurisdiction. Included are closed or transferred cases, open cases, and cases that did not have a case type indicated. The cases without a case type are mostly complaints; however, some of them could be LOP cases.

Date of Government Version: 07/22/2021
Date Data Arrived at EDR: 10/19/2021
Date Made Active in Reports: 01/13/2022
Number of Days to Update: 86

Source: Department of Environmental Health
Telephone: 858-505-6874
Last EDR Contact: 04/12/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Varies

SAN DIEGO CO SAM: Environmental Case Listing

The listing contains all underground tank release cases and projects pertaining to properties contaminated with hazardous substances that are actively under review by the Site Assessment and Mitigation Program.

Date of Government Version: 03/23/2010
Date Data Arrived at EDR: 06/15/2010
Date Made Active in Reports: 07/09/2010
Number of Days to Update: 24

Source: San Diego County Department of Environmental Health
Telephone: 619-338-2371
Last EDR Contact: 02/23/2023
Next Scheduled EDR Contact: 06/12/2023
Data Release Frequency: No Update Planned

SAN FRANCISCO COUNTY:

CUPA SAN FRANCISCO CO: CUPA Facility Listing

Cupa facilities

Date of Government Version: 02/03/2023
Date Data Arrived at EDR: 02/07/2023
Date Made Active in Reports: 04/26/2023
Number of Days to Update: 78

Source: San Francisco County Department of Environmental Health
Telephone: 415-252-3896
Last EDR Contact: 04/26/2023
Next Scheduled EDR Contact: 08/14/2023
Data Release Frequency: Varies

LUST SAN FRANCISCO: Local Oversite Facilities
A listing of leaking underground storage tank sites located in San Francisco county.

Date of Government Version: 09/19/2008
Date Data Arrived at EDR: 09/19/2008
Date Made Active in Reports: 09/29/2008
Number of Days to Update: 10

Source: Department Of Public Health San Francisco County
Telephone: 415-252-3920
Last EDR Contact: 04/26/2023
Next Scheduled EDR Contact: 08/14/2023
Data Release Frequency: No Update Planned

UST SAN FRANCISCO: Underground Storage Tank Information
Underground storage tank sites located in San Francisco county.

Date of Government Version: 04/28/2023
Date Data Arrived at EDR: 04/28/2023
Date Made Active in Reports: 05/03/2023
Number of Days to Update: 5

Source: Department of Public Health
Telephone: 415-252-3920
Last EDR Contact: 04/26/2023
Next Scheduled EDR Contact: 08/14/2023
Data Release Frequency: Quarterly

SAN FRANCISO COUNTY:

SAN FRANCISCO MAHER: Maher Ordinance Property Listing
a listing of properties that fall within a Maher Ordinance, for all of San Francisco

Date of Government Version: 10/11/2022
Date Data Arrived at EDR: 10/14/2022
Date Made Active in Reports: 01/04/2023
Number of Days to Update: 82

Source: San Francisco Planning
Telephone: 628-652-7483
Last EDR Contact: 04/13/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Varies

SAN JOAQUIN COUNTY:

UST SAN JOAQUIN: San Joaquin Co. UST
A listing of underground storage tank locations in San Joaquin county.

Date of Government Version: 06/22/2018
Date Data Arrived at EDR: 06/26/2018
Date Made Active in Reports: 07/11/2018
Number of Days to Update: 15

Source: Environmental Health Department
Telephone: N/A
Last EDR Contact: 03/09/2023
Next Scheduled EDR Contact: 06/26/2023
Data Release Frequency: Semi-Annually

SAN LUIS OBISPO COUNTY:

CUPA SAN LUIS OBISPO: CUPA Facility List
Cupa Facility List.

Date of Government Version: 02/09/2023
Date Data Arrived at EDR: 02/10/2023
Date Made Active in Reports: 05/05/2023
Number of Days to Update: 84

Source: San Luis Obispo County Public Health Department
Telephone: 805-781-5596
Last EDR Contact: 05/10/2023
Next Scheduled EDR Contact: 08/28/2023
Data Release Frequency: Varies

SAN MATEO COUNTY:

BI SAN MATEO: Business Inventory
List includes Hazardous Materials Business Plan, hazardous waste generators, and underground storage tanks.

Date of Government Version: 02/20/2020
Date Data Arrived at EDR: 02/20/2020
Date Made Active in Reports: 04/24/2020
Number of Days to Update: 64
Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 03/10/2023
Next Scheduled EDR Contact: 06/19/2023
Data Release Frequency: Annually

LUST SAN MATEO: Fuel Leak List
A listing of leaking underground storage tank sites located in San Mateo county.

Date of Government Version: 03/29/2019
Date Data Arrived at EDR: 03/29/2019
Date Made Active in Reports: 05/29/2019
Number of Days to Update: 61
Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 03/02/2023
Next Scheduled EDR Contact: 06/19/2023
Data Release Frequency: Semi-Annually

SANTA BARBARA COUNTY:

CUPA SANTA BARBARA: CUPA Facility Listing
CUPA Program Listing from the Environmental Health Services division.

Date of Government Version: 09/08/2011
Date Data Arrived at EDR: 09/09/2011
Date Made Active in Reports: 10/07/2011
Number of Days to Update: 28
Source: Santa Barbara County Public Health Department
Telephone: 805-686-8167
Last EDR Contact: 05/10/2023
Next Scheduled EDR Contact: 08/28/2023
Data Release Frequency: No Update Planned

SANTA CLARA COUNTY:

CUPA SANTA CLARA: Cupa Facility List
Cupa facility list

Date of Government Version: 02/10/2023
Date Data Arrived at EDR: 02/10/2023
Date Made Active in Reports: 05/05/2023
Number of Days to Update: 84
Source: Department of Environmental Health
Telephone: 408-918-1973
Last EDR Contact: 05/10/2023
Next Scheduled EDR Contact: 08/28/2023
Data Release Frequency: Varies

HIST LUST SANTA CLARA: HIST LUST - Fuel Leak Site Activity Report
A listing of open and closed leaking underground storage tanks. This listing is no longer updated by the county. Leaking underground storage tanks are now handled by the Department of Environmental Health.

Date of Government Version: 03/29/2005
Date Data Arrived at EDR: 03/30/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 22
Source: Santa Clara Valley Water District
Telephone: 408-265-2600
Last EDR Contact: 03/23/2009
Next Scheduled EDR Contact: 06/22/2009
Data Release Frequency: No Update Planned

LUST SANTA CLARA: LOP Listing
A listing of leaking underground storage tanks located in Santa Clara county.

Date of Government Version: 03/03/2014
Date Data Arrived at EDR: 03/05/2014
Date Made Active in Reports: 03/18/2014
Number of Days to Update: 13
Source: Department of Environmental Health
Telephone: 408-918-3417
Last EDR Contact: 05/17/2023
Next Scheduled EDR Contact: 09/04/2023
Data Release Frequency: No Update Planned

SANTA CRUZ COUNTY:

CUPA SANTA CRUZ: CUPA Facility List
CUPA facility listing.

Date of Government Version: 01/21/2017
Date Data Arrived at EDR: 02/22/2017
Date Made Active in Reports: 05/23/2017
Number of Days to Update: 90

Source: Santa Cruz County Environmental Health
Telephone: 831-464-2761
Last EDR Contact: 05/10/2023
Next Scheduled EDR Contact: 08/28/2023
Data Release Frequency: Varies

SHASTA COUNTY:

CUPA SHASTA: CUPA Facility List
Cupa Facility List.

Date of Government Version: 06/15/2017
Date Data Arrived at EDR: 06/19/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 51

Source: Shasta County Department of Resource Management
Telephone: 530-225-5789
Last EDR Contact: 05/10/2023
Next Scheduled EDR Contact: 08/28/2023
Data Release Frequency: Varies

SOLANO COUNTY:

LUST SOLANO: Leaking Underground Storage Tanks
A listing of leaking underground storage tank sites located in Solano county.

Date of Government Version: 06/04/2019
Date Data Arrived at EDR: 06/06/2019
Date Made Active in Reports: 08/13/2019
Number of Days to Update: 68

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 02/23/2023
Next Scheduled EDR Contact: 06/12/2023
Data Release Frequency: Quarterly

UST SOLANO: Underground Storage Tanks
Underground storage tank sites located in Solano county.

Date of Government Version: 09/15/2021
Date Data Arrived at EDR: 09/16/2021
Date Made Active in Reports: 12/09/2021
Number of Days to Update: 84

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 02/23/2023
Next Scheduled EDR Contact: 06/12/2023
Data Release Frequency: Quarterly

SONOMA COUNTY:

CUPA SONOMA: Cupa Facility List
Cupa Facility list

Date of Government Version: 07/02/2021
Date Data Arrived at EDR: 07/06/2021
Date Made Active in Reports: 07/14/2021
Number of Days to Update: 8

Source: County of Sonoma Fire & Emergency Services Department
Telephone: 707-565-1174
Last EDR Contact: 06/28/2021
Next Scheduled EDR Contact: 07/03/2023
Data Release Frequency: Varies

LUST SONOMA: Leaking Underground Storage Tank Sites
A listing of leaking underground storage tank sites located in Sonoma county.

Date of Government Version: 06/30/2021
Date Data Arrived at EDR: 06/30/2021
Date Made Active in Reports: 09/24/2021
Number of Days to Update: 86

Source: Department of Health Services
Telephone: 707-565-6565
Last EDR Contact: 03/16/2023
Next Scheduled EDR Contact: 07/03/2023
Data Release Frequency: Quarterly

STANISLAUS COUNTY:

CUPA STANISLAUS: CUPA Facility List
Cupa facility list

Date of Government Version: 02/08/2022
Date Data Arrived at EDR: 02/10/2022
Date Made Active in Reports: 05/04/2022
Number of Days to Update: 83

Source: Stanislaus County Department of Ennvironmental Protection
Telephone: 209-525-6751
Last EDR Contact: 04/05/2023
Next Scheduled EDR Contact: 07/24/2023
Data Release Frequency: Varies

SUTTER COUNTY:

UST SUTTER: Underground Storage Tanks
Underground storage tank sites located in Sutter county.

Date of Government Version: 08/03/2022
Date Data Arrived at EDR: 08/25/2022
Date Made Active in Reports: 11/14/2022
Number of Days to Update: 81

Source: Sutter County Environmental Health Services
Telephone: 530-822-7500
Last EDR Contact: 02/23/2023
Next Scheduled EDR Contact: 06/12/2023
Data Release Frequency: Semi-Annually

TEHAMA COUNTY:

CUPA TEHAMA: CUPA Facility List
Cupa facilities

Date of Government Version: 11/17/2022
Date Data Arrived at EDR: 11/21/2022
Date Made Active in Reports: 02/10/2023
Number of Days to Update: 81

Source: Tehama County Department of Environmental Health
Telephone: 530-527-8020
Last EDR Contact: 05/10/2023
Next Scheduled EDR Contact: 08/14/2023
Data Release Frequency: Varies

TRINITY COUNTY:

CUPA TRINITY: CUPA Facility List
Cupa facility list

Date of Government Version: 01/13/2023
Date Data Arrived at EDR: 01/17/2023
Date Made Active in Reports: 04/04/2023
Number of Days to Update: 77

Source: Department of Toxic Substances Control
Telephone: 760-352-0381
Last EDR Contact: 04/12/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Varies

TULARE COUNTY:

CUPA TULARE: CUPA Facility List
Cupa program facilities

Date of Government Version: 10/07/2022
Date Data Arrived at EDR: 10/07/2022
Date Made Active in Reports: 12/21/2022
Number of Days to Update: 75

Source: Tulare County Environmental Health Services Division
Telephone: 559-624-7400
Last EDR Contact: 05/10/2023
Next Scheduled EDR Contact: 08/14/2023
Data Release Frequency: Varies

TUOLUMNE COUNTY:

CUPA TUOLUMNE: CUPA Facility List
Cupa facility list

Date of Government Version: 04/23/2018
Date Data Arrived at EDR: 04/25/2018
Date Made Active in Reports: 06/25/2018
Number of Days to Update: 61

Source: Divison of Environmental Health
Telephone: 209-533-5633
Last EDR Contact: 04/12/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Varies

VENTURA COUNTY:

BWT VENTURA: Business Plan, Hazardous Waste Producers, and Operating Underground Tanks
The BWT list indicates by site address whether the Environmental Health Division has Business Plan (B), Waste Producer (W), and/or Underground Tank (T) information.

Date of Government Version: 12/27/2022
Date Data Arrived at EDR: 01/26/2023
Date Made Active in Reports: 04/19/2023
Number of Days to Update: 83

Source: Ventura County Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 04/17/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Quarterly

LF VENTURA: Inventory of Illegal Abandoned and Inactive Sites
Ventura County Inventory of Closed, Illegal Abandoned, and Inactive Sites.

Date of Government Version: 12/01/2011
Date Data Arrived at EDR: 12/01/2011
Date Made Active in Reports: 01/19/2012
Number of Days to Update: 49

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 03/22/2023
Next Scheduled EDR Contact: 07/10/2023
Data Release Frequency: No Update Planned

LUST VENTURA: Listing of Underground Tank Cleanup Sites
Ventura County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 05/29/2008
Date Data Arrived at EDR: 06/24/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 37

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 05/03/2023
Next Scheduled EDR Contact: 08/21/2023
Data Release Frequency: No Update Planned

MED WASTE VENTURA: Medical Waste Program List
To protect public health and safety and the environment from potential exposure to disease causing agents, the Environmental Health Division Medical Waste Program regulates the generation, handling, storage, treatment and disposal of medical waste throughout the County.

Date of Government Version: 12/27/2022
Date Data Arrived at EDR: 01/26/2023
Date Made Active in Reports: 04/19/2023
Number of Days to Update: 83

Source: Ventura County Resource Management Agency
Telephone: 805-654-2813
Last EDR Contact: 04/17/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Quarterly

UST VENTURA: Underground Tank Closed Sites List
Ventura County Operating Underground Storage Tank Sites (UST)/Underground Tank Closed Sites List.

Date of Government Version: 11/28/2022
Date Data Arrived at EDR: 12/02/2022
Date Made Active in Reports: 02/23/2023
Number of Days to Update: 83

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 03/07/2023
Next Scheduled EDR Contact: 06/19/2023
Data Release Frequency: Quarterly

YOLO COUNTY:

UST YOLO: Underground Storage Tank Comprehensive Facility Report
Underground storage tank sites located in Yolo county.

Date of Government Version: 12/19/2022
Date Data Arrived at EDR: 12/27/2022
Date Made Active in Reports: 03/17/2023
Number of Days to Update: 80

Source: Yolo County Department of Health
Telephone: 530-666-8646
Last EDR Contact: 03/22/2023
Next Scheduled EDR Contact: 07/10/2023
Data Release Frequency: Annually

YUBA COUNTY:

CUPA YUBA: CUPA Facility List
CUPA facility listing for Yuba County.

Date of Government Version: 01/26/2023
Date Data Arrived at EDR: 01/27/2023
Date Made Active in Reports: 04/19/2023
Number of Days to Update: 82

Source: Yuba County Environmental Health Department
Telephone: 530-749-7523
Last EDR Contact: 05/03/2023
Next Scheduled EDR Contact: 08/07/2023
Data Release Frequency: Varies

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data
Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 11/16/2022
Date Data Arrived at EDR: 11/16/2022
Date Made Active in Reports: 02/06/2023
Number of Days to Update: 82

Source: Department of Energy & Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 05/11/2023
Next Scheduled EDR Contact: 08/21/2023
Data Release Frequency: No Update Planned

NJ MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2018
Date Data Arrived at EDR: 04/10/2019
Date Made Active in Reports: 05/16/2019
Number of Days to Update: 36

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 03/30/2023
Next Scheduled EDR Contact: 07/17/2023
Data Release Frequency: Annually

NY MANIFEST: Facility and Manifest Data
Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 01/01/2019
Date Data Arrived at EDR: 10/29/2021
Date Made Active in Reports: 01/19/2022
Number of Days to Update: 82

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 04/27/2023
Next Scheduled EDR Contact: 08/07/2023
Data Release Frequency: Quarterly

PA MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 06/30/2018
Date Data Arrived at EDR: 07/19/2019
Date Made Active in Reports: 09/10/2019
Number of Days to Update: 53

Source: Department of Environmental Protection
Telephone: 717-783-8990
Last EDR Contact: 04/06/2023
Next Scheduled EDR Contact: 07/24/2023
Data Release Frequency: Annually

RI MANIFEST: Manifest information
Hazardous waste manifest information

Date of Government Version: 12/31/2020
Date Data Arrived at EDR: 11/30/2021
Date Made Active in Reports: 02/18/2022
Number of Days to Update: 80

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 05/10/2022
Next Scheduled EDR Contact: 08/28/2023
Data Release Frequency: Annually

WI MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 05/31/2018
Date Data Arrived at EDR: 06/19/2019
Date Made Active in Reports: 09/03/2019
Number of Days to Update: 76

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 03/06/2023
Next Scheduled EDR Contact: 06/19/2023
Data Release Frequency: Annually

Oil/Gas Pipelines
Source: Endeavor Business Media
Petroleum Bundle (Crude Oil, Refined Products, Petrochemicals, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)) N = Natural Gas Bundle (Natural Gas, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)). This map includes information copyrighted by Endeavor Business Media. This information is provided on a best effort basis and Endeavor Business Media does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of Endeavor Business Media.

Electric Power Transmission Line Data
Source: Endeavor Business Media
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Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.
Daycare Centers: Licensed Facilities
Source: Department of Social Services
Telephone: 916-657-4041

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005, 2010 and 2015 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory
Source: Department of Fish and Wildlife
Telephone: 916-445-0411

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

STREET AND ADDRESS INFORMATION

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GEOCHECK ®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

BAKERSFIELD - PROJECT MILO
2909 HOUGHTON ROAD
BAKERSFIELD, CA 93313

TARGET PROPERTY COORDINATES

Latitude (North):	35.233991 - 35° 14' 2.37''
Longitude (West):	119.036038 - 119° 2' 9.74''
Universal Tranverse Mercator:	Zone 11
UTM X (Meters):	314721.2
UTM Y (Meters):	3900693.8
Elevation:	333 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	11998645 CONNER, CA
Version Date:	2018
North Map:	12013990 GOSFORD, CA
Version Date:	2018

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principle investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

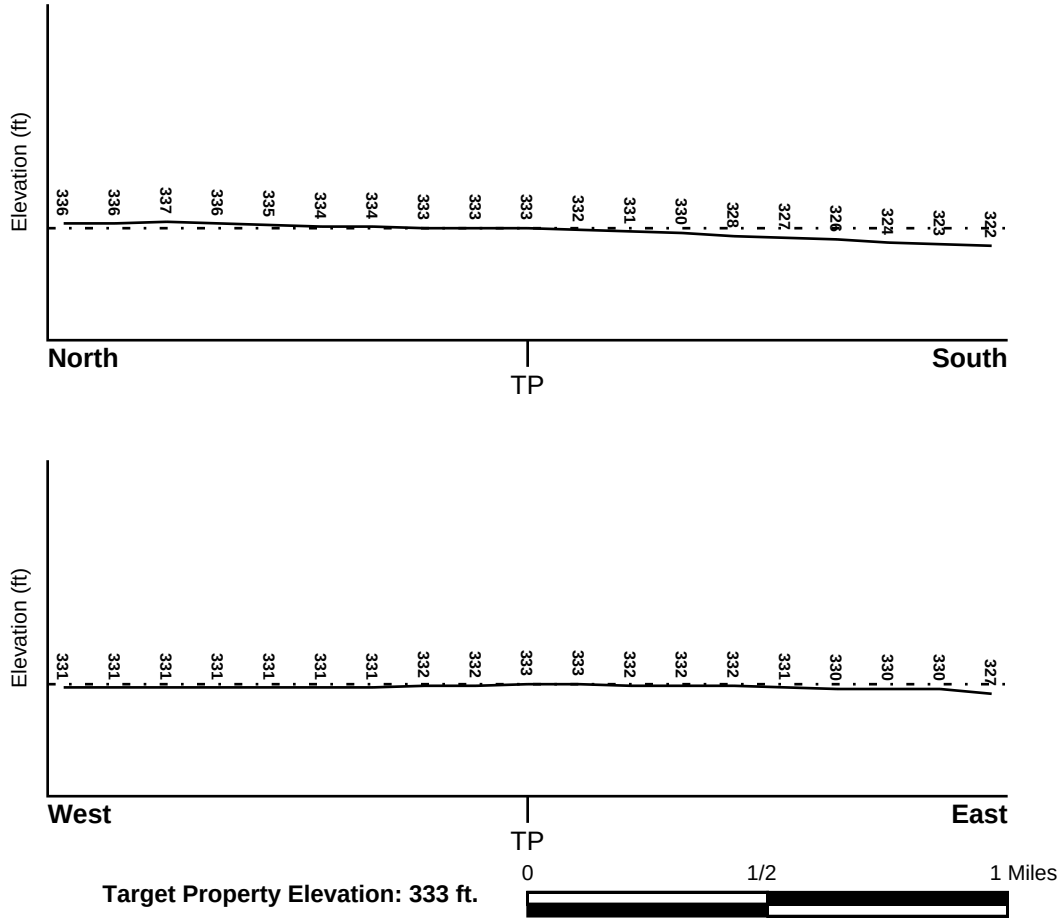
TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General South

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Target Property Elevation: 333 ft.

Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Flood Plain Panel at Target Property	FEMA Source Type
06029C2725E	FEMA FIRM Flood data

Additional Panels in search area:	FEMA Source Type
Not Reported	

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
CONNER	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Site-Specific Hydrogeological Data*:

Search Radius:	1.25 miles
Status:	Not found

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
Not Reported		

* ©1996 Site−specific hydrogeological data gathered by CERCLIS Alerts, Inc., Bainbridge Island, WA. All rights reserved. All of the information and opinions presented are those of the cited EPA report(s), which were completed under a Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS) investigation.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

Era:	Cenozoic
System:	Quaternary
Series:	Quaternary
Code:	Q *(decoded above as Era, System & Series)*

GEOLOGIC AGE IDENTIFICATION

Category: Stratifed Sequence

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps. The following information is based on Soil Conservation Service STATSGO data.

Soil Component Name:	KIMBERLINA
Soil Surface Texture:	fine sandy loam
Hydrologic Group:	Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.
Soil Drainage Class:	Well drained. Soils have intermediate water holding capacity. Depth to water table is more than 6 feet.

Hydric Status: Soil does not meet the requirements for a hydric soil.

Corrosion Potential - Uncoated Steel: HIGH

Depth to Bedrock Min: > 60 inches

Depth to Bedrock Max: > 60 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification			
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil	Permeability Rate (in/hr)	Soil Reaction (pH)
1	0 inches	9 inches	fine sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 6.00 Min: 2.00	Max: 8.40 Min: 6.60
2	9 inches	45 inches	fine sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 6.00 Min: 2.00	Max: 8.40 Min: 7.90
3	45 inches	71 inches	stratified	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 2.00 Min: 0.60	Max: 8.40 Min: 7.90

OTHER SOIL TYPES IN AREA

Based on Soil Conservation Service STATSGO data, the following additional subordinant soil types may appear within the general area of target property.

Soil Surface Textures: sandy loam
clay
clay loam
loamy sand
gravelly - sandy loam

Surficial Soil Types: sandy loam
clay
clay loam
loamy sand
gravelly - sandy loam

Shallow Soil Types: loam
sand
loamy sand

Deeper Soil Types: clay

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
5	USGS40000161598	1/4 - 1/2 Mile SW
C10	USGS40000161520	1/2 - 1 Mile SSW
B12	USGS40000161519	1/2 - 1 Mile SSE
D13	USGS40000161661	1/2 - 1 Mile ENE
E18	USGS40000161741	1/2 - 1 Mile NE
19	USGS40000161637	1/2 - 1 Mile West

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
1	CADWR9000017256	1/4 - 1/2 Mile North
A2	CADWR9000017205	1/4 - 1/2 Mile SW
A3	CADWR0000010668	1/4 - 1/2 Mile SW
4	CADWR9000017250	1/4 - 1/2 Mile NE
6	CADWR9000017268	1/2 - 1 Mile NE
7	CADPR0000005343	1/2 - 1 Mile NE
B8	CADWR0000004543	1/2 - 1 Mile SSE
B9	CADWR9000017152	1/2 - 1 Mile SSE
11	CADWR0000029595	1/2 - 1 Mile West
D14	CAUSGSN00002152	1/2 - 1 Mile ENE
C15	CADWR9000017153	1/2 - 1 Mile SSW
B16	CAUSGSN00011279	1/2 - 1 Mile SSE
E17	CADWR9000017279	1/2 - 1 Mile NE
20	CADWR0000014191	1/2 - 1 Mile NE

OTHER STATE DATABASE INFORMATION

STATE OIL/GAS WELL INFORMATION

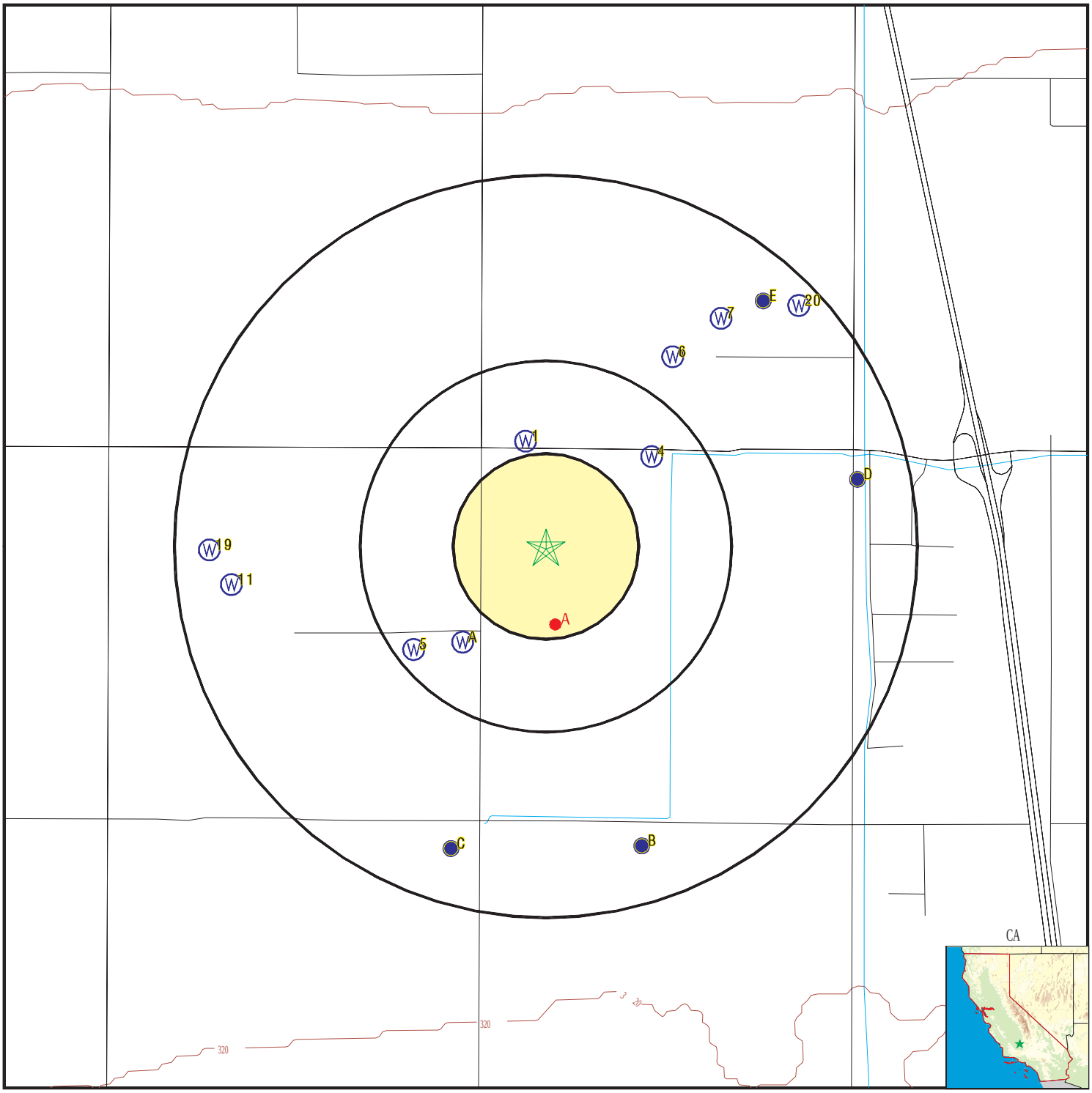
MAP ID	WELL ID	LOCATION FROM TP
A2	CAOG15000097372	1/8 - 1/4 Mile South

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

STATE OIL/GAS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
A1	CAOG15000097401	1/8 - 1/4 Mile South

PHYSICAL SETTING SOURCE MAP - 7341071.2s



- County Boundary
- Major Roads
- Contour Lines
- Earthquake Fault Lines
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons
- Groundwater Flow Direction
- GI Indeterminate Groundwater Flow at Location
- GV Groundwater Flow Varies at Location
- HD Closest Hydrogeological Data
- Oil, gas or related wells

SITE NAME:	Bakersfield - Project Milo	CLIENT:	GeoSyntec Consultants
ADDRESS:	2909 Houghton Road	CONTACT:	Jackie Hyman
	Bakersfield CA 93313	INQUIRY #:	7341071.2s
LAT/LONG:	35.233991 / 119.036038	DATE:	May 18, 2023 1:26 pm

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GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

1
North
1/4 - 1/2 Mile
Higher

CA WELLS **CADWR9000017256**

State Well #:	31S27E12N001M	Station ID:	38789
Well Name:	Not Reported	Basin Name:	Kern County
Well Use:	Unknown	Well Type:	Unknown
Well Depth:	0	Well Completion Rpt #:	Not Reported

A2
SW
1/4 - 1/2 Mile
Lower

CA WELLS **CADWR9000017205**

State Well #:	31S27E14J002M	Station ID:	24264
Well Name:	Not Reported	Basin Name:	Kern County
Well Use:	Unknown	Well Type:	Unknown
Well Depth:	0	Well Completion Rpt #:	Not Reported

A3
SW
1/4 - 1/2 Mile
Lower

CA WELLS **CADWR0000010668**

Well ID:	31S27E14J002M	Well Type:	UNK
Source:	Department of Water Resources		
Other Name:	31S27E14J002M	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DWR&samp_date=&global_id=&assigned_name=31S27E14J002M&store_num=		
GeoTracker Data:	Not Reported		

4
NE
1/4 - 1/2 Mile
Higher

CA WELLS **CADWR9000017250**

State Well #:	31S27E13C001M	Station ID:	24263
Well Name:	Not Reported	Basin Name:	Kern County
Well Use:	Unknown	Well Type:	Unknown
Well Depth:	0	Well Completion Rpt #:	Not Reported

5
SW
1/4 - 1/2 Mile
Lower

FED USGS **USGS40000161598**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	031S027E14J001M	Type:	Well
Description:	Not Reported	HUC:	18030012
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported

Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	Central Valley aquifer system		
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	1956	Well Depth:	400
Well Depth Units:	ft	Well Hole Depth:	Not Reported
Well Hole Depth Units:	Not Reported		

6
NE
1/2 - 1 Mile
Higher

CA WELLS **CADWR9000017268**

State Well #:	31S27E12Q001M	Station ID:	47285
Well Name:	RMW-196	Basin Name:	Kern County
Well Use:	Irrigation	Well Type:	Single Well
Well Depth:	710	Well Completion Rpt #:	Not Reported

7
NE
1/2 - 1 Mile
Higher

CA WELLS **CADPR0000005343**

Well ID:	88118	Well Type:	UNK
Source:	Department of Pesticide Regulation		
Other Name:	88118	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DPR&samp_date=&global_id=&assigned_name=88118&store_num=		
GeoTracker Data:	Not Reported		

B8
SSE
1/2 - 1 Mile
Lower

CA WELLS **CADWR0000004543**

Well ID:	31S27E24C001M	Well Type:	UNK
Source:	Department of Water Resources		
Other Name:	31S27E24C001M	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DWR&samp_date=&global_id=&assigned_name=31S27E24C001M&store_num=		
GeoTracker Data:	Not Reported		

B9
SSE
1/2 - 1 Mile
Lower

CA WELLS **CADWR9000017152**

State Well #:	31S27E24C001M	Station ID:	24277
Well Name:	Not Reported	Basin Name:	Kern County
Well Use:	Unknown	Well Type:	Unknown
Well Depth:	0	Well Completion Rpt #:	Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

C10
SSW
1/2 - 1 Mile
Lower

FED USGS **USGS40000161520**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	031S027E23A001M	Type:	Well
Description:	Not Reported	HUC:	18030012
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	Central Valley aquifer system		
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	Not Reported	Well Depth:	300
Well Depth Units:	ft	Well Hole Depth:	Not Reported
Well Hole Depth Units:	Not Reported		

Ground water levels,Number of Measurements:	1	Level reading date:	1961-02-04
Feet below surface:	43.00	Feet to sea level:	Not Reported
Note:	Not Reported		

11
West
1/2 - 1 Mile
Lower

CA WELLS **CADWR0000029595**

Well ID:	31S27E14F001M	Well Type:	UNK
Source:	Department of Water Resources		
Other Name:	31S27E14F001M	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DWR&samp_date=&global_id=&assigned_name=31S27E14F001M&store_num=		
GeoTracker Data:	Not Reported		

B12
SSE
1/2 - 1 Mile
Lower

FED USGS **USGS40000161519**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	031S027E24C001M	Type:	Well
Description:	Not Reported	HUC:	18030012
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	Central Valley aquifer system		
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	1954	Well Depth:	713
Well Depth Units:	ft	Well Hole Depth:	Not Reported
Well Hole Depth Units:	Not Reported		

Ground water levels,Number of Measurements:	1	Level reading date:	1961-01-24
Feet below surface:	82.00	Feet to sea level:	Not Reported
Note:	Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

D13
ENE
1/2 - 1 Mile
Lower

FED USGS **USGS40000161661**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	031S028E18D001M	Type:	Well
Description:	Not Reported	HUC:	18030012
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	Central Valley aquifer system		
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	19831111	Well Depth:	300
Well Depth Units:	ft	Well Hole Depth:	301
Well Hole Depth Units:	ft		

D14
ENE
1/2 - 1 Mile
Lower

CA WELLS **CAUSGSN00002152**

Well ID:	USGS-351412119011301	Well Type:	UNK
Source:	United States Geological Survey		
Other Name:	USGS-351412119011301	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=USGSNEW&samp_date=&global_id=&assigned_name=USGS-351412119011301&store_num=		
GeoTracker Data:	Not Reported		

C15
SSW
1/2 - 1 Mile
Lower

CA WELLS **CADWR9000017153**

State Well #:	31S27E23A001M	Station ID:	38790
Well Name:	Not Reported	Basin Name:	Kern County
Well Use:	Unknown	Well Type:	Unknown
Well Depth:	0	Well Completion Rpt #:	Not Reported

B16
SSE
1/2 - 1 Mile
Lower

CA WELLS **CAUSGSN00011279**

Well ID:	USGS-351320119015001	Well Type:	UNK
Source:	United States Geological Survey		
Other Name:	USGS-351320119015001	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=USGSNEW&samp_date=&global_id=&assigned_name=USGS-351320119015001&store_num=		
GeoTracker Data:	Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

E17
NE
1/2 - 1 Mile
Higher

CA WELLS **CADWR9000017279**

State Well #:	31S27E12J001M	Station ID:	24255
Well Name:	Not Reported	Basin Name:	Kern County
Well Use:	Unknown	Well Type:	Unknown
Well Depth:	0	Well Completion Rpt #:	Not Reported

E18
NE
1/2 - 1 Mile
Higher

FED USGS **USGS40000161741**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	031S027E12J001M	Type:	Well
Description:	Not Reported	HUC:	18030012
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	Central Valley aquifer system		
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	1949	Well Depth:	362
Well Depth Units:	ft	Well Hole Depth:	Not Reported
Well Hole Depth Units:	Not Reported		

Ground water levels,Number of Measurements:	1	Level reading date:	1961-02-02
Feet below surface:	57.00	Feet to sea level:	Not Reported
Note:	Not Reported		

19
West
1/2 - 1 Mile
Lower

FED USGS **USGS40000161637**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	031S027E14F001M	Type:	Well
Description:	Not Reported	HUC:	18030012
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	Central Valley aquifer system		
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	1958	Well Depth:	628
Well Depth Units:	ft	Well Hole Depth:	Not Reported
Well Hole Depth Units:	Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

Database	EDR ID Number
CA WELLS	**CADWR0000014191**

20
NE
1/2 - 1 Mile
Higher

Well ID:	31S27E12J002M	Well Type:	UNK
Source:	Department of Water Resources		
Other Name:	31S27E12J002M	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DWR&samp_date=&global_id=&assigned_name=31S27E12J002M&store_num=		
GeoTracker Data:	Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

A2
South
1/8 - 1/4 Mile

OIL_GAS **CAOG15000097372**

API #:	0403053329	Well #:	1
Well Status:	Canceled	Well Type:	Oil & Gas
Well Design:	Houge 1	Lease Name:	Houge
Operator ID:	M1600	Field Name:	Fruitvale
Area Name:	Main	Place:	Kern County
GIS Source:	Notice of Intent to Drill	Confidential Well:	N
Directionally Drilled:	N	Spud Date:	Not Reported

A1
South
1/8 - 1/4 Mile

OIL_GAS **CAOG15000097401**

API #:	0403053330	Well #:	2
Well Status:	Canceled	Well Type:	Oil & Gas
Well Design:	Houge 2	Lease Name:	Houge
Operator ID:	M1600	Field Name:	Fruitvale
Area Name:	Main	Place:	Kern County
GIS Source:	Notice of Intent to Drill	Confidential Well:	N
Directionally Drilled:	N	Spud Date:	Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

State Database: CA Radon

Radon Test Results

Zipcode	Num Tests	> 4 pCi/L
93313	12	1

Federal EPA Radon Zone for KERN County: 2

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for KERN COUNTY, CA

Number of sites tested: 94

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	1.422 pCi/L	98%	2%	0%
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	Not Reported	Not Reported	Not Reported	Not Reported

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

HYDROLOGIC INFORMATION

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005, 2010 and 2015 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory
Source: Department of Fish and Wildlife
Telephone: 916-445-0411

HYDROGEOLOGIC INFORMATION

AQUIFLOW^{R} Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Service, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

OTHER STATE DATABASE INFORMATION

Groundwater Ambient Monitoring & Assessment Program
State Water Resources Control Board
Telephone: 916-341-5577
The GAMA Program is Californias comprehensive groundwater quality monitoring program. GAMA collects data by testing the untreated, raw water in different types of wells for naturally-occurring and man-made chemicals. The GAMA data includes Domestic, Monitoring and Municipal well types from the following sources, Department of Water Resources, Department of Heath Services, EDF, Agricultural Lands, Lawrence Livermore National Laboratory, Department of Pesticide Regulation, United States Geological Survey, Groundwater Ambient Monitoring and Assessment Program and Local Groundwater Projects.

Water Well Database
Source: Department of Water Resources
Telephone: 916-651-9648

California Drinking Water Quality Database
Source: Department of Public Health
Telephone: 916-324-2319
The database includes all drinking water compliance and special studies monitoring for the state of California since 1984. It consists of over 3,200,000 individual analyses along with well and water system information.

California Oil and Gas Well Locations
Source: Dept of Conservation, Geologic Energy Management Division
Telephone: 916-323-1779
Oil and Gas well locations in the state.

California Earthquake Fault Lines
Source: California Division of Mines and Geology
The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

RADON

State Database: CA Radon
Source: Department of Public Health
Telephone: 916-210-8558
Radon Database for California

PHYSICAL SETTING SOURCE RECORDS SEARCHED

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

California Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines, prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

STREET AND ADDRESS INFORMATION

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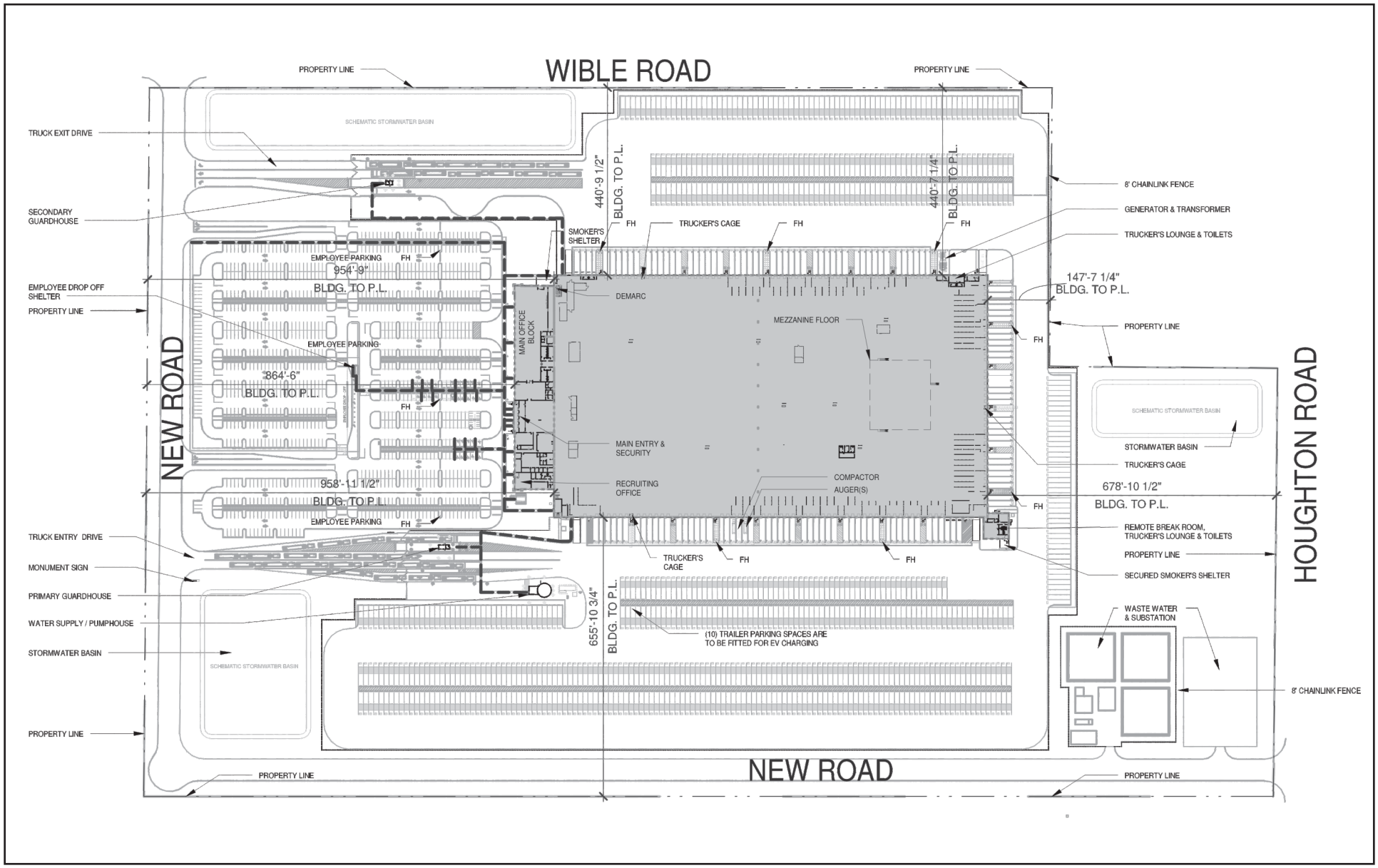
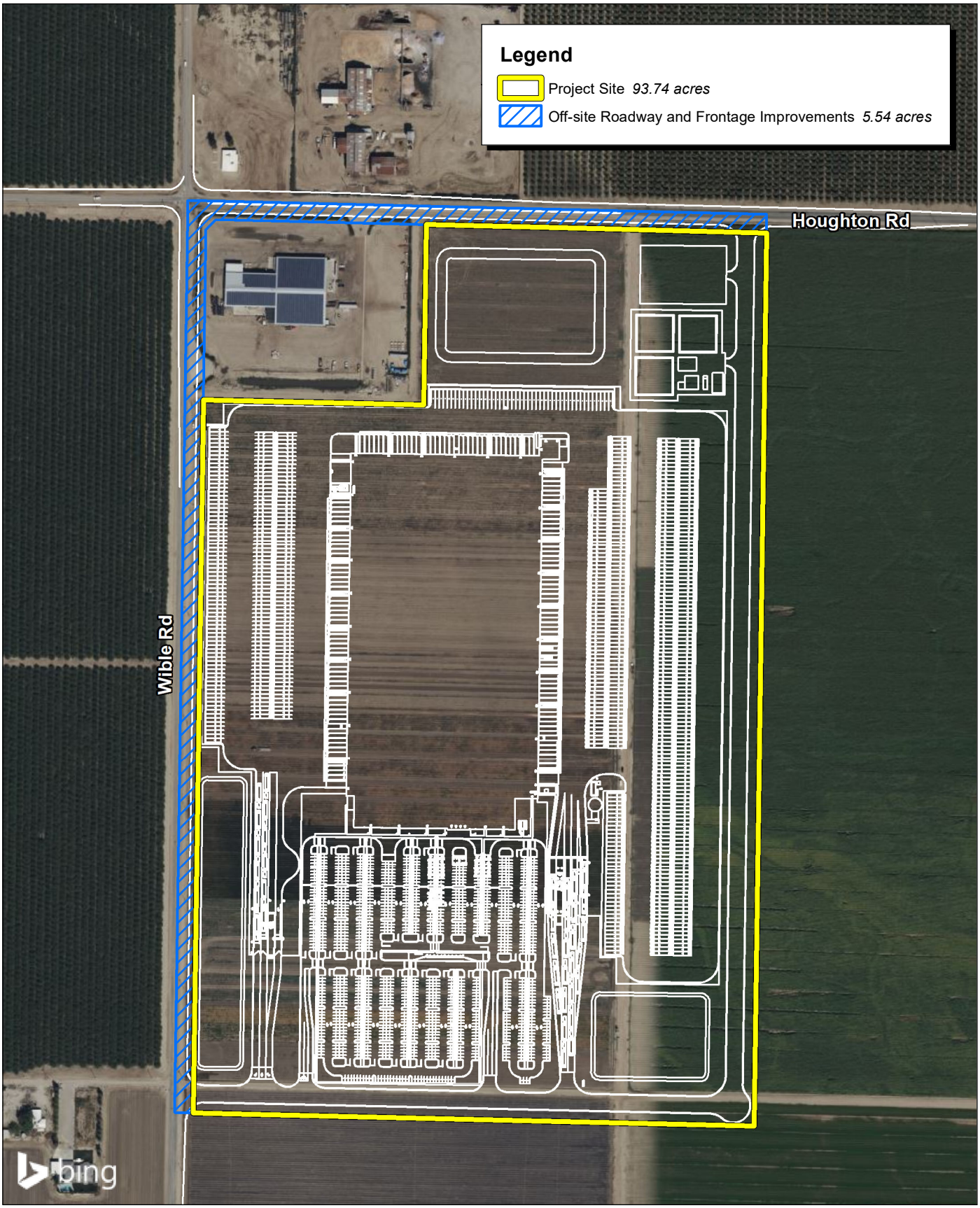
APPENDIX C
User-Provided Documents



Source: Kimley-Horn, Ware Malcomb, 03/30/2023.

Figure 3-3
Proposed Site Plan



Source: Bing Aerial Imagery. Kimley-Horn, 04/2023.

400 200 0 400
Feet

Figure 3-4
Project Off-site Roadway and Frontage Improvements

APPENDIX D
Regulatory or Agency Files

Est. 1988

Environmental Support Services

Environmental Research & Due Diligence Compliance
1521 Beaver Tan Court | Wake Forest, NC 27587
P) 949.429.3564 | F) 949.429.3563 | E) Shannon@EnvironmentalSupportServices.com
www.EnvironmentalSupportServices.com | EIN# 83-0533710

May 31, 2023

Project Name: Bakersfield

Geosyntec Consultants
2365 Northside Drive, Suite 150
San Diego, CA 92108

Attention: Jackie Hyman

Dear Ms. Hyman,

Attached is the Environmental (Hazardous/Toxic Waste) Records Search Summary of the 2909 Houghton Road ("Bakersfield") site located in Bakersfield, California. Environmental Support Services ("**ESS**") received the request on May 18, 2023 (See Appendix A). Should you have any questions regarding the summary, please call.

Sincerely,
Environmental Support Services

Shannon Castagno
Project Manager
Shannon@EnvironmentalSupportServices.com

Records Search Summary

Company:	Geosyntec Consultants
Project Name:	Bakersfield
Attention:	Jackie Hyman
Street Address of Property:	2909 Houghton Road Bakersfield, CA 93313 APN 18439108

Kern County Environmental Health Department

Online request: 5-19-23, Contact: Public Records Section

ESS submitted a request for a records search concerning Bakersfield site to the Public Records Section, with the Kern County Environmental Health Department. **ESS** requested information concerning the utilization, manufacture, storage and/or discharge of hazardous materials/waste, and any information concerning previous or on-going site investigations/remediations pertaining to hazardous materials/waste (See Appendix B). They informed **ESS** on May 18, 2023 that their department did have records for 2909 Houghton Road, Bakersfield, CA (See Appendix B).

Department of Toxic Substances Control (DTSC) – Sacramento Office

E-mailed request: 5-19-23, Contact: Public Record Section

Previous contacts with the DTSC have disclosed that this office only collects and stores information (such as treatment, storage and disposal of hazardous waste) concerning sites which have existing businesses, industries, etc. present. **ESS** requested that the Public Records Section, with the DTSC, check the file room records for any files/information concerning 2909 Houghton Road, Bakersfield, CA (See Appendix C). Tee Xiong, with that department informed **ESS** on May 19, 2023 that her department had no files/information concerning 2909 Houghton Road, Bakersfield, CA (See Appendix C).

Department of Toxic Substances Control (DTSC) – Clovis Office

E-mailed request: 5-19-23, Contact: Public Record Section

Previous contacts with the DTSC have disclosed that this office only collects and stores information (such as treatment, storage and disposal of hazardous waste) concerning sites which have existing businesses, industries, etc. present. **ESS** requested that the Public Records Section, with the DTSC, check the file room records for any files/information concerning 2909 Houghton Road, Bakersfield, CA (See Appendix D). Shelly Combs, with that department informed **ESS** on May 22, 2023 that her department had no files/information concerning 2909 Houghton Road, Bakersfield, CA (See Appendix D).

Kern County Fire Department

Online request: 5-19-23, Contact: Public Records Section

ESS requested that the Public Records Section, with the Kern County Fire Department, check their records concerning the storage of hazardous materials/waste and underground storage tanks with regards to the following: 2909 Houghton Road, Bakersfield, CA. Sylvia Ahumada, with that department informed **ESS** on May 24, 2023 that her department only had general inspection records for 2909 Houghton Road, Bakersfield, CA (See Appendix E).

Cal Fire - Office of the State Fire Marshal

Online request: 5-19-23, Contact: Pubic Records Request

ESS requested that the Public Records Section, with Cal Fire - Office of the State Fire Marshal, check their records concerning the storage of hazardous materials/waste, pipelines and underground storage tanks with regards to the following: 2909 Houghton Road, Bakersfield, CA (See Appendix F). Ashley Bradley, with that department informed **ESS** on May 22, 2023 that her department did have records for 2909 Houghton Road, Bakersfield, CA (See Appendix F).

Kern County Public Works Department – Industrial Waste

Telephoned: 5-19-23, Contact: Public Record Section

ESS requested that the Public Records Section, with the Kern County Public Works Department – Industrial Waste, check their records for any information concerning industrial waste discharge permits or violations for 2909 Houghton Road, Bakersfield, CA. Kyle Perez, with that department informed **ESS** on May 19, 2023 that the property is not connected to the sewer, therefore the Kern County Public Works Department has no records for 2909 Houghton Road, Bakersfield, CA.

Kern County Building Department

E-mailed request: 5-19-23, Contact: Public Record Section

ESS requested that the Public Record Section, with the Kern County Building Department, provide the building records (all building permits and certificates of occupancy) for 2909 Houghton Road, Bakersfield, CA (See Appendix G). Francisca Smith, with the Kern County Planning Department provided **ESS** on May 30, 2023 with all the available records for the address (See Appendix G). No further information concerning the site was obtained from the building department at the time of the investigation.

San Joaquin Valley Air Pollution Control District (SJVAPCD)

Online request: 5-19-23, Contact: Public Record Section

ESS submitted a search request concerning active, inactive and sold files concerning 2909 Houghton Road, Bakersfield, CA to the Public Records Section at the SJVAPCD (See Appendix H). Tammy Howe, with that department informed **ESS** on May 30, 2023 that her department had no records for 2909 Houghton Road, Bakersfield, CA (See Appendix H).

Regional Water Quality Control Board (RWQCB) – Central Valley Region

E-mailed request: 5-19-23, Contact: Public Record Section

ESS requested that the Public Record Section, with the RWQCB, provide the files for 2909 Houghton Road, Bakersfield, CA (See Appendix I). Ryan West, with that Department informed **ESS** on May 522, 2023 that his department did have records for 2909 Houghton Road, Bakersfield, CA (See Appendix I). No further information concerning the site was obtained from the RWQCB at the time of the investigation.

Records Search completed by:

Shannon Castagno
Project Manager
Environmental Support Services

The information provided in this report was obtained by a comprehensive examination of public records, public information and public servant communications. The degree of care performed by **ESS** is equivalent to that exercised by environmental companies performing similar records searches.

Appendix A

Environmental (Hazardous/Toxic Waste) Records Search
Order Form

shannon environmentalsupportservices.com

From: Jackie Hyman <JHyman@Geosyntec.com>
Sent: Thursday, May 18, 2023 12:49 PM
To: shannon environmentalsupportservices.com
Subject: Phase I - Record Requests Bakersfield, CA

Hi Shannon,

Can you please submit record requests for the property at 2909 Houghton Road, Bakersfield, CA 93313 (Kern County Parcel ID 18439108)?

Thanks,

Jackie Hyman
Professional
Geosyntec Consultants, Inc.
2365 Northside Drive, Suite 150
San Diego, CA 92108
Office: 626.788.4703
Mobile: 626.609.9525

GEOSYNTEC | SIREM | SAVRON

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Site Boundary
Parcel Boundary
Houghton Rd
Houghton Rd
Houghton Rd
Houghton Rd
1/2mi
Wible Rd
Wible Rd
Wible Rd
S H St
S H St
S H St
2909 HOUGHTON RD
Tax ID 18439108
Address 2909 HOUGHTON RD BAKERSFIELD CA, 93313
Owner TBS PROP LLC
Land Use A
Descr FARM (IRRIGATED OR DRY)
Lot Area 629.28 ACRES

Appendix B

Request for Records Search to the
Kern County Environmental Health Department and
Response and Photocopies Obtained from that Agency

KERN COUNTY PUBLIC HEALTH (https://kernpublichealth.com/)

Contact Us (https://kernpublichealth.com/contact-us/)

Describe the records you are requesting in as much detail (business name, address, type of record desired, etc.) as possible: *

Site: 2909 Houghton Road
Bakersfield, CA 93313
APN 18439108
ESS requests the following information concerning the subject address which your agency may have on file:
1. utilization, manufacture, storage, or discharge of hazardous materials/waste

Name *

Shannon

First

Castagno

Last

Address *

1521 Beaver Tan Court

Street Address

Address Line 2

Wake Forest

City

NC

State / Province / Region

27587

ZIP / Postal Code

United States

Country

Email *

SHANNON@ENVIRONMENTALSUPPORTSERVICES.COM

Phone *

(949) 429-3564

File

Drop files here or

Select files

Accepted file types: jpg, png, pdf, doc, docx, Max. file size: 32 MB.

Submit

Get In Touch!

(661) 321-3000 (tel:6613213000)

publichealth@kerncounty.com (mailto:publichealth@kerncounty.com)

Additional Resources

Contact Us (https://kernpublichealth.com/contact-us/)

Privacy Policy (https://kernpublichealth.com/?page_id=19000)

(mailto:EH@kerncounty.com) EH@kerncounty.com (mailto:EH@kerncounty.com)

CAN Online (https://phweb.kerncounty.com/PH_CANonline_Public/Home/Create)

(mailto:askSTDclinic@kerncounty.com) askSTDclinic@kerncounty.com (mailto:askSTDclinic@kerncounty.com)

(https://www.facebook.com/kernpublichealthservices/)

(https://twitter.com/KCPublichealth)

(https://www.instagram.com/kerncountypublichealth/)

(https://www.youtube.com/user/KernPublicHealth)

(https://www.yelp.com/biz/kern-county-public-health-services-department-bakersfield?osq=kern+county+health+department)

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Learn More (https://kernpublichealth.com/about-us/)

Leadership (https://kernpublichealth.com/leadership/)

WEBSITE SOLUTIONS BY PIXSYM (https://pixsym.com)

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shannon environmentalsupportservices.com

From: EH <eh@kerncounty.com>
Sent: Thursday, May 18, 2023 7:01 PM
To: shannon environmentalsupportservices.com
Subject: Fw: New submission from Environmental Health: Information Request
Attachments: 10445257_Documents.pdf

CERS submittal attached.

Kern County Public Health Services Department,
Environmental Health Division
2700 M St. Suite 300
Bakersfield, CA 93301
Main Office: 661.862.8740

Sent: Thursday, May 18, 2023 1:16 PM
To: EH <eh@kerncounty.com>
Subject: Re: New submission from Environmental Health: Information Request

Records attached; awaiting CERS response.

Kern County Public Health Services Department,
Environmental Health Division
2700 M St. Suite 300
Bakersfield, CA 93301
Main Office: 661.862.8740

From: EH <eh@kerncounty.com>
Sent: Thursday, May 18, 2023 12:36 PM
Subject: Fw: New submission from Environmental Health: Information Request

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From: "Information Request" <noreply@kernpublichealth.com>
Sent: Thursday, May 18, 2023 10:21 AM
To: EH <eh@kerncounty.com>
Subject: New submission from Environmental Health: Information Request

CAUTION: This email originated from outside of the organization. Do not click links, open attachments, or provide information unless you recognize the sender and know the content is safe.

Describe the records you are requesting in as much detail (business name, address, type of record desired, etc.) as possible:

Site: 2909 Houghton Road
Bakersfield, CA 93313
APN 18439108
ESS requests the following information concerning the subject address which your agency may have on file:
1. utilization, manufacture, storage, or discharge of hazardous materials/waste.
2. previous or on-going site investigations/remediations pertaining to hazardous materials/waste.
3. hazardous materials disclosures concerning the site.
4. information regarding underground storage tank present or previously found at the site.

Name

Shannon Castagno

Address

1521 Beaver Tan Court
Wake Forest, NC 27587
United States
Map It

Email

SHANNON@ENVIRONMENTALSUPPORTSERVICES.COM

Phone

(949) 429-3564

HIPAA NOTICE: The documents accompanying this electronic transmission, or this transmission itself, may contain Protected Health Information. This information belongs to the sender and is legally privileged. The information is intended only for the use of the individual or entity named above. If you are not the intended recipient, you are hereby notified that you may not disclose, copy, distribute or take action on the information in these documents. All such activities are strictly prohibited. If you have received this e-mail in error, please delete the e-mail immediately and empty your deleted items folder or take any steps necessary to ensure permanent deletion.

TBS Properties (CERSID: 10445257)

Facility Information **Certified Nov 21, 2022**

Certified on 11/21/2022 12:05:39 PM by *Tim Antongiovanni* of TEN STAR FARMING INC. (BAKERSFIELD, CA)

- Business Activities
- Business Owner/Operator Identification

Hazardous Materials Inventory **Certified Nov 21, 2022**

Certified on 11/21/2022 12:05:39 PM by *Tim Antongiovanni* of TEN STAR FARMING INC. (BAKERSFIELD, CA)

- Hazardous Material Inventory (1)
- Site Map (Official Use Only)
  - *Annotated Site Map (Official Use Only)* (MS Excel, 27KB)
  - *Annotated Site Map (Official Use Only)* (MS Excel, 16KB)
  - *Annotated Site Map (Official Use Only)* (Adobe PDF, 888KB)
  - *Annotated Site Map (Official Use Only)* (MS Excel, 61KB)

Emergency Response and Training Plans **Certified Nov 21, 2022**

Certified on 11/21/2022 12:05:39 PM by *Tim Antongiovanni* of TEN STAR FARMING INC. (BAKERSFIELD, CA)

- Emergency Response/Contingency Plan
  - *Emergency Response/Contingency Plan* (Adobe PDF, 1362KB)
  - *Emergency Response/Contingency Plan* (Adobe PDF, 283KB)
- Employee Training Plan
  - *Employee Training Plan* (Adobe PDF, 404KB)
  - *Employee Training Plan* (Adobe PDF, 13KB)

California Environmental Reporting System (CERS) — Business Activities

Site Identification

TBS Properties
2909 Houghton Rd
Bakersfield, CA 93313

County
Kern

CERS ID
10445257

EPA ID Number

Submittal Status

Certified on 11/21/2022 by *Tim Antongiovanni* of TEN STAR FARMING INC. (BAKERSFIELD, CA)

Hazardous Materials

Does your facility have on site (for any purpose) at any one time, hazardous materials at or above 55 gallons for liquids, 500 pounds for solids, or 200 cubic feet for compressed gases (include liquids in ASTs and USTs); or is regulated under more restrictive inventory local reporting requirements (shown below if present); or the applicable Federal threshold quantity for an extremely hazardous substance specified in 40 CFR Part 355, Appendix A or B; or handle radiological materials in quantities for which an emergency plan is required pursuant to 10 CFR Parts 30, 40 or 70?	**Yes**

Underground Storage Tank(s) (UST)

Does your facility own or operate underground storage tanks?	**No**

Hazardous Waste

Is your facility a Hazardous Waste Generator?	**No**
Does your facility treat hazardous waste on-site?	**No**
Is your facility's treatment subject to financial assurance requirements (for Permit by Rule and Conditional Authorization)?	**No**
Does your facility consolidate hazardous waste generated at a remote site?	**No**
Does your facility need to report the closure/removal of a tank that was classified as hazardous waste and cleaned on-site?	**No**
Does your facility generate in any single calendar month 1,000 kilograms (kg) (2,200 pounds) or more of federal RCRA hazardous waste, or generate in any single calendar month greater than 1 kg (2.2 pounds) of RCRA acute hazardous waste; or generate more than 100 kg (220 pounds) of spill cleanup materials contaminated with RCRA acute hazardous waste.	**No**
Is your facility a Household Hazardous Waste (HHW) Collection site?	**No**

Excluded and/or Exempted Materials

Does your facility recycle more than 100 kg/month of excluded or exempted recyclable materials (per HSC 25143.2)?	**No**

Aboveground Petroleum Storage

Does your facility own or operate aboveground petroleum storage tanks or containers AND: * have a total aboveground petroleum storage capacity of 1,320 gallons or more, OR * have one or more petroleum tanks in an underground area?	**No**

Regulated Substances

Does your facility have Regulated Substances stored onsite in quantities greater than the threshold quantities established by the California Accidental Release prevention Program (CalARP)?	**No**

Additional Information

No additional comments provided.

Facility/Site

TBS Properties
2909 Houghton Rd
Bakersfield, CA 93313

CERS ID
10445257

Submittal Status

Certified on 11/21/2022 by *Tim Antongiovanni* of TEN STAR FARMING INC. (BAKERSFIELD, CA)

Identification

Ten Star Farming, Inc.

Operator Phone	Business Phone	Business Fax
(661) 834-5173	(661) 834-5173	(661) 834-2521

Beginning Date	Ending Date	
Dun & Bradstreet	**SIC Code**	**Primary NAICS**

Facility/Site Mailing Address

5100 California Ave. Suite 230
Bakersfield, CA 93309

Primary Emergency Contact

Kevin Antongiovanni
Title
President

Business Phone	24-Hour Phone	Pager Number
(661) 834-5173	(661) 979-0152	

Owner

TBS Properties LLC
(661) 834-5173
5100 California Ave. Suite 230
Bakersfield, CA 93309

Secondary Emergency Contact

Tim Antongiovanni
Title
Manager

Business Phone	24-Hour Phone	Pager Number
(661) 834-5173	(661) 343-7529	

Billing Contact

Tim Antongiovanni
(661) 834-5173 corissar@tenstarfarming.com
5100 California Ave. Suite 230
Bakersfield, CA 93309

Environmental Contact

Tim Antongiovanni
(661) 834-5173 tima@tenstarfarming.com
5100 California Ave. Suite 230
Bakersfield, CA 93309

Name of Signer	Signer Title	Document Preparer
Tim Antongiovanni	Manager	Tim Antongiovanni

Additional Information

Locally-collected Fields

Some or all of the following fields may be required by your local regulator(s).

Property Owner

TBS Properties
Phone
(661) 834-5173
Mailing Address
5100 California Ave. Suite 230
Bakersfield, CA 93309

Assessor Parcel Number (APN)
184-391-08
Number of Employees
2
Facility ID
10445257

Hazardous Materials And Wastes Inventory Matrix Report

CERS Business/Org. **TEN STAR FARMING INC.**
Facility Name **TBS Properties**
2909 Houghton Rd, Bakersfield 93313

Chemical Location
2909 Houghton Road Bakersfield CA 93313

CERS ID **10445257**
Facility ID **10445257**
Status **Submitted** on 11/21/2022 12:05 PM

DOT Code/Fire Haz. Class	Common Name	Unit	Quantities: Max. Daily	Quantities: Largest Cont.	Quantities: Avg. Daily	Annual Waste Amount	Federal Hazard Categories	Hazardous Components (For mixture only): Component Name	% Wt	EHS	CAS No.
DOT: 2.1 - Flammable Gases Flammable Gas	**Propane** CAS No 74-98-6	**Gallons** State Gas Type Pure	**500** Storage Container Aboveground Tank Days on Site: 60	**500**	250 Pressue Ambient Temperature Ambient	Waste Code 352	- Physical Flammable - Physical Gas Under Pressure - Health Simple Asphyxiant				

CALIFORNIA ENVIRONMENTAL REPORTING SYSTEM (CERS)

CONSOLIDATED EMERGENCY RESPONSE / CONTINGENCY PLAN

Prior to completing this Plan, please refer to the INSTRUCTIONS FOR COMPLETING A CONSOLIDATED CONTINGENCY PLAN

A. FACILITY IDENTIFICATION AND OPERATIONS OVERVIEW

FACILITY ID #	CERS ID A1.	DATE OF PLAN PREPARATION/REVISION A2.
	10445257	3/10/2016

BUSINESS NAME *(Same as Facility Name or DBA - Doing Business As)* 3.
TBS Properties

BUSINESS SITE ADDRESS 103.
2909 Houghton Road

BUSINESS SITE CITY 104.		ZIP CODE 105.
Bakersfield	CA	93313

TYPE OF BUSINESS (e.g., Painting Contractor) A3	INCIDENTAL OPERATIONS (e.g., Fleet Maintenance) A4.
Farming	

THIS PLAN COVERS CHEMICAL SPILLS, FIRES, AND EARTHQUAKES INVOLVING: (Check all that apply) A5.

☒ 1. HAZARDOUS MATERIALS; ☒ 2. HAZARDOUS WASTES

B. INTERNAL RESPONSE

INTERNAL FACILITY EMERGENCY RESPONSE WILL OCCUR VIA: (Check all that apply) B1.

☒ 1. CALLING PUBLIC EMERGENCY RESPONDERS (i.e., 9-1-1)
☒ 2. CALLING HAZARDOUS WASTE CONTRACTOR
☐ 3. ACTIVATING IN-HOUSE EMERGENCY RESPONSE TEAM

C. EMERGENCY COMMUNICATIONS, PHONE NUMBERS AND NOTIFICATIONS

Whenever there is an imminent or actual emergency situation such as an explosion, fire, or release, the Emergency Coordinator (or his/her designee when the Emergency Coordinator is on call) shall:

1. Activate internal facility alarms or communications systems, where applicable, to notify all facility personnel.
2. Notify appropriate local authorities (i.e., call 9-1-1).
3. Notify the California Emergency Management Agency at (800) 852-7550.

Before facility operations are resumed in areas of the facility affected by the incident, the emergency coordinator shall notify the California Department of Toxic Substances Control (DTSC), the local Unified Program Agency (UPA), and the local fire department's hazardous materials program that the facility is in compliance with requirements to:

1. Provide for proper storage and disposal of recovered waste, contaminated soil or surface water, or any other material that results from an explosion, fire, or release at the facility; and
2. Ensure that no material that is incompatible with the released material is transferred, stored, or disposed of in areas of the facility affected by the incident until cleanup procedures are completed.

INTERNAL FACILITY EMERGENCY COMMUNICATIONS OR ALARM NOTIFICATION WILL OCCUR VIA: (Check all that apply) C1.

☒ 1. VERBAL WARNINGS;	☐ 2. PUBLIC ADDRESS OR INTERCOM SYSTEM;	☒ 3. TELEPHONE;
☐ 4. PAGERS;	☐ 5. ALARM SYSTEM;	☐ 6. PORTABLE RADIO

NOTIFICATIONS TO NEIGHBORING FACILITIES THAT MAY BE AFFECTED BY AN OFF-SITE RELEASE WILL OCCUR BY: (Check all that apply) C2.

☒ 1. VERBAL WARNINGS;	☐ 2. PUBLIC ADDRESS OR INTERCOM SYSTEM;	☒ 3. TELEPHONE;
☐ 4. PAGERS;	☐ 5. ALARM SYSTEM;	☐ 6. PORTABLE RADIO

EMERGENCY RESPONSE PHONE NUMBERS:		
	AMBULANCE, FIRE, POLICE AND CHP	9-1-1
	CALIFORNIA EMERGENCY MANAGEMENT AGENCY (CAL/EMA)	(800) 852-7550
	NATIONAL RESPONSE CENTER (NRC)	(800) 424-8802
	POISON CONTROL CENTER	(800) 222-1222
	LOCAL UNIFIED PROGRAM AGENCY (UPA/CUPA)	(661) 862-8754 C3.
	OTHER (Specify): CUPA after hours dispatch C4.	(661) 549-9927 C5.
NEAREST MEDICAL FACILITY / HOSPITAL NAME:	Mercy Southwest C6.	(661) 663-6000 C7.
AGENCY NOTIFICATION PHONE NUMBERS:	CALIFORNIA DEPT. OF TOXIC SUBSTANCES CONTROL (DTSC)	(916) 255-3545
	REGIONAL WATER QUALITY CONTROL BOARD	(559) 445-5116 C8.
	U.S. ENVIRONMENTAL PROTECTION AGENCY (US EPA)	(800) 300-2193
	CALIFORNIA DEPT OF FISH AND GAME (DFG)	(916) 358-2900
	U.S. COAST GUARD	(202) 267-2180
	CAL/OSHA	(916) 263-2800
	STATE FIRE MARSHAL	(916) 445-8200
	OTHER (Specify): C9.	C10.
	OTHER (Specify): C11.	C12.

D. EMERGENCY CONTAINMENT AND CLEANUP PROCEDURES

SPILL PREVENTION, CONTAINMENT, AND CLEANUP PROCEDURES: (Check all boxes that apply to indicate your procedures for containing spills, releases, fires or explosions; and preventing and mitigating associated harm to persons, property, and the environment.) D1.

- ☒ 1. MONITOR FOR LEAKS, RUPTURES, PRESSURE BUILD-UP, ETC.;
- ☐ 2. PROVIDE STRUCTURAL PHYSICAL BARRIERS (e.g., Portable spill containment walls);
- ☐ 3. PROVIDE ABSORBENT PHYSICAL BARRIERS (e.g., Pads, pigs, pillows);
- ☐ 4. COVER OR BLOCK FLOOR AND/ OR STORM DRAINS;
- ☐ 5. BUILT-IN BERM IN WORK / STORAGE AREA;
- ☐ 6. AUTOMATIC FIRE SUPPRESSION SYSTEM;
- ☒ 7. ELIMINATE SOURCES OF IGNITION FOR FLAMMABLE HAZARDS (e.g. Flammable liquids, Propane);
- ☒ 8. STOP PROCESSES AND/OR OPERATIONS;
- ☒ 9. AUTOMATIC / ELECTRONIC EQUIPMENT SHUT-OFF SYSTEM;
- ☒ 10. SHUT-OFF WATER, GAS, ELECTRICAL UTILITIES AS APPROPRIATE;
- ☐ 11. CALL 9-1-1 FOR PUBLIC EMERGENCY RESPONDER ASSISTANCE / MEDICAL AID;
- ☒ 12. NOTIFY AND EVACUATE PERSONS IN ALL THREATENED AREAS;
- ☒ 13. ACCOUNT FOR EVACUATED PERSONS IMMEDIATELY AFTER EVACUATION CALL;
- ☐ 14. PROVIDE PROTECTIVE EQUIPMENT FOR ON-SITE RESPONSE TEAM;
- ☐ 15. REMOVE OR ISOLATE CONTAINERS / AREA AS APPROPRIATE;
- ☒ 16. HIRE LICENSED HAZARDOUS WASTE CONTRACTOR;
- ☒ 17. USE ABSORBENT MATERIAL FOR SPILLS WITH SUBSEQUENT PROPER LABELING, STORAGE, AND HAZARDOUS WASTE DISPOSAL AS APPROPRIATE;
- ☐ 18. SUCTION USING SHOP VACUUM WITH SUBSEQUENT PROPER LABELING, STORAGE, AND HAZARDOUS WASTE DISPOSAL AS APPROPRIATE;
- ☐ 19. WASH / DECONTAMINATE EQUIPMENT W/ CONTAINMENT and DISPOSAL OF EFFLUENT / RINSATE AS HAZARDOUS WASTE;
- ☐ 20. PROVIDE SAFE TEMPORARY STORAGE OF EMERGENCY-GENERATED WASTES;
- ☐ 21. OTHER (Specify): D2.

E. FACILITY EVACUATION

THE FOLLOWING ALARM SIGNAL(S) WILL BE USED TO BEGIN EVACUATION OF THE FACILITY (CHECK ALL THAT APPLY): E1.

- ☐ 1. BELLS;
- ☐ 2. HORNS/SIRENS;
- ☒ 3. VERBAL (I.E., SHOUTING);
- ☐ 4. OTHER (Specify): E2.

THE FOLLOWING LOCATION(S) IS/ARE EVACUEE EMERGENCY ASSEMBLY AREA(S) (i.e., Front parking lot, specific street corner, etc.) E3.

see map

Note: The Emergency Coordinator must account for all on site employees and/or site visitors after evacuation.

☒ EVACUATION ROUTE MAP(S) POSTED AS REQUIRED E4.

Note: The map(s) must show primary and alternate evacuation routes, emergency exits, and primary and alternate staging areas, and must be prominently posted throughout the facility in locations where it will be visible to employees and visitors.

F. ARRANGEMENTS FOR EMERGENCY SERVICES

Explanation of Requirement: Advance arrangements with local fire and police departments, hospitals, and/or emergency services contractors should be made as appropriate for your facility. You may determine that such arrangements are not necessary.

ADVANCE ARRANGEMENTS FOR LOCAL EMERGENCY SERVICES (Check one of the following) F1.

- ☒ 1. HAVE BEEN DETERMINED NOT NECESSARY; *or*
- ☐ 2. THE FOLLOWING ARRANGEMENTS HAVE BEEN MADE (Specify): F2

G. EMERGENCY EQUIPMENT

Check all boxes that apply to list emergency response equipment available at the facility and identify the location(s) where the equipment is kept and the equipment's capability, if applicable. [e.g., ☒ CHEMICAL PROTECTIVE GLOVES | Spill response kit | One time use, Oil & solvent resistant only.]

TYPE	EQUIPMENT AVAILABLE G1.	LOCATION	CAPABILITY *(If applicable)*
Safety and First Aid	1. ☒ CHEMICAL PROTECTIVE SUITS, APRONS, OR VESTS	G2.	G3.
	2. ☒ CHEMICAL PROTECTIVE GLOVES	G4.	G5.
	3. ☒ CHEMICAL PROTECTIVE BOOTS	G6.	G7.
	4. ☒ SAFETY GLASSES / GOGGLES / SHIELDS	G8.	G9.
	5. ☐ HARD HATS	G10.	G11.
	6. ☒ CARTRIDGE RESPIRATORS	G12.	G13.
	7. ☐ SELF-CONTAINED BREATHING APPARATUS (SCBA)	G14.	G15.
	8. ☒ FIRST AID KITS / STATIONS	G16.	G17.
	9. ☒ PLUMBED EYEWASH FOUNTAIN / SHOWER	G18.	G19.
	10. ☐ PORTABLE EYEWASH KITS	G20.	G21.
	11. ☐ OTHER	G22.	G23.
	12. ☐ OTHER	G24.	G25.
Fire Fighting	13. ☒ PORTABLE FIRE EXTINGUISHERS	G26. throughout facility	G27.
	14. ☐ FIXED FIRE SYSTEMS / SPRINKLERS / FIRE HOSES	G28.	G29.
	15. ☐ FIRE ALARM BOXES OR STATIONS	G30.	G31.
	16. ☐ OTHER	G32.	G33.
Spill Control and Clean-Up	17. ☐ ALL-IN-ONE SPILL KIT	G34.	G35.
	18. ☒ ABSORBENT MATERIAL	G36.	G37.
	19. ☐ CONTAINER FOR USED ABSORBENT	G38.	G39.
	20. ☒ BERMING / DIKING EQUIPMENT	G40.	G41.
	21. ☒ BROOM	G42.	G43.
	22. ☒ SHOVEL	G44.	G45.
	23. ☐ SHOP VAC	G46.	G47.
	24. ☐ EXHAUST HOOD	G48.	G49.
	25. ☐ EMERGENCY SUMP / HOLDING TANK	G50.	G51.
	26. ☐ CHEMICAL NEUTRALIZERS	G52.	G53.
	27. ☐ GAS CYLINDER LEAK REPAIR KIT	G54.	G55.
	28. ☐ SPILL OVERPACK DRUMS	G56.	G57.
	29. ☐ OTHER	G58.	G59.
Communi-cations and Alarm Systems	30. ☒ TELEPHONES (Includes cellular)	G60. All employees	G61.
	31. ☐ INTERCOM / PA SYSTEM	G62.	G63.
	32. ☐ PORTABLE RADIOS	G64.	G65.
	33. ☐ AUTOMATIC ALARM CHEMICAL MONITORING EQUIPMENT	G66.	G67.
Other	34. ☐ OTHER	G68.	G69.
	35. ☐ OTHER	G70.	G71.

H. EARTHQUAKE VULNERABILITY

Identify areas of the facility that are vulnerable to hazardous materials releases / spills due to earthquake-related motion. These areas require immediate isolation and inspection.

VULNERABLE AREAS: (Check all that apply)	H1.	LOCATIONS (e.g., shop, outdoor shed, forensic lab)	
☒ 1. HAZARDOUS MATERIALS / WASTE STORAGE AREA			H2.
☐ 2. PROCESS LINES / PIPING			H3.
☐ 3. LABORATORY			H4.
☐ 4. WASTE TREATMENT AREA			H5.

Identify mechanical systems vulnerable to releases / spills due to earthquake-related motion. These systems require immediate isolation and inspection.

VULNERABLE SYSTEMS: (Check all that apply)	H6.	LOCATIONS	
☐ 1. SHELVES, CABINETS AND RACKS			H7
☒ 2. TANKS (EMERGENCY SHUTOFF)			H8
☒ 3. PORTABLE GAS CYLINDERS			H9
☐ 4. EMERGENCY SHUTOFF AND/OR UTILITY VALVES			H10
☐ 5. SPRINKLER SYSTEMS			H11
☒ 6. STATIONARY PRESSURIZED CONTAINERS (e.g., Propane dispensing tank)			H12

I. EMPLOYEE TRAINING

Explanation of Requirement: Employee training is required for all employees handling hazardous materials and hazardous wastes in day-to-day or clean-up operations including volunteers and/or contractors. Training must be:

- Provided within 6 months for new hires;
- Amended as necessary prior to change in process or work assignment;
- Given upon modification to the Emergency Response / Contingency Plan, and updated/refreshed annually for all employees.

Required content includes all of the following:

- Material Safety Data Sheets;
- Hazard communication related to health and safety;
- Methods for safe handling of hazardous substances;
- Fire hazards of materials / processes;
- Conditions likely to worsen emergencies;
- Coordination of emergency response;
- Notification procedures;
- Applicable laws and regulations;
- Communication and alarm systems;
- Personal protective equipment;
- Use of emergency response equipment (e.g. Fire extinguishers, respirators, etc.);
- Decontamination procedures;
- Evacuation procedures;
- Control and containment procedures;
- UST monitoring system equipment and procedures (if applicable).

INDICATE HOW EMPLOYEE TRAINING PROGRAM IS ADMINISTERED (Check all that apply) I1.

☒ 1. FORMAL CLASSROOM; ☐ 2. VIDEOS; ☐ 3. SAFETY / TAILGATE MEETINGS;

☐ 4. STUDY GUIDES / MANUALS (Specify): _____ I2.

☐ 5. OTHER (Specify): _____ I3.

☐ 6. NOT APPLICABLE BECAUSE FACILITY HAS NO EMPLOYEES

Large Quantity Generator (LQG) Training Records: Large quantity hazardous waste generators (i.e., who generate more than 270 gallons/1,000 kilograms of hazardous waste per month) must retain written documentation of employee hazardous waste management training sessions which includes:

- A written outline/agenda of the type and amount of both introductory and continuing training that will be given to persons filling each job position having responsibility for the management of hazardous waste (e.g., labeling, manifesting, compliance with accumulation time limits, etc.).
- The name, job title, and date of training for each hazardous waste management training session given to an employee filling such a job position; and
- A written job description for each of the above job positions that describes job duties and the skills, education, or other qualifications required of personnel assigned to the position.
- Current employee training records must be retained until closure of the facility.
- Former employee training records must be retained at least three years after termination of employment.

J. LIST OF ATTACHMENTS

(Check one of the following) J1.

☒ 1. NO ATTACHMENTS ARE REQUIRED; *or*

☐ 2. THE FOLLOWING DOCUMENTS ARE ATTACHED: J2

K. SIGNATURE / CERTIFICATION

Certification: Based on my inquiry of those individuals responsible for obtaining the information, I certify under penalty of law that I have personally examined and am familiar with the information submitted and believe the information is true, accurate, and complete, and that a copy is available on site.

SIGNATURE OF OWNER/OPERATOR		DATE SIGNED	K1.
		3.10.16	
NAME OF SIGNER (print)	K2.	TITLE OF SIGNER	K3.
TIM ANTON GIOVANNI		MANAGER	

CALIFORNIA ENVIRONMENTAL REPORTING SYSTEM (CERS)

CONSOLIDATED EMERGENCY RESPONSE / CONTINGENCY PLAN

Prior to completing this Plan, please refer to the INSTRUCTIONS FOR COMPLETING A CONSOLIDATED CONTINGENCY PLAN

A. FACILITY IDENTIFICATION AND OPERATIONS OVERVIEW

FACILITY ID # — — 1.	CERS ID A1.	DATE OF PLAN PREPARATION/REVISION A2.

BUSINESS NAME *(Same as Facility Name or DBA - Doing Business As)* 3.

BUSINESS SITE ADDRESS 103.

BUSINESS SITE CITY 104.		ZIP CODE 105.
	CA	

TYPE OF BUSINESS (e.g., Painting Contractor) A3.	INCIDENTAL OPERATIONS (e.g., Fleet Maintenance) A4.
Farming	

THIS PLAN COVERS CHEMICAL SPILLS, FIRES, AND EARTHQUAKES INVOLVING: (Check all that apply) A5.

☒ 1. HAZARDOUS MATERIALS; ☒ 2. HAZARDOUS WASTES

B. INTERNAL RESPONSE

INTERNAL FACILITY EMERGENCY RESPONSE WILL OCCUR VIA: (Check all that apply) B1.

☒ 1. CALLING PUBLIC EMERGENCY RESPONDERS (i.e., 9-1-1)
☒ 2. CALLING HAZARDOUS WASTE CONTRACTOR
☐ 3. ACTIVATING IN-HOUSE EMERGENCY RESPONSE TEAM

C. EMERGENCY COMMUNICATIONS, PHONE NUMBERS AND NOTIFICATIONS

Whenever there is an imminent or actual emergency situation such as an explosion, fire, or release, the Emergency Coordinator (or his/her designee when the Emergency Coordinator is on call) shall:

1. Activate internal facility alarms or communications systems, where applicable, to notify all facility personnel.
2. Notify appropriate local authorities (i.e., call 9-1-1).
3. Notify the California Emergency Management Agency at (800) 852-7550.

Before facility operations are resumed in areas of the facility affected by the incident, the emergency coordinator shall notify the California Department of Toxic Substances Control (DTSC), the local Unified Program Agency (UPA), and the local fire department's hazardous materials program that the facility is in compliance with requirements to:

1. Provide for proper storage and disposal of recovered waste, contaminated soil or surface water, or any other material that results from an explosion, fire, or release at the facility; and
2. Ensure that no material that is incompatible with the released material is transferred, stored, or disposed of in areas of the facility affected by the incident until cleanup procedures are completed.

INTERNAL FACILITY EMERGENCY COMMUNICATIONS OR ALARM NOTIFICATION WILL OCCUR VIA: (Check all that apply) C1.

☒ 1. VERBAL WARNINGS;	☐ 2. PUBLIC ADDRESS OR INTERCOM SYSTEM;	☒ 3. TELEPHONE;
☐ 4. PAGERS;	☐ 5. ALARM SYSTEM;	☐ 6. PORTABLE RADIO

NOTIFICATIONS TO NEIGHBORING FACILITIES THAT MAY BE AFFECTED BY AN OFF-SITE RELEASE WILL OCCUR BY: (Check all that apply) C2.

☒ 1. VERBAL WARNINGS;	☐ 2. PUBLIC ADDRESS OR INTERCOM SYSTEM;	☒ 3. TELEPHONE;
☐ 4. PAGERS;	☐ 5. ALARM SYSTEM;	☐ 6. PORTABLE RADIO

EMERGENCY RESPONSE PHONE NUMBERS:

AMBULANCE, FIRE, POLICE AND CHP	9-1-1	
CALIFORNIA EMERGENCY MANAGEMENT AGENCY (CAL/EMA)	(800) 852-7550	
NATIONAL RESPONSE CENTER (NRC)	(800) 424-8802	
POISON CONTROL CENTER	(800) 222-1222	
LOCAL UNIFIED PROGRAM AGENCY (UPA/CUPA)	(661) 862-8754	C3.
OTHER (Specify): C4. CUPA after hours dispatch	(661) 549-9927	C5.

NEAREST MEDICAL FACILITY / HOSPITAL NAME: C6. Mercy Southwest (661) 663-6000 C7.

AGENCY NOTIFICATION PHONE NUMBERS:

CALIFORNIA DEPT. OF TOXIC SUBSTANCES CONTROL (DTSC)	(916) 255-3545	
REGIONAL WATER QUALITY CONTROL BOARD	(559) 445-5116	C8.
U.S. ENVIRONMENTAL PROTECTION AGENCY (US EPA)	(800) 300-2193	
CALIFORNIA DEPT OF FISH AND GAME (DFG)	(916) 358-2900	
U.S. COAST GUARD	(202) 267-2180	
CAL/OSHA	(916) 263-2800	
STATE FIRE MARSHAL	(916) 445-8200	
OTHER (Specify): C9.	C10.	
OTHER (Specify): C11.	C12.	

D. EMERGENCY CONTAINMENT AND CLEANUP PROCEDURES

SPILL PREVENTION, CONTAINMENT, AND CLEANUP PROCEDURES: (Check all boxes that apply to indicate your procedures for containing spills, releases, fires or explosions; and. preventing and mitigating associated harm to persons, property, and the environment.)

D1.

- [x] 1. MONITOR FOR LEAKS, RUPTURES, PRESSURE BUILD-UP, ETC.;
- [ ] 2. PROVIDE STRUCTURAL PHYSICAL BARRIERS (e.g., Portable spill containment walls);
- [ ] 3. PROVIDE ABSORBENT PHYSICAL BARRIERS (e.g., Pads, pigs, pillows);
- [ ] 4. COVER OR BLOCK FLOOR AND/ OR STORM DRAINS;
- [ ] 5. BUILT-IN BERM IN WORK / STORAGE AREA;
- [ ] 6. AUTOMATIC FIRE SUPPRESSION SYSTEM;
- [x] 7. ELIMINATE SOURCES OF IGNITION FOR FLAMMABLE HAZARDS (e.g. Flammable liquids, Propane);
- [x] 8. STOP PROCESSES AND/OR OPERATIONS;
- [x] 9. AUTOMATIC / ELECTRONIC EQUIPMENT SHUT-OFF SYSTEM;
- [x] 10. SHUT-OFF WATER, GAS, ELECTRICAL UTILITIES AS APPROPRIATE;
- [ ] 11. CALL 9-1-1 FOR PUBLIC EMERGENCY RESPONDER ASSISTANCE / MEDICAL AID;
- [x] 12. NOTIFY AND EVACUATE PERSONS IN ALL THREATENED AREAS;
- [x] 13. ACCOUNT FOR EVACUATED PERSONS IMMEDIATELY AFTER EVACUATION CALL;
- [ ] 14. PROVIDE PROTECTIVE EQUIPMENT FOR ON-SITE RESPONSE TEAM;
- [ ] 15. REMOVE OR ISOLATE CONTAINERS / AREA AS APPROPRIATE;
- [x] 16. HIRE LICENSED HAZARDOUS WASTE CONTRACTOR;
- [x] 17. USE ABSORBENT MATERIAL FOR SPILLS WITH SUBSEQUENT PROPER LABELING, STORAGE, AND HAZARDOUS WASTE DISPOSAL AS APPROPRIATE;
- [ ] 18. SUCTION USING SHOP VACUUM WITH SUBSEQUENT PROPER LABELING, STORAGE, AND HAZARDOUS WASTE DISPOSAL AS APPROPRIATE;
- [ ] 19. WASH / DECONTAMINATE EQUIPMENT W/ CONTAINMENT and DISPOSAL OF EFFLUENT / RINSATE AS HAZARDOUS WASTE;
- [ ] 20. PROVIDE SAFE TEMPORARY STORAGE OF EMERGENCY-GENERATED WASTES;
- [ ] 21. OTHER (Specify):

D2.

E. FACILITY EVACUATION

THE FOLLOWING ALARM SIGNAL(S) WILL BE USED TO BEGIN EVACUATION OF THE FACILITY (CHECK ALL THAT APPLY): E1.

- [ ] 1. BELLS;
- [ ] 2. HORNS/SIRENS;
- [x] 3. VERBAL (I.E., SHOUTING);
- [ ] 4. OTHER (Specify):

E2.

THE FOLLOWING LOCATION(S) IS/ARE EVACUEE EMERGENCY ASSEMBLY AREA(S) (i.e., Front parking lot, specific street corner, etc.) E3.

see map

Note: The Emergency Coordinator must account for all on site employees and/or site visitors after evacuation.

- [x] EVACUATION ROUTE MAP(S) POSTED AS REQUIRED E4.

Note: The map(s) must show primary and alternate evacuation routes, emergency exits, and primary and alternate staging areas, and must be prominently posted throughout the facility in locations where it will be visible to employees and visitors.

F. ARRANGEMENTS FOR EMERGENCY SERVICES

Explanation of Requirement: Advance arrangements with local fire and police departments, hospitals, and/or emergency services contractors should be made as appropriate for your facility. You may determine that such arrangements are not necessary.

ADVANCE ARRANGEMENTS FOR LOCAL EMERGENCY SERVICES (Check one of the following) F1.

- [x] 1. HAVE BEEN DETERMINED NOT NECESSARY; *or*
- [ ] 2. THE FOLLOWING ARRANGEMENTS HAVE BEEN MADE (Specify):

F2.

G. EMERGENCY EQUIPMENT

Check all boxes that apply to list emergency response equipment available at the facility and identify the location(s) where the equipment is kept and the equipment's capability, if applicable. [e.g., ☒ CHEMICAL PROTECTIVE GLOVES | Spill response kit | One time use, Oil & solvent resistant only.]

TYPE	EQUIPMENT AVAILABLE G1.	LOCATION	CAPABILITY *(If applicable)*
Safety and First Aid	1. ☒ CHEMICAL PROTECTIVE SUITS, APRONS, OR VESTS	G2.	G3.
	2. ☒ CHEMICAL PROTECTIVE GLOVES	G4.	G5.
	3. ☒ CHEMICAL PROTECTIVE BOOTS	G6.	G7.
	4. ☒ SAFETY GLASSES / GOGGLES / SHIELDS	G8.	G9.
	5. ☐ HARD HATS	G10.	G11.
	6. ☒ CARTRIDGE RESPIRATORS	G12.	G13.
	7. ☐ SELF-CONTAINED BREATHING APPARATUS (SCBA)	G14.	G15.
	8. ☒ FIRST AID KITS / STATIONS	G16.	G17.
	9. ☒ PLUMBED EYEWASH FOUNTAIN / SHOWER	G18.	G19.
	10. ☐ PORTABLE EYEWASH KITS	G20.	G21.
	11. ☐ OTHER	G22.	G23.
	12. ☐ OTHER	G24.	G25.
Fire Fighting	13. ☒ PORTABLE FIRE EXTINGUISHERS	G26. throughout facility	G27.
	14. ☐ FIXED FIRE SYSTEMS / SPRINKLERS / FIRE HOSES	G28.	G29.
	15. ☐ FIRE ALARM BOXES OR STATIONS	G30.	G31.
	16. ☐ OTHER	G32.	G33.
Spill Control and Clean-Up	17. ☐ ALL-IN-ONE SPILL KIT	G34.	G35.
	18. ☒ ABSORBENT MATERIAL	G36.	G37.
	19. ☐ CONTAINER FOR USED ABSORBENT	G38.	G39.
	20. ☒ BERMING / DIKING EQUIPMENT	G40.	G41.
	21. ☒ BROOM	G42.	G43.
	22. ☒ SHOVEL	G44.	G45.
	23. ☐ SHOP VAC	G46.	G47.
	24. ☐ EXHAUST HOOD	G48.	G49.
	25. ☐ EMERGENCY SUMP / HOLDING TANK	G50.	G51.
	26. ☐ CHEMICAL NEUTRALIZERS	G52.	G53.
	27. ☐ GAS CYLINDER LEAK REPAIR KIT	G54.	G55.
	28. ☐ SPILL OVERPACK DRUMS	G56.	G57.
	29. ☐ OTHER	G58.	G59.
Communi-cations and Alarm Systems	30. ☒ TELEPHONES (Includes cellular)	G60. All employees	G61.
	31. ☐ INTERCOM / PA SYSTEM	G62.	G63.
	32. ☐ PORTABLE RADIOS	G64.	G65.
	33. ☐ AUTOMATIC ALARM CHEMICAL MONITORING EQUIPMENT	G66.	G67.
Other	34. ☐ OTHER	G68.	G69.
	35. ☐ OTHER	G70.	G71.

H. EARTHQUAKE VULNERABILITY

Identify areas of the facility that are vulnerable to hazardous materials releases / spills due to earthquake-related motion. These areas require immediate isolation and inspection.

VULNERABLE AREAS: (Check all that apply) H1.	LOCATIONS (e.g., shop, outdoor shed, forensic lab)
☒ 1. HAZARDOUS MATERIALS / WASTE STORAGE AREA	H2.
☐ 2. PROCESS LINES / PIPING	H3.
☐ 3. LABORATORY	H4.
☐ 4. WASTE TREATMENT AREA	H5.

Identify mechanical systems vulnerable to releases / spills due to earthquake-related motion. These systems require immediate isolation and inspection.

VULNERABLE SYSTEMS: (Check all that apply) H6.	LOCATIONS
☐ 1. SHELVES, CABINETS AND RACKS	H7.
☒ 2. TANKS (EMERGENCY SHUTOFF)	H8.
☒ 3. PORTABLE GAS CYLINDERS	H9.
☐ 4. EMERGENCY SHUTOFF AND/OR UTILITY VALVES	H10.
☐ 5. SPRINKLER SYSTEMS	H11.
☒ 6. STATIONARY PRESSURIZED CONTAINERS (e.g., Propane dispensing tank)	H12.

I. EMPLOYEE TRAINING

Explanation of Requirement: Employee training is required for all employees handling hazardous materials and hazardous wastes in day-to-day or clean-up operations including volunteers and/or contractors. Training must be:

- Provided within 6 months for new hires;
- Amended as necessary prior to change in process or work assignment;
- Given upon modification to the Emergency Response / Contingency Plan, and updated/refreshed annually for all employees.

Required content includes all of the following:

- Material Safety Data Sheets;
- Hazard communication related to health and safety;
- Methods for safe handling of hazardous substances;
- Fire hazards of materials / processes;
- Conditions likely to worsen emergencies;
- Coordination of emergency response;
- Notification procedures;
- Applicable laws and regulations;
- Communication and alarm systems;
- Personal protective equipment;
- Use of emergency response equipment (e.g. Fire extinguishers, respirators, etc.);
- Decontamination procedures;
- Evacuation procedures;
- Control and containment procedures;
- UST monitoring system equipment and procedures (if applicable).

INDICATE HOW EMPLOYEE TRAINING PROGRAM IS ADMINISTERED (Check all that apply) I1.

☒ 1. FORMAL CLASSROOM; ☐ 2. VIDEOS; ☐ 3. SAFETY / TAILGATE MEETINGS;

☐ 4. STUDY GUIDES / MANUALS (Specify): _____ I2.

☐ 5. OTHER (Specify): _____ I3.

☐ 6. NOT APPLICABLE BECAUSE FACILITY HAS NO EMPLOYEES

Large Quantity Generator (LQG) Training Records: Large quantity hazardous waste generators (i.e., who generate more than 270 gallons/1,000 kilograms of hazardous waste per month) must retain written documentation of employee hazardous waste management training sessions which includes:

- A written outline/agenda of the type and amount of both introductory and continuing training that will be given to persons filling each job position having responsibility for the management of hazardous waste (e.g., labeling, manifesting, compliance with accumulation time limits, etc.).
- The name, job title, and date of training for each hazardous waste management training session given to an employee filling such a job position; and
- A written job description for each of the above job positions that describes job duties and the skills, education, or other qualifications required of personnel assigned to the position.
- Current employee training records must be retained until closure of the facility.
- Former employee training records must be retained at least three years after termination of employment.

J. LIST OF ATTACHMENTS

(Check one of the following) J1.

☒ 1. NO ATTACHMENTS ARE REQUIRED; *or*

☐ 2. THE FOLLOWING DOCUMENTS ARE ATTACHED: J2.

K. SIGNATURE / CERTIFICATION

Certification: Based on my inquiry of those individuals responsible for obtaining the information, I certify under penalty of law that I have personally examined and am familiar with the information submitted and believe the information is true, accurate, and complete, and that a copy is available on site.

SIGNATURE OF OWNER/OPERATOR	DATE SIGNED K1.
NAME OF SIGNER (print) K2.	TITLE OF SIGNER K3.

Company: Ten Star Farming

Employee Training Plan

Hazardous Materials Business Plan Requirements (HSC § 25504(c)

Methods of safe handling of hazardous materials:

Training includes: routes of exposure, complete pesticide personal protective equipment, proper labeling of containers, label review and Globally Harmonized System SDS review, food safety, proper storage and transport of chemicals. See attached example of training materials.

Safety procedures in the event of a release or threatened release of a hazardous material as described in Emergency Action/Contingency Plan:

Training includes review of Contingency Plan, evacuation procedures, procedures for dealing with fires and spills, and first aid for exposure. See Contingency Plan for specific procedures.

Procedures for coordination with local emergency organizations:

Training includes emergency reporting procedures, contact number located in Contingency Plan.

Communication and alarm systems:

Training includes review of Contingency Plan - upon hearing alarm employees are to evacuate their work areas per the emergency evacuation map (included in this plan and posted throughout the facility.)

Use of emergency response equipment and supplies employees may use:

Training includes respirator use and fit check. All PPE and equipment locations listed in Contingency Plan.

Procedures for using, inspection of, repairing, and/or replacing facility emergency and monitoring equipment:

Training includes the requirement that emergency and monitoring equipment are to be inspected monthly and documented.

Evacuation/re-entry procedures and assembly point locations:

Map posted at all principal exits and included with Contingency Plan and training.

Hazardous Waste Generator Requirements (HSC Chapter 6.5, 22 CCR § 66265.16)

Proper packaging and labeling of all waste:

Waste oil tanks are labeled and all hazardous waste is stored in approved containers.

On-site management and storage requirements:

110% containment on storage containers, and containers inspected weekly.

Proper use of safety equipment and hazardous waste management supplies:

Training includes proper PPE requirements, hazardous waste recognition, storage, disposal and spill response procedures.

Off-site transportation requirements:

This training includes packaging, labeling, placarding and shipping requirements, loading safety, and vehicle safety equipment use.

Interaction with waste haulers and disposal sites including manifesting:

Hazardous waste containers emptied by licensed hazardous waste contractor within 90 days of accumulation start date. Manifests kept on file in the main office.

Conducting and documentation of periodic inspections:

Facility inspected weekly and inspection reports kept on file in the main office. Frequency of inspections: Weekly

Personal Responsibilities

Responsibility for ensuring the training plan is compliant to all requirements and implementation is assigned to: Tim Antongiovanni

Training is provided annually and within six months for new hires. In the event of new assignments or changes in operation, training will be provided before the new assignment or change in operation takes place. Employees will not handle hazardous materials and/or hazardous waste without supervision until trained.

Date of last training: January 7, 2016

Date of next training: January 2017

Training Documentation

Training is documented by roll sheet and individual records, signed and kept in the employer's files.

Training records are kept in the main office at: 10457 Van Horn Road, Bakersfield, CA 93313

Company: Ten Star Farming

Employee Training Plan

Hazardous Materials Business Plan Requirements (HSC § 25504(c)

Methods of safe handling of hazardous materials:

Training includes: routes of exposure, complete pesticide personal protective equipment, proper labeling of containers, label review and Globally Harmonized System SDS review, food safety, proper storage and transport of chemicals. See attached example of training materials.

Safety procedures in the event of a release or threatened release of a hazardous material as described in Emergency Action/Contingency Plan:

Training includes review of Contingency Plan, evacuation procedures, procedures for dealing with fires and spills, and first aid for exposure. See Contingency Plan for specific procedures.

Procedures for coordination with local emergency organizations:

Training includes emergency reporting procedures, contact number located in Contingency Plan.

Communication and alarm systems:

Training includes review of Contingency Plan - upon hearing alarm employees are to evacuate their work areas per the emergency evacuation map (included in this plan and posted throughout the facility.)

Use of emergency response equipment and supplies employees may use:

Training includes respirator use and fit check. All PPE and equipment locations listed in Contingency Plan.

Procedures for using, inspection of, repairing, and/or replacing facility emergency and monitoring equipment:

Training includes the requirement that emergency and monitoring equipment are to be inspected monthly and documented.

Evacuation/re-entry procedures and assembly point locations:

Map posted at all principal exits and included with Contingency Plan and training.

Hazardous Waste Generator Requirements (HSC Chapter 6.5, 22 CCR § 66265.16)

Proper packaging and labeling of all waste:

Waste oil tanks are labeled and all hazardous waste is stored in approved containers.

On-site management and storage requirements:

110% containment on storage containers, and containers inspected weekly.

Proper use of safety equipment and hazardous waste management supplies:

Training includes proper PPE requirements, hazardous waste recognition, storage, disposal and spill response procedures.

Off-site transportation requirements:

This training includes packaging, labeling, placarding and shipping requirements, loading safety, and vehicle safety equipment use.

Interaction with waste haulers and disposal sites including manifesting:

Hazardous waste containers emptied by licensed hazardous waste contractor within 90 days of accumulation start date. Manifests kept on file in the main office.

Conducting and documentation of periodic inspections:

Facility inspected weekly and inspection reports kept on file in the main office. Frequency of inspections: Weekly

Personal Responsibilities

Responsibility for ensuring the training plan is compliant to all requirements and implementation is assigned to: Tim Antongiovanni

Training is provided annually and within six months for new hires. In the event of new assignments or changes in operation, training will be provided before the new assignment or change in operation takes place. Employees will not handle hazardous materials and/or hazardous waste without supervision until trained.

Date of last training: January 7, 2016

Date of next training: January 2017

Training Documentation

Training is documented by roll sheet and individual records, signed and kept in the employer's files.

Training records are kept in the main office at: 10457 Van Horn Road, Bakersfield, CA 93313

Appendix C

Request for Records Search to the
Department of Toxic Substances Control – Sacramento Office and
Response Obtained from that Agency

Est. 1988

Environmental Support Services

Environmental Research & Due Diligence Compliance
1521 Beaver Tan Court | Wake Forest, NC 27587
P) 949.429.3564 | F) 949.429.3563 | E) Shannon@EnvironmentalSupportServices.com
www.EnvironmentalSupportServices.com | EIN# 83-0533710

May 18, 2023

Dept of Toxic Substances Control
8800 Cal Center
Sacramento, CA 95826

Attention: File Room

Dear File Room,

Please check for any files/information on the following site:

Site: 2909 Houghton Road
Bakersfield, CA 93313
APN 18439108

Sincerely,
Environmental Support Services

Shannon Castagno
Project Manager
Shannon@EnvironmentalSupportServices.com

Department of Toxic Substances Control

Meredith Williams, Ph.D.
Director
8800 Cal Center Drive
Sacramento, California 95826-3200

Yana Garcia
Secretary for
Environmental Protection

Gavin Newsom
Governor

May 19, 2023

Shannon Castagno
Environmental Support Services
shannon@environmentalsupportservices.com

Public Records Request Number: 1-051823-04
Location(s): 2909 Houghton Road, Bakersfield, CA 93313

Dear Requestor:

On May 18, 2023, the Department of Toxic Substances Control (DTSC) received your email of May 18, 2023 requesting records under the Public Records Act. After a thorough review of our files, no site records were found pertaining to the sites/facilities referenced above.

A large number of our records are available on EnviroStor, an online database that provides non-confidential, public access to DTSCs data management system. It tracks our cleanup, permitting, enforcement, and investigation efforts at hazardous waste facilities and sites with known or suspected contamination issues. EnviroStor is available 24/7, 365 days a year. The data reflects the latest updates as they are entered in the system. Access it from your computer or smartphone, the local library – anywhere Internet access is available. Just go to www.envirostor.dtsc.ca.gov. You'll find a step-by-step tour of EnviroStor under the "How to Use EnviroStor" menu on the website.

If you have any questions or would like further information regarding your request, please contact me at 916-255-3611 or via email at PubReqAct@dtsc.ca.gov.

Sincerely,
Tee Xiong
Tee Xiong
Regional Records Coordinator

Appendix D

Request for Records Search to the
Department of Toxic Substances Control – Clovis Office and
Response Obtained from that Agency

Est. 1988

Environmental Support Services

Environmental Research & Due Diligence Compliance
1521 Beaver Tan Court | Wake Forest, NC 27587
P) 949.429.3564 | F) 949.429.3563 | E) Shannon@EnvironmentalSupportServices.com
www.EnvironmentalSupportServices.com | EIN# 83-0533710

May 18, 2023

Dept of Toxic Substances Control
8800 Cal Center
Sacramento, CA 95826

Attention: File Room

Dear File Room,

Please check for any files/information on the following site:

Site: 2909 Houghton Road
Bakersfield, CA 93313
APN 18439108

Sincerely,
Environmental Support Services

Shannon Castagno
Project Manager
Shannon@EnvironmentalSupportServices.com

Department of Toxic Substances Control

Meredith Williams, Ph.D., Director
1515 Tollhouse Road
Clovis, California 93611

Yana Garcia
Secretary for
Environmental Protection

Gavin Newsom
Governor

May 22, 2023

Shannon Castagno
Environmental Support Services
shannon@environmentalsupportservices.com

Public Records Request Number: 5-051823-01
Location(s): 2909 Houghton Road, Bakersfield, California 93313

Dear Requestor:

On May 18, 2023 the Department of Toxic Substances Control (DTSC) received your email of May 18, 2023 requesting records under the Public Records Act. After a thorough review of our files, no site records were found pertaining to the sites/facilities referenced above.

A large number of our records are available on EnviroStor, an online database that provides non-confidential, public access to DTSCs data management system. It tracks our cleanup, permitting, enforcement, and investigation efforts at hazardous waste facilities and sites with known or suspected contamination issues. EnviroStor is available 24/7, 365 days a year. The data reflects the latest updates as they are entered in the system. Access it from your computer or smartphone, the local library – anywhere Internet access is available. Just go to www.envirostor.dtsc.ca.gov. You'll find a step-by-step tour of EnviroStor under the "How to Use EnviroStor" menu on the website.

If you have any questions or would like further information regarding your request, please contact me at 559-578-8175 or via email at ClovisFileRoom@dtsc.ca.gov.

Sincerely,
Shelly Combs
Shelly Combs
Regional Records Coordinator

Appendix E

Response Obtained from the
Kern County Fire Department

shannon environmentalsupportservices.com

From: Sylvia Ahumada <syahumada@kerncountyfire.org>
Sent: Wednesday, May 24, 2023 6:02 PM
To: shannon environmentalsupportservices.com
Subject: RE: 2909 Houghton Rd., Bakersfield

Shannon,

The inspection report is for a regular fire inspection.

Thank you,

Sylvia Ahumada
Office Services Specialist
Kern County Fire Department
Investigation Unit
Phone: 661-391-3480 **Fax:** 661-326-8392
Email: syahumada@kerncountyfire.org

Notice: This e-mail message is for the sole use of the intended recipient(s) and may contain confidential and privileged information. Any unauthorized review, use, disclosure and distribution is prohibited. If you are not the intended recipient, please contact the sender by replying to e-mail and destroy all copies of the original message.

To contact our e-mail administrator directly, send an e-mail to: kcfdadmin@kerncountyfire.org.

From: shannon environmentalsupportservices.com <shannon@environmentalsupportservices.com>
Sent: Wednesday, May 24, 2023 2:37 PM
To: Sylvia Ahumada <syahumada@kerncountyfire.org>
Subject: RE: 2909 Houghton Rd., Bakersfield

CAUTION: This email originated from outside of the organization. Do not click links, open attachments, or provide information unless you recognize the sender and know the content is safe.

Hi Sylvia,

Is there anyway for you to let me know what the inspection report is for?

Thanks and have a wonderful day 😊

Sincerely,
Shannon Castagno
Project Manager
Tel) 949-429-3564
Fax) 949-429-3563
http://EnvironmentalSupportServices.com

From: Sylvia Ahumada <syahumada@kerncountyfire.org>
Sent: Wednesday, May 24, 2023 5:26 PM
To: shannon environmentalsupportservices.com <shannon@environmentalsupportservices.com>
Subject: 2909 Houghton Rd., Bakersfield

Good Afternoon Shannon,

We've located records for 2909 Houghton Rd, however, the only records we have are an inspection report and a liquid petroleum gas tank permit. The fee to obtain these records is $70.00. We accept check or money order. If you would like a copy of these records please make your payment out to the Kern County Fire Department and mail it to:

Kern County Fire Department
ATTN: Records
5642 Victor St.
Bakersfield, CA 93308

Once the payment has been received the records can be emailed and your receipt will be mailed back.

Please let me know if you have any questions.

Thank you,

Sylvia Ahumada
Office Services Specialist
Kern County Fire Department
Investigation Unit
Phone: 661-391-3480 **Fax:** 661-326-8392
Email: syahumada@kerncountyfire.org

Notice: This e-mail message is for the sole use of the intended recipient(s) and may contain confidential and privileged information. Any unauthorized review, use, disclosure and distribution is prohibited. If you are not the intended recipient, please contact the sender by replying to e-mail and destroy all copies of the original message.

To contact our e-mail administrator directly, send an e-mail to: kcfdadmin@kerncountyfire.org.

Appendix F

Request for Records Search to the
Cal Fire – Office of the State Fire Marshal and
Response and Photocopies Obtained from that Agency

shannon environmentalsupportservices.com

From: CALFIRE PRA Records Center <calfire@govqa.us>
Sent: Thursday, May 18, 2023 1:29 PM
To: shannon environmentalsupportservices.com
Subject: Public Records Request :: R008117-051823

RE: PUBLIC RECORDS REQUEST of 5/18/2023, Reference # R008117-051823

Dear Shannon Castagno,
Thank you for your interest in public records of CAL FIRE. Your request has been received and is being processed in accordance with the California Public Records Act, Government Code section 6250 et seq. Your request was received on May 18, 2023 and given the reference number R008117-051823 for tracking purposes.

Records Requested: Site: 2909 Houghton Road, Bakersfield, CA 93313, APN 18439108. ESS requests the following information concerning the subject site which your agency may have on file: 1. utilization, manufacture, storage, or discharge of hazardous materials/waste. 2. previous or on-going site investigations/remediations pertaining to hazardous materials/waste. 3. hazardous materials disclosures concerning the site. 4. pipelines. 5. information regarding underground storage tank present or previously found at the site. 6. Reportable Spills, Releases, Notices of Violations (NOVs) and any Environmental Reportable Issues.

Your request will be forwarded to the relevant CAL FIRE department(s) to locate the information you seek and to determine the volume and any costs that may be associated with satisfying your request. You will be contacted about the availability and/or provided with copies of the records in question. PLEASE NOTE: The California Public Records Act does not require a governmental body to create new information, to do legal research, or to answer questions.

You can monitor the progress of your request at the link below and you'll receive an email when your request has been completed.

CAL FIRE

To monitor the progress or update this request please log into CAL FIRE Records Center

shannon environmentalsupportservices.com

From: CALFIRE PRA Records Center <calfire@govqa.us>
Sent: Monday, May 22, 2023 6:46 PM
To: shannon environmentalsupportservices.com
Subject: [Records Center] Public Records Request :: R008117-051823

--- Please respond above this line ---

RE: PUBLIC RECORDS REQUEST of May 18, 2023, Reference # R008117-051823.

Dear Shannon Castagno,

CAL FIRE received a California Public Records Act (CPRA) request from you on May 18, 2023. Your request mentioned:

"Site: 2909 Houghton Road, Bakersfield, CA 93313, APN 18439108. ESS requests the following information concerning the subject site which your agency may have on file: 1. utilization, manufacture, storage, or discharge of hazardous materials/waste. 2. previous or on-going site investigations/remediations pertaining to hazardous materials/waste. 3. hazardous materials disclosures concerning the site. 4. pipelines. 5. information regarding underground storage tank present or previously found at the site. 6. Reportable Spills, Releases, Notices of Violations (NOVs) and any Environmental Reportable Issues."

CAL FIRE has reviewed its files and has located responsive records to your request. Please log in to the CAL FIRE PRA Records Center at the following link to retrieve the appropriate responsive documents.

Public Records Request - R008117-051823

Please note some information has been redacted pursuant to Government Code sections 7927.700 and 7927.705, which incorporates an individual's right to privacy under the California Constitution (Cal. Const., art. I, 1) and the Information Practices Act of 1977 (Civ Code 1798 et seq.).

We recommend that you visit the California Regulated Site Portal at https://siteportal.calepa.ca.gov/nsite/map/help.

Information on facilities or locations/areas that have been reported to the State Warning Center for hazardous materials spills or releases may be found on the Governor' s Office of Emergency Services (Cal OES) HazMat Spill Release Reporting Database (https://w3.calema.ca.gov/operational/malhaz.nsf/$defaultview).

To search for nearby pipelines please visit: https://www.npms.phmsa.dot.gov/.

To search for open fire code violations please submit a records request with your local jurisdiction.

If you have any questions or need additional information, you can manage your request through the CAL FIRE PRA Records Center.

Sincerely,
Ashley Bradley
PRA Analyst
Sacramento - HQ - Legal Office

To monitor the progress or update this request please log into the CAL FIRE PRA Records Center

Powered by GovQA

A

FDID	State	Incident Date (MM DD YYYY)	Station	Incident Number	Exposure
15010	CA	07/24/2020	K52	2031638	000

NFIRS - 1 Basic

B Location

Address Type	Number/Milepost	Prefix	Street or Highway	Street Type	Suffix
1 - Street addres	2909		HOUGHTON	Road	

Apt./Suite/Room	City	State	Zip Code
	BAKERSFIELD	CA	93313

Census Tract

Cross street or directions, as applicable

C Incident Type

412 - Gas leak (natural

Incident Type

D Aid Given or Received

Their FDID	Their State	Their Incident Number

N - None

Type Aid Given or Recieved

E1 Dates & Times

Midnight is 0000

	Month Day Year	Hour Min Seconds
Alarm	07/24/2020	23:29:00
Arrival	07/24/2020	23:38:29
Controlled		
Last Unit Cleared	07/24/2020	23:47:16

E2 Shifts & Alarms

Local Option

Shift or platoon	Alarms	District
B	1	

E3 Special Studies

Local Option

Special Study ID#	Special Study Value

F Actions Taken

86 - Investigate

Actions Taken

G1 Resources

☐ Check this box and skip this section if an Apparatus or Personnel form is used.

	Apparatus	Personnel
Suppression	4	10
EMS	0	0
Other	0	0

☐ Check box if resource counts include aid received resources.

G2 Estimated Dollar Losses & Values

LOSSES: Required for all fires if known. Optional for non fires.

Property	$
Contents	$

PRE-INCIDENT VALUE: Optional

Property	$
Contents	$

H1 Casualties

	Deaths	Injuries
Fire Service	0	0
Civilian	0	0

H2 Detector

U - Unknown

H3 Hazardous Materials Release

I Mixed Use Property

J Property Use

931 - Open land or field

K1 Person/Entity Involved

Mr., Ms., Mrs. | First Name | MI | Last Name | Suffix

Number | Prefix | Street or Highway | Street Type | Suffix

Post Office Box | Apt./Suite/Room | City

State | Zip Code | Business name (if applicable) | Area Code | Phone Number

K2 Owner

Mr., Ms., Mrs. | First Name | MI | Last Name | Suffix

Number | Prefix | Street or Highway | Street Type | Suffix

Post Office Box | Apt./Suite/Room | City

State | Zip Code | Business name (if applicable) | Area Code | Phone Number

A

FDID	State	Incident Date (MM DD YYYY)	Station	Incident Number	Exposure
15010	CA	07/24/2020	K52	2031638	000

NFIRS Remarks

Remarks

TITLE:CAD Narrative [CRLF][PII] CHP ADVD RP SAID THERE WAS AN EXPLOSION Narrative added from associated Call #: 179 - DISCONNECTED/ GAS LEAK Narrative added from associated Call #: 180 - DOWN THE ROAD..... Narrative added from associated Call #: 180 - 1 YEAR AGO ProQA Paramount Fire: CC Text: Building/Structure over water fire Caller Statement: SOUND OF GASS Dispatch Code: 60C02 (Outside commercial line) Response: 60C02 - STRUCTURE FIRE ANSWERS: 1. At loc (1st pty). 4. Gas from: Line. 2. Prob outside. 3. Gas heard only. 5. Commercial line. 6. No one sick/inj. 7. N/A Narrative added from associated Call #: 180 - GAS LINE / WEST OF RP..... Narrative added from associated Call #: 180 - CAN HEAR ALL HELL BREAKING ProQA Paramount Fire: Call had been completed in ProQA Paramount. ProQA Paramount Fire: CC Text: Building/Structure over water fire Caller Statement: SOUND OF GASS (Outside commercial line) NO REPORTS OF INJ , RP ADVSD THIS ADRESS HAS PREVIOUSLY BLOWN UP DUE TO A GAS LEAK IN A PREVIOUS YEAR AT THIS TIME ONLY LOUD GAS HEARD FROM A GAS LINE RP ADVSD HE IS IN THE FIELD, AND UNABLE TO DIRECT UNITS RP CALLING FROM TEN STAR PACKAGING Narrative added from associated Call #: 179 - NOISE JUST STOPPED.... Narrative added from associated Call #: 179 - COULD SMELL GAS E52 - O/S W/ PG&E / LARGE GAS LEAK BLOWING INTO THE AIR / [PII] HOUGHTON [PII] 52 CANH KB4 - CX BAL New call created. Call Type: <New Call>, [PII], Caller Phone: [PII] Source: E911 (07/24/2020 23:24:00) Name: [PII], Contact Phone: [PII] Name: [PII], Contact Phone: [PII] Name: [PII], Contact Phone: [PII] Name: , Contact Phone: [PII] Name: , Contact Phone: [PII] [PII] Name: [PII], Contact Phone: [PII] CHP ADVD RP SAID THERE WAS AN EXPLOSION DOWN THE ROAD.....; 1 YEAR AGO; GAS LINE / WEST OF RP.....; CAN HEAR ALL HELL BREAKING NO REPORTS OF INJ , RP ADVSD THIS ADRESS HAS PREVIOUSLY BLOWN UP DUE TO A GAS LEAK IN A PREVIOUS YEAR AT THIS TIME ONLY LOUD GAS HEARD FROM A GAS LINE RP ADVSD HE IS IN THE FIELD, AND UNABLE TO DIRECT UNITS RP CALLING FROM TEN STAR PACKAGING E52 - O/S W/ PG&E / LARGE GAS LEAK BLOWING INTO THE AIR / [PII] HOUGHTON / [PII] DISCONNECTED/ GAS LEAK; NOISE JUST STOPPED....; COULD SMELL GAS 52 CANH KB4 - CX BAL Close Call Unit E52 Dispatched Unit E53 Dispatched Unit E51 Dispatched Unit KB4 Dispatched Unit E51 Enroute Unit E52 Enroute Unit E53 Enroute Unit KB4 Enroute Unit E52 Arrived Unit KB4 Available Unit E51 Available Unit E53 Available Unit E52 Available Cross streets updated, HOUGHTON RD, [PII] Call Location Changed from [PII] to 2909 HOUGHTON RD, Kern County Cross streets updated, S H ST / [PII] Fire Call Type Changed From EFD To Call Type: SF, Status: In Progress, Priority: 5 Additional Location Info PACKAGE HOUSE Added Additional Location Info Changed From PACKAGE HOUSE To KERN PACKAGE HOUSE Fire Primary Context EMD Code Changed To SF Added Fire Radio Channel KRN 3 / TAC V3 Additional Location Info Changed From KERN PACKAGE HOUSE To TEN STAR PACKING, Call Number 180 was Associated, Call Type: <New Call>, Location: [PII], Caller Phone: [PII], Name: [PII] Call Number 179 was Associated, Call Type: <New Call>, Location: [PII], Caller Phone: [PII], Name: [PII] Call marked ready for dispatch Fire EMD Case Number Added 1094738 Recommendation viewed for units : E52, E53, E51, KB4 Recommendation accepted for units: E52, E53, E51, KB4. Recommendation completed for units: E52, E53, E51, KB4. Added Incident Number, ORI: 15010 , Number: 2020-00031638 Attempting to page the following pagers: [PII] [PII] Alerts Were Successfully Gathered For Location At Address [PII] Alerts Were Successfully Gathered For Location At Address 2909 HOUGHTON RD Fire Call Type Added. Call Type: EFD, Status: In Progress, Priority: 9 Timer Start - Interval 10m Timer Stop - 8m 47s (0) Unit E52 Secondary Location: Secondary

M Authorization

Officer in charge ID	Signature	Position or rank	Assignment	Month Day Year
K0941	Coleman Souers	FC	1	07/26/2020

Member making report ID	Signature	Position or rank	Assignment	Month Day Year
K0941	Coleman Souers	FC	1	07/26/2020

FDID	State	Incident Date (MM DD YYYY)	Station	Incident Number	Exposure	NFIRS - 9 Apparatus or Resources
15010	CA	07/24/2020	K52	2031638	000	

B Apparatus or Resource (Use codes listed below)	Dates and Times (Month Day Year Hours/Mins)	Sent (X)	Number of People	Use (Check ONE box for each apparatus to indicate its main use at the incident.)	Actions Taken
1 ID: E53 Type: 11	Dispatch: 07/24/2020 23:29 Arrival: Clear: 07/24/2020 23:41	X	3	1 - Suppress	93
2 ID: E51 Type: 11	Dispatch: 07/24/2020 23:29 Arrival: Clear: 07/24/2020 23:40	X	3	1 - Suppress	93
3 ID: KB4 Type: 92	Dispatch: 07/24/2020 23:29 Arrival: Clear: 07/24/2020 23:40	X	1	1 - Suppress	93
4 ID: E52 Type: 11	Dispatch: 07/24/2020 23:29 Arrival: 07/24/2020 23:38 Clear: 07/24/2020 23:47	X	3	1 - Suppress	
5 ID: Type:	Dispatch: Arrival: Clear:				
6 ID: Type:	Dispatch: Arrival: Clear:				
7 ID: Type:	Dispatch: Arrival: Clear:				
8 ID: Type:	Dispatch: Arrival: Clear:				
9 ID: Type:	Dispatch: Arrival: Clear:				
10 ID: Type:	Dispatch: Arrival: Clear:				
11 ID: Type:	Dispatch: Arrival: Clear:				
12 ID: Type:	Dispatch: Arrival: Clear:				
13 ID: Type:	Dispatch: Arrival: Clear:				

NFIRS - 10
Personnel

A

FDID	State	Incident Date (MM DD YYYY)	Station	Incident Number	Exposure
15010	CA	07/24/2020	K52	2031638	000

B

Apparatus or Resource	Dates and Times (Month Day Year Hours/Mins)	Sent (X)	Number of People	Use (Check ONE box for each apparatus to indicate its main use at the incident.)	Actions Taken (List up to 4 actions for each apparatus and each personnel.)
1 ID E53 Type 11	Dispatch 07/24/2020 23:29:00 Arrival Clear 07/24/2020 23:41:09	X	3 #	1 - Suppressi	93

Personnel ID	Name	Rank or Grade	Attend (X)	Action Taken	Action Taken	Action Taken	Action Taken
K0752	Rico, Bryan	FC					
K1213	Molhook, Dr	FF					
K1212	Soto, David	FE					

Apparatus or Resource	Dates and Times (Month Day Year Hours/Mins)	Sent (X)	Number of People	Use (Check ONE box for each apparatus to indicate its main use at the incident.)	Actions Taken (List up to 4 actions for each apparatus and each personnel.)
2 ID E51 Type 11	Dispatch 07/24/2020 23:29:00 Arrival Clear 07/24/2020 23:40:43	X	3 #	1 - Suppressi	93

Personnel ID	Name	Rank or Grade	Attend (X)	Action Taken	Action Taken	Action Taken	Action Taken
K0897	Collins, Se	FC					
K1357	Sheahan, Be	FF					
K1167	Hartshorn,	FC					

Apparatus or Resource	Dates and Times (Month Day Year Hours/Mins)	Sent (X)	Number of People	Use (Check ONE box for each apparatus to indicate its main use at the incident.)	Actions Taken (List up to 4 actions for each apparatus and each personnel.)
3 ID KB4 Type 92	Dispatch 07/24/2020 23:29:01 Arrival Clear 07/24/2020 23:40:25	X	1 #	1 - Suppressi	93

Personnel ID	Name	Rank or Grade	Attend (X)	Action Taken	Action Taken	Action Taken	Action Taken
K0591	Whittington	FBC					

A | 15010 (FDID) | CA (State) | 07/24/2020 (MM DD YYYY Incident Date) | K52 (Station) | 2031638 (Incident Number) | 000 (Exposure) | NFIRS - 10 Personnel

B Apparatus or Resource	Dates and Times (Month Day Year Hours/Mins)	Sent X	Number of People	Use (Check ONE box for each apparatus to indicate its main use at the incident.)	Actions Taken (List up to 4 actions for each apparatus and each personnel.)
1 ID: E52 Type: 11	Dispatch 07/24/2020 23:29:00 Arrival 07/24/2020 23:38:29 Clear 07/24/2020 23:47:16	X	3 #	1 - Suppressi	93

Personnel ID	Name	Rank or Grade	Attend X	Action Taken	Action Taken	Action Taken	Action Taken
K0941	Souers, Col	FC					
K0972	Whisnand, S	FE					
K1194	Clark, Kyle	FF					

2 ID: Type:	Dispatch / Arrival / Clear	Sent	#		

Personnel ID	Name	Rank or Grade	Attend X	Action Taken	Action Taken	Action Taken	Action Taken

3 ID: Type:	Dispatch / Arrival / Clear	Sent	#		

Personnel ID	Name	Rank or Grade	Attend X	Action Taken	Action Taken	Action Taken	Action Taken

Redaction Date: 5/22/2023 3:08:53 PM

Redaction Log

Total Number of Redactions in Document: 26

Redaction Reasons by Page

Page	Reason	Description	Occurrences
2	PII	Personnel, Medical or Similar Records, Gov Code 7927.700	26

Redaction Date: 5/22/2023 3:08:53 PM

Redaction Log

Redaction Reasons by Exemption

Reason	Description	Pages (Count)
PII	Personnel, Medical or Similar Records, Gov Code 7927.700	2(26)

Redaction Date: 5/22/2023 3:34:26 PM

Redaction Log

Total Number of Redactions in Document: 2

Redaction Reasons by Page

Page	Reason	Description	Occurrences
2	PII	Personnel, Medical or Similar Records, Gov Code 7927.700	2

Redaction Date: 5/22/2023 3:34:26 PM

Redaction Log

Redaction Reasons by Exemption

Reason	Description	Pages (Count)
PII	Personnel, Medical or Similar Records, Gov Code 7927.700	2(2)

Appendix G

Request for Records Search to the
Kern County Building Department and
Response and Photocopies Obtained from that Agency

Est. 1988

Environmental Support Services

Environmental Research & Due Diligence Compliance
1521 Beaver Tan Court | Wake Forest, NC 27587
P) 949.429.3564 | F) 949.429.3563 | E) Shannon@EnvironmentalSupportServices.com
www.EnvironmentalSupportServices.com | EIN# 83-0533710

May 18, 2023

Public Work Department & Building Department

Attention: Stephanie Wood

Subject: Records Search – Need to obtain building record information

Site: 2909 Houghton Road
Bakersfield, CA 93313
APN 18439108

Dear Ms. Wood,

Environmental Support Services (ESS) is in the process of conducting a records search for an environmental audit at a site in Bakersfield, CA. This search includes researching the history of the site. I hereby request copies of all building permits and certificates of occupancy for the following:

Site: 2909 Houghton Road
Bakersfield, CA 93313
APN 18439108

I am trying to put a history of the site together. Should you have any questions concerning this request for information, please call. Your expedient processing of this request in greatly appreciated.

Sincerely,
Environmental Support Services

Shannon Castagno
Project Manager
Shannon@EnvironmentalSupportServices.com

shannon environmentalsupportservices.com

From: Francisca Smith <FSmith@kerncounty.com>
Sent: Tuesday, May 30, 2023 11:51 AM
To: shannon environmentalsupportservices.com
Subject: 2909 Houghton
Attachments: RCT 575780.pdf; 2909 Houghton Rd. Payment.pdf

Hello-
Attached are your requested copies and receipt. Please give me a call if you need further assistance.

Sincerely,

Francisca Smith

Administrative Coordinator
Kern County Public Works
(661) 862-5097

Hello Shannon,
The Public Works department received your payment for copies on 5/30/23 for 2909 Houghton. Attached are copies of the documents we were able to find for this address. If you need further assistance, please reach out. Thank you.

Sincerely,
Francisca Smith
Administrative Coordinator
Public Works
661-862-5097

Stephanie Wood

From: shannon environmentalsupportservices.com <shannon@environmentalsupportservices.com>
Sent: Thursday, May 18, 2023 10:16 AM
To: Stephanie Wood
Subject: New Public Records Request

CAUTION: This email originated from outside of the organization. Do not click links, open attachments, or provide information unless you recognize the sender and know the content is safe.

Est. 1988

Environmental Support Services

Environmental Research & Due Diligence Compliance
30251 Golden Lantern, #E-305, Laguna Niguel, CA 92677
P) 949.429.3564 | F) 949.429.3563 | E) Shannon@EnvironmentalSupportServices.com
www.EnvironmentalSupportServices.com | EIN# 83-0533710

May 18, 2023

$16.00

Public Work Department & Building Department

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Sincerely,
Environmental Support Services

Shannon Castagno
Project Manager
Shannon@EnvironmentalSupportServices.com

55135-B

KERN COUNTY DEPARTMENT OF PLANNING AND DEVELOPMENT SERVICES BUILDING INSPECTION DIVISION RANDALL L. ABBOTT, DIRECTOR	**JOB CARD** CONSTRUCTION PERMIT	2700 M STREET BAKERSFIELD, CA. 93301 PHONE (805) 861-2615

1 Job Address / Assessor's Parcel No.	NE SHAFTER/WIBLE 184-391-0008-00	Insp. Area 65	ZM 1-42	Map	Lot / Block

2 Project Description Or Comments: AG USE ELECT SERVICE/25HP PUMP — Permit # 55135-B

3 Permit Class (New/Add or Alter/Conversion/Remodel): NEW CONSTRUCTION

4 Property Owner(s) 1. ANTONGIOVANNI JOHN S ET AL — 2.
Mailing Address: RT 10 BOX 1211 — City/State: BAKERSFIELD CA
Phone Number: — Zip Code: 93313-0000

5 Architect/Engineer — License#
Mail Address — Phone#

6 Contractor's Name: MASCO ENTERPRISES — Hiring Licensed Contractor's (Y/N).
Mailing Address: P.O. BOX 46 DEL KER — City/State: BAKERSFIELD CA 93307-0000
Phone Number — Cont. St. Lic.#

7 Project Manager
Phone Number

ZONE CLASSIFICATION APPROVED PER PLAN AS FOLLOWS: Elect service & 25 hp. booster pump for ag use only per plot plan

8 C.S.A. # — 9 School Dist. # 118

10 Comments

11 Census Code # 199 — 12 Census Tract # 32.01

Cen # Sub Code	Census Number Description	A/D/Y	A/D/Y PER BLDG.	BVD CODE	UNITS Per Bldg	BLDG.
M	MISC. "INSTALL" PERMITS	$		1.1	1	1

By: [signature] Date: 7/10/89

Ref. Case #

Total Area — Total Value/Yards

THE FOLLOWING PRELIMINARY FEES ARE SUBJECT TO CHANGE BEFORE PERMIT ISSUANCE:

	FEE	REC.#
BUILDING PERMIT FEES		
PLAN CHECK FEES		
MECHANICAL PERMIT FEES		
ELECTRICAL PERMIT FEES	19.00	55135
PLUMBING PERMIT FEES		
MOBILE HOME PERMIT FEES		
SOLAR PERMIT FEES		
S.M.I.P. FEES		
ENERGY PLAN CHECK FEES		

	FEE	REC.#
DRC SITE PLAN REVIEW		
TIME & MATERIAL		
APPLICATION ISSUANCE FEE	22.00	55135
ELEMENTARY SCHOOL FEES		
HIGH SCHOOL FEES		
NON-UBC FEES		
ADMINISTRATIVE		
HABITAT FEE		
TOTAL FEES	$ 41.00	
AMOUNT PAID	$ 41.00	
BALANCE	$ .00	

J - 7/12/89

Application Number 5299 — Activity Code P
Application Date 7/10/89 — Issuance Date 7/10/89 — Activity Date 7/10/89 NS-ID N2

REMARKS

Date

Planning & Devel. 580 2625 171-B (Rev. 3/89)

55135-B

COUNTY DEPARTMENT OF PLANNING & DEVELOPMENT SERVICES
BUILDING INSPECTION DIVISION
RANDALL L. ABBOTT, DIRECTOR

INSPECTION RECORD

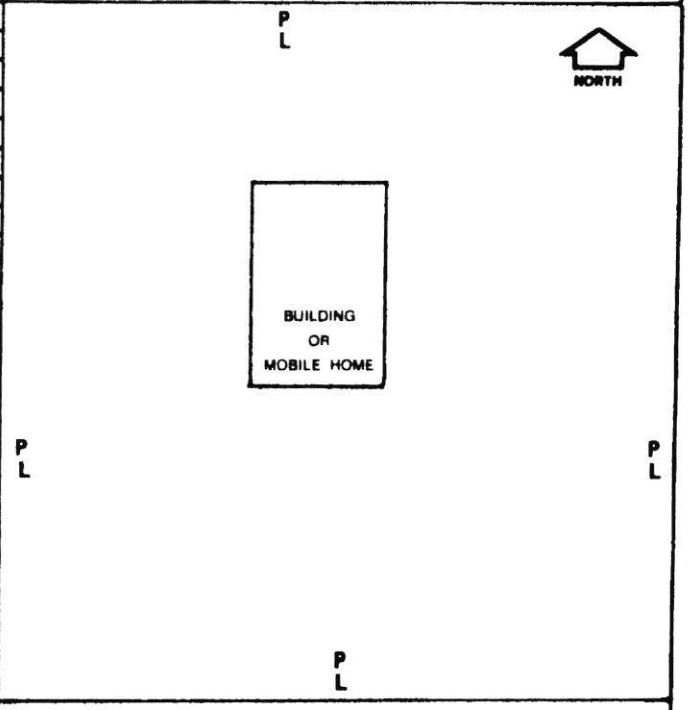
POST CARD AT JOBSITE

BAKERSFIELD AREA INSPECTION REQUESTS ONLY
7 am - 5 pm 861-2158
After Hours 861-3321

2700 'M' Street, Bakersfield, California 93301-2699
Phone 861-2615 Office Hours 7:00 — 5:00

Arvin Office - 131 North "A" Street Ph 854-5308 Office Hours 8:00-9:00
Frazier Park Office - Fire Station Ph 245-1221 Office Hours 8:00-5:00
Isabella Office - County Building - 6329 Highway 178, Isabella 93240
Phone 379-2631 — Office Hours 8:00-5:00
Shafter Office - 336 Pacific Street Ph 746-3984 Office Hours 8:00-5:00
McFarland Office - 401 W. Kern Ph 792-3092 Office Hours 8:00-9:00
Taft Office - 315 Lincoln Ph 763-4622 Office Hours 8:00-9:00
Mojave Office - 1775 Hwy 58 Ph 824-4631 Office Hours 8:00-5:00
Ridgecrest Office - 400 N. China Lake Blvd Ph 375-1564 Office Hours 8:00-5:00
Tehachapi Office - 125 E. "F" St., Rm. F Ph 822-6329 Office Hours 8:00-5:00

	Inspection	Date	Inspector
GROUND WORK	Grading		
	Set Backs		
	Underground Elec.		
	Underground Plb.		
	Underground Mech.		
COVER NO WORK UNTIL ABOVE HAS BEEN SIGNED			
FOUNDATION	Foundation Reinforcements		
	Slab Mesh		
	Slab Membrane		
	Rebar for Grounding		
PLACE NO CONCRETE FOR FLOOR UNTIL ABOVE HAS BEEN SIGNED			
FLOOR WALL ROOF FRAMING	Floor Joists		
	Floor Sheathing		
	Rough Electrical		
	Plumbing Top-out		
	Fire Sprinkler System		
	Shower Pan		
	Grease Trap		
	Rough Mechanical		
	Roof Sheathing		
	Structural		
COVER NO WORK UNTIL ABOVE HAS BEEN SIGNED			
STUCCO PLASTER WALLBOARD SIDING	Roofing		
	Interior Lathing		
	Exterior Lathing / Siding		
	Dry Wall		
	Exterior Membrane		
	Wall Insulation		
	Attic Ventilation		
DO NOT PLASTER OR APPLY SIDING UNTIL ABOVE HAS BEEN SIGNED			
SEWAGE DISPOSAL	First Inspection		
	Sewer Line		
	Septic Tank		
	Seepage Pit		
	Leach Field		
COVER NO WORK UNTIL ABOVE HAS BEEN SIGNED			
MASONRY AND CONCRETE WALLS	Foundation Steel		
	Wall Reinforcing		
	Bond Beam		
	Fire Place Reinforcing		
	Fire Place		
	Wood Stove		
COVER NO WORK UNTIL ABOVE HAS BEEN SIGNED			
SWIMMING POOL	Location		
	Steel		
	Conduit under deck		
	Recirculation piping		
	Electrical wiring		
	Gas line under deck		
	Fencing & Gates		
COVER NO WORK UNTIL ABOVE HAS BEEN SIGNED			



	Date	Inspector
Temp Elec.		
Temp Gas		

PRE-FINAL APPROVALS

	Date	Inspector
Fire Department		
Health Department		
Road Department		
Grading		
Drainage		
Landscaping		
C.U.P. Requirements		
P.D. Requirements		

FINAL	Gas pressure test		
	Electrical final	7/12/89	MB
	Plumbing final		
	Mechanical final		
	Structural final		
	Energy final		
	Zoning requirements	7/12/89	MB
	Insulation requirements		
	Fire Requirements		
	Job complete	7/12/89	MB

KERN COUNTY BID INSPECTION LOG

Notice To Comply for Permit: K200903693

Project Address:	99999 HOUGHTON, BAKERSFIELD, CA	**PERMIT NO:**	**K200903693**
Project Parcel:	184-391-084	Application Date:	Jul 24, 2009
Inspector Area:	62	Permit Issued Date:	Jul 24, 2009
Subtype:	Commercial Electrical Pump	Permit Status:	FINALED
Project Description:	install 100 amp service for ag purposes		

Inspection	Scheduled	Inspected	Inspector	Result
Final - Electrical	7/27/2009	7/28/2009	Butch Neville	Approved
Job Complete	7/27/2009	7/28/2009	Butch Neville	Approved
Electric Release		7/28/2009	Butch Neville	Approved

KERN COUNTY BID INSPECTION LOG

Notice To Comply for Permit: K201200633

Project Address:	99999 HOUGTON RD, BAKERSFIELD, CA	**PERMIT NO:**	**K201200633**
Project Parcel:	184-391-084	Application Date:	Feb 06, 2012
Inspector Area:	62	Permit Issued Date:	Mar 15, 2012
Subtype:	Commercial Electrical Pump	Permit Status:	FINALED
Project Description:	ELECTRIC TO AN AG PUMP		

Inspection	Scheduled	Inspected	Inspector	Result
Final - Electrical	3/15/2012	3/16/2012	Rick McDonald	Approved
Electric Release AG well pump		3/16/2012	Rick McDonald	Approved
Job Complete	3/15/2012	3/16/2012	Rick McDonald	Approved

KERN COUNTY BID INSPECTION LOG

Notice To Comply for Permit: K201206046

Project Address:	999999 HOUGHTON RD, BAKERSFIELD, CA	**PERMIT NO:**	**K201206046**
Project Parcel:	184-391-084	Application Date:	Nov 09, 2012
Inspector Area:	62	Permit Issued Date:	Nov 26, 2012
Subtype:	Commercial Grading Engineered	Permit Status:	FINALED 5/3/2013
Project Description:	EMGOMEERED GRADING - 5100 CY - FOR FUTURE SHADE STRUCTURE		

Inspection	Scheduled	Inspected	Inspector	Result

KERN COUNTY BID INSPECTION LOG

Notice To Comply for Permit: K201206640

Project Address:	2909 HOUGHTON RD, BAKERSFIELD, CA	**PERMIT NO:**	**K201206640**
Project Parcel:	184-391-084	Application Date:	Dec 12, 2012
Inspector Area:	62	Permit Issued Date:	Jan 11, 2013
Subtype:	Commercial Accessory	Permit Status:	FINALED
Project Description:	100 x 300 shade structure to existing farm operation		

Inspection	Scheduled	Inspected	Inspector	Result
Electric Release		4/3/2013	Jesse Barron	Approved
Job Complete	4/26/2013	4/29/2013	Jesse Barron	Approved
Job Complete	4/26/2013	4/29/2013	Jesse Barron	Approved
Final - Structural	4/26/2013	4/29/2013	Jesse Barron	Approved
Final - Structural	4/26/2013	4/29/2013	Jesse Barron	Approved
Final - Electrical	4/26/2013	4/29/2013	Jesse Barron	Approved
Final - Electrical	4/26/2013	4/29/2013	Jesse Barron	Approved

KERN COUNTY BID INSPECTION LOG

Notice To Comply for Permit: K201401318

Project Address:	2909 HOUGHTON RD, BAKERSFIELD, CA	**PERMIT NO:**	**K201401318**
Project Parcel:	184-391-084	Application Date:	Mar 11, 2014
Inspector Area:	62	Permit Issued Date:	May 01, 2014
Subtype:	Commercial Alteration	Permit Status:	FINALED
Project Description:	CONSTRUCT 2 ATTACHED POLE BARN STRUCTURES TO AN EXIS POLE BARN 15000 SQ FT TOTAL		

Inspection	Scheduled	Inspected	Inspector	Result
Foundation - Slab	5/14/2014	5/14/2014	James Winfrey	Approved
Foundation - Pier/Posts	5/14/2014	5/14/2014	James Winfrey	Approved
Structural	5/30/2014	5/30/2014	Kelly Sanders	Approved
Job Complete	5/30/2014	5/30/2014	Kelly Sanders	Approved

Certificate of Occupancy

Granted by

KERN COUNTY DEPARTMENT OF ENGINEERING, SURVEYING & PERMIT SERVICES

BUILDING INSPECTION DIVISION

2700 M Street, Suite 570, Bakersfield, CA 93301-2370

Telephone (661) 862-8650

PROJECT ADDRESS: **2909 HOUGHTON RD BAKERSFIELD** DATE: **05/30/2014**

LEGAL DESCRIPTION: **184-391-084** PERMIT NO: **K201401318** ZONING: **A**

This is to certify that the building, or portion of building, constructed under the above permit, at the above address, complies with the provisions of the 20130 California Building Standards Code and related ordinances and laws in effect for the following use and occupancy group.

USE: **15,000 SQ FT ADDITION TO EXISTING POLE BARN**

OCCUPANCY GROUP-DIVISION: **U**

OWNER: **TBS PROP LLC**
10457 VAN HORN RD
BAKERSFIELD, CA 93313

TYPE OF CONSTRUCTION: **II B**

DESIGN OCCUPANT LOAD: **N/A**

FIRE SPRINKLERS: **NO**

Robert Sawyer, Principal Building Inspector

COUNTY OF KERN · STATE OF CALIFORNIA

Greg Fenton, P.E., Director

THIS CERTIFICATE MUST BE POSTED IN A CONSPICUOUS PLACE IN THE BUILDING AND MAY NOT BE REMOVED EXCEPT BY THE BUILDING OFFICIAL.

Plans for this building have been approved and inspections made to verify conformance with current building regulations.
You are responsible for maintaining this building as certified.

NOTE: Make no changes, additions or alterations of any structural, mechanical, plumbing, or electrical without consulting the Building Inspection Division as this will void the Certificate of Occupancy. Make no change of use or occupancy without contacting the Building Inspection Division.

KERN COUNTY BID INSPECTION LOG

Notice To Comply for Permit: K201405984

Project Address:	2909 HOUGHTON RD, BAKERSFIELD, CA	**PERMIT NO:**	**K201405984**
Project Parcel:	184-391-084	Application Date:	Aug 27, 2014
Inspector Area:	62	Permit Issued Date:	Aug 27, 2014
Subtype:	Commercial Electrical Pump	Permit Status:	FINALED
Project Description:	INSTALL ELECTRICAL FOR EXISTING AG WELL		

Inspection	Scheduled	Inspected	Inspector	Result
Electric Release	8/29/2014	8/29/2014	Joey Ramirez	Denied - NTC
Repair by either installing correct size lug or conductor in Meter. Cannot shave strands to fit lugs although conductors may be over sized.				
Electric Release	9/8/2014	9/8/2014	James Winfrey	Approved
Job Complete	9/8/2014	9/8/2014	James Winfrey	Approved

KERN COUNTY BID INSPECTION LOG

Notice To Comply for Permit: K201600253

Project Address:	2909 HOUGHTON RD, BAKERSFIELD, CA	**PERMIT NO:**	**K201600253**
Project Parcel:	184-391-084	Application Date:	Jan 13, 2016
Inspector Area:	62	Permit Issued Date:	
Subtype:	Commercial Accessory	Permit Status:	CANCELED
Project Description:	CONSTRUCT HAY STORAGE STRUCTURE (AS BUILT) ACC TO AN EXIS AG RELATED SITE, 4165 SQ FT		

Inspection	Scheduled	Inspected	Inspector	Result

KERN COUNTY BID INSPECTION LOG

Notice To Comply for Permit: K201600266

Project Address: 2909 HOUGHTON RD, BAKERSFIELD, CA
Project Parcel: 184-391-084
Inspector Area: 62
Subtype: Commercial Energy Solar
Project Description: CONSTRUCT 496.0 KW ROOF MOUNT SOLAR SYSTEM ON AN EXIS POLE BARN (K201401318) ACC TO AN AG RELATED FACILITY (FOR ON SITE USE)

PERMIT NO: K201600266
Application Date: Jan 14, 2016
Permit Issued Date: Apr 28, 2016
Permit Status: FINALED

Inspection	Scheduled	Inspected	Inspector	Result
Job Complete	9/15/2016		Sean Brady	Cancelled
Roof Flashing	5/4/2016		Inspection Area 62	Cancelled
Roof Flashing	4/29/2016	4/29/2016	Sean Brady	Approved
Job Complete	5/4/2016	5/4/2016	Sean Brady	Not Ready
Job Complete	9/15/2016	9/15/2016	Sean Brady	Denied - NTC
No called electric release?				
Electric Release	9/29/2016	9/29/2016	Sean Brady	Approved
Job Complete	11/23/2016	11/23/2016	Sean Brady	Approved

KERN COUNTY BID INSPECTION LOG

Notice To Comply for Permit: K201602121

Project Address:	2909 HOUGHTON RD, BAKERSFIELD, CA	**PERMIT NO:**	**K201602121**
Project Parcel:	184-391-084	Application Date:	Mar 30, 2016
Inspector Area:	62	Permit Issued Date:	Mar 30, 2016
Subtype:	Commercial Miscellaneous	Permit Status:	FINALED
Project Description:	INSTALL TRANSFORMER AND PAD ASSOCIATED WITH AN EXIS SOLAR PROJECT		

Inspection	Scheduled	Inspected	Inspector	Result
Job Complete	9/15/2016		Sean Brady	Cancelled
Foundation - Footings	3/31/2016	3/31/2016	Sean Brady	Denied - NTC
No inspections until solar permit for array issued. Notified Sean Barger by message on cell phone 661-304-5634				
Foundation - Slab	4/29/2016	4/29/2016	Sean Brady	Approved
Job Complete	5/4/2016	5/4/2016	Sean Brady	Not Ready
Job Complete	9/15/2016	9/15/2016	Sean Brady	Approved

KERN COUNTY BID INSPECTION LOG

Notice To Comply for Permit: K201604692

Project Address:	2909 HOUGHTON RD, BAKERSFIELD, CA	**PERMIT NO:**	**K201604692**
Project Parcel:	184-391-084	Application Date:	Jul 06, 2016
Inspector Area:	62	Permit Issued Date:	Aug 31, 2016
Subtype:	Commercial Miscellaneous	Permit Status:	FINALED
Project Description:	CONSTRUCT CONCRETE SLAB FOR A SWITCH GEAR ACC TO AN EXIS FARM		

Inspection	Scheduled	Inspected	Inspector	Result
Job Complete	9/15/2016		Sean Brady	Cancelled
Job Complete	9/15/2016		Sean Brady	Cancelled
Job Complete	9/13/2016	9/15/2016	Sean Brady	Approved

KERN COUNTY BID INSPECTION LOG

Notice To Comply for Permit: K201703007

Project Address:	2909 HOUGHTON RD, BAKERSFIELD, CA	**PERMIT NO:**	**K201703007**
Project Parcel:	184-391-084	Application Date:	May 02, 2017
Inspector Area:	62	Permit Issued Date:	May 02, 2017
Subtype:	Commercial Electrical Pump	Permit Status:	FINALED
Project Description:	ELECTRICAL TO AN EXIS PUMP WITH A 40 HP MOTOR		

Inspection	Scheduled	Inspected	Inspector	Result
Electric Release Ag Service	6/30/2017	6/30/2017	Sean Brady	Approved
Job Complete	6/30/2017	6/30/2017	Sean Brady	Approved

KERN COUNTY BID INSPECTION LOG

Notice To Comply for Permit: K202207783

Project Address:	2909 HOUGHTON RD, BAKERSFIELD, CA	**PERMIT NO:**	**K202207783**
Project Parcel:	184-391-084	Application Date:	Aug 30, 2022
Inspector Area:	62	Permit Issued Date:	Aug 31, 2022
Subtype:	Commercial Electrical Pump	Permit Status:	ISSUED
Project Description:	UPGRADE ELECT SERVICE PANEL @ EX AG WELL		

Inspection	Scheduled	Inspected	Inspector	Result
Electric Release	9/23/2022	9/23/2022	Carlos Machado	Approved
Electric release approved today. 2909 Houghton Rd. Green sticker provided.				

KERN COUNTY BID INSPECTION LOG

Notice To Comply for Permit: K202207782

Project Address:	2909 HOUGHTON RD, BAKERSFIELD, CA	**PERMIT NO:**	**K202207782**
Project Parcel:	184-391-084	Application Date:	Aug 30, 2022
Inspector Area:	62	Permit Issued Date:	Aug 31, 2022
Subtype:	Commercial Electrical Pump	Permit Status:	ISSUED
Project Description:	UPGRADE ELECT SERVICE PANEL @ EX AG WELL		

Inspection	Scheduled	Inspected	Inspector	Result
Electric Release	9/23/2022	9/23/2022	Carlos Machado	Approved
Electric release approved today. 2909 Houghton Rd. Green sticker provided.				

Appendix H

Request for Records Search to the
San Joaquin Valley Air Pollution Control District (SJVAPCD) and
Response Obtained from that Agency

San Joaquin Valley APCD, CA

Request Visibility: Unpublished

Request 23-205 Open

Dates

Received

May 18, 2023 via web

Requester

Shannon Castagno

shannon@environmentalsupportservices.com

1521 Beaver Tan Court, Fresno, CA, Wake Forest, NC, 27587

(949) 429-3564

Environmental Support Services

Additional information

Facility Name | Facility ID

No data entered

Facility Address (Street, City, State, Zip Code)

2909 Houghton Road, Bakersfield, CA 93313

Staff Assigned

Departments

No departments assigned

Point of contact

Tammy Howe

Request

Site: 2909 Houghton Road

Bakersfield, CA 93313

APN 18439108

ESS requests the following information: Permits, PTO, ATC, EE, EI, Health Risk Assesments, Site Inspections, Source Testing, AMP, Complaints and Enforcement Actions from 01/01/1900 to date.

Timeline | Documents

External Message

Requester + Staff

The San Joaquin Valley Air Pollution Control District has received your Public Records Request and it is currently being processed.

***You may now access the Permits to Operate for facilities by utilizing the following link to our Permits Information Portal: https://www.valleyair.org/PublicPermits. In the future please refer to the webpage for Permit Records. Note, if you are unable to find any permits utilizing the portal, then permit records do not likely exist for that location/facility. For assistance utilizing the Permits Information Portal webpage, please contact our Small Business Assistance office at one of the following phone numbers:

(209) 557-6446 (Modesto Office)

(559) 230-5888 (Fresno Office)

(661) 392-5665 (Bakersfield Office)

May 18, 2023, 10:32am

Request Opened Public

Request received via web

May 18, 2023, 10:32am by the requester

San Joaquin Valley APCD, CA

Request Visibility: Unpublished

Request 23-205 Closed

Dates

Received

May 18, 2023 via web

Requester

Shannon Castagno

shannon@environmentalsupportservices.com

1521 Beaver Tan Court, Fresno, CA, Wake Forest, NC, 27587

(949) 429-3564

Environmental Support Services

Additional information

Facility Name | Facility ID

No data entered

Facility Address (Street, City, State, Zip Code)

2909 Houghton Road, Bakersfield, CA 93313

Staff Assigned

Departments

PSD TEC - Emissions Inventory (EI)

PSD TEC - Air Toxics

PSD - Permits South

Request

Site: 2909 Houghton Road

Bakersfield, CA 93313

APN 18439108

ESS requests the following information: Permits, PTO, ATC, EE, EI, Health Risk Assesments, Site Inspections, Source Testing, AMP, Complaints and Enforcement Actions from 01/01/1900 to date.

Timeline | Documents

Request Closed Public

The District has processed your request for information regarding your Public Records Request. A search of the District's databases has returned no records on file for this specific location. Your request has been fulfilled.

If you have any questions, feel free to reach out to us at Public.RecordsCoordinator@valleyair.org or 559-230-6036

***You may now access the Permits to Operate for facilities by utilizing the following link to our Permits Information Portal: https://www.valleyair.org/PublicPermits. In the future please refer to the webpage for Permit Records. Note, if you are unable to find any permits utilizing the portal, then permit records do not likely exist for that location/facility. For

AMP - Air Monitoring Program

COM - Compliance & Enforcement SOUTH

Point of contact

Tammy Howe

assistance utilizing the Permits Information Portal webpage, please contact our Small Business Assistance office at one of the following phone numbers:

(209) 557-6446 (Modesto Office)

(559) 230-5888 (Fresno Office)

(661) 392-5665 (Bakersfield Office)

Department Assignment

Public

Added: PSD TEC - Emissions Inventory (EI), PSD TEC - Air Toxics, PSD - Permits South, AMP - Air Monitoring Program, COM - Compliance & Enforcement SOUTH.

External Message

Requester + Staff

The San Joaquin Valley Air Pollution Control District has received your Public Records Request and it is currently being processed.

***You may now access the Permits to Operate for facilities by utilizing the following link to our Permits Information Portal: https://www.valleyair.org/PublicPermits. In the future please refer to the webpage for Permit Records. Note, if you are unable to find any permits utilizing the portal, then permit records do not likely exist for that location/facility. For assistance utilizing the Permits Information Portal webpage, please contact our Small Business Assistance office at one of the following phone numbers:

(209) 557-6446 (Modesto Office)

(559) 230-5888 (Fresno Office)

(661) 392-5665 (Bakersfield Office)

May 18, 2023, 10:32am

Request Opened Public

Request received via web

May 18, 2023, 10:32am by the requester

Appendix I

Request for Records Search to the
Regional Water Quality Control Board (RWQCB) – Central Valley Region and
Response and Photocopies Obtained from that Agency

Est. 1988

Environmental Support Services

Environmental Research & Due Diligence Compliance
1521 Beaver Tan Court | Wake Forest, NC 27587
P) 949.429.3564 | F) 949.429.3563 | E) Shannon@EnvironmentalSupportServices.com
www.EnvironmentalSupportServices.com | EIN# 83-0533710

May 18, 2023

Regional Water Quality Control Board
Central Valley – Fresno Office
1685 E Street
Fresno, CA 93706

Attention: LUST/WIP/SLIC/Site Mitigation Divisions

Dear Public Records Section,

Please check for any files/information on the following sites:

Site: 2909 Houghton Road
Bakersfield, CA 93313
APN 18439108

I would like to set up an appointment to review this file **as soon as possible**. Anything you can do to expedite this request would be greatly appreciated. Please call me at (949) 429-3564. Thanks!

Sincerely,
Environmental Support Services

Shannon Castagno
Project Manager
Shannon@EnvironmentalSupportServices.com

shannon environmentalsupportservices.com

From: WB-RB5F-Records <RB5F-Records@Waterboards.ca.gov>
Sent: Thursday, May 25, 2023 5:34 PM
To: shannon environmentalsupportservices.com
Subject: Public Records Request Response-Central Valley Water Board

Hello,

In response to your Public Records Request of **18 May 2023** for,

2909 Houghton Road
Bakersfield, CA 93313
APN 18439108

Ryan West emailed Irrigated Lands Regulatory Program information to you directly on 5/22/2023. Ryan can be reached at Ryan.West@waterboards.ca.gov .

No additional records were found.

Thank you,

Nicholas Handcock, Staff Services Analyst
Central Valley Regional Water Quality Control Board
Fresno, CA
Phone: 559-445-6542
Nicholas.Handcock@waterboards.ca.gov

shannon environmentalsupportservices.com

From: West, Ryan@Waterboards <Ryan.West@waterboards.ca.gov>
Sent: Monday, May 22, 2023 3:37 PM
To: WB-RB5F-Records; shannon environmentalsupportservices.com
Subject: PRA Request #697
Attachments: Outlook-vrzlcfxj; RR#697_5-18-2023_ESS (1).pdf; PRA_697_ILRP_Data.xlsx

In regard to your request for information for the parcels listed below:

Site: 2909 Houghton Road
Bakersfield, CA 93313
APN 18439108

This property is farmed commercially and is subject to regulation under the Central Valley Water Board's Irrigated Lands Regulatory Program (ILRP) General Order R5-2013-0120-09. The property is currently enrolled (Member ID# 10653) with the Kern River Watershed Coalition Authority which is an intermediary between commercial farmers and the Central Valley Water Board.

Central Valley Water Board staff have identified the following information which may be responsive:

(1) Member enrollment information from the referenced Coalition's annual Membership List submittal (see attached).

Groundwater quality data, if available, can be accessed via the GeoTracker portal (https://geotracker.waterboards.ca.gov/). In the GeoTracker Map, select "choose more sites" from the map legend, and then choose permitted facilities, then select Irrigated Lands Regulatory Program Sites. For assistance please contact Ryan West (contact information below).

Thank you,
Ryan K. West
Engineering Geologist
Irrigated Lands Regulatory Program
Central Valley Regional Water Quality Control Board
1685 E Street
Fresno, CA 93706
(559) 445-6188
ryan.west@waterboards.ca.gov

2022 Membership List and Revoked Report (Official Submission)
Coalition: Kern River Watershed Coalition Authority
Date: 08-01-2022 9:55 AM
Membership Reporting: Crop Year 2021
08-01-2021 - 07-31-2022

APN	Irrigated Acres	TRS	Meridian	County	Member ID	Member Designation
184-391-08	629.08	31 S27 E13	M	Kern	10653	Owner/Operator

Member	Contact	Address	City	State	ZipCode
Ten Star Farming	Kevin Antongiovanni	5100 California Ave. #230	Bakersfield	CA	93309

Operation Size	Operator	Operator Address
Large	Ten Star Farming	5100 California Ave. #230 Bakersfield CA 93309

1 - Implementation of MP	2A - Farm Evaluation	2B - INMP Summary Report
	Not Required	Submitted

2C - GW Priority Practices MPIR	2D - Chanac Creek SW MPIR	3 - Study Participation
Not Required	N/A	

4- Annual Outreach Attendance Certification

Confirmed

APPENDIX E
Site Visit Photographs

GEOSYNTEC CONSULTANTS
Photographic Record

Geosyntec consultants

Client: Seefried | **Project Number:** SC1129

Site Name: Bakersfield, California | **Site Location:** 2909 Houghton Road, Bakersfield

Photograph 1

Date: 5/19/2023

Direction: Southwest

Comments: View from the southwest corner of the Site, depicting the western boundary of the adjoining property, dirt road and a residence off Wible Road.

Photograph 2

Date: 5/19/2023

Direction: Southwest

Comments: View from the southwest corner of the Site depicting the northern boundary of the adjoining southern property.

GEOSYNTEC CONSULTANTS
Photographic Record

Geosyntec consultants

Client: Seefried	**Project Number:** SC1129
Site Name: Bakersfield Property	**Site Location:** 2909 Houghton Road, Bakersfield

Photograph 3 **Date:** 5/19/2023 **Direction:** Southwest **Comments:** View from the southwest corner of the Site depicting the western boundary of the Site and Wible Road (left on image). Overhead powerlines run along the western boundary of the Site.	
Photograph 4 **Date:** 5/19/2023 **Direction:** North **Comments:** View from the southern boundary of the Site depicting agriculture fields and commercial facility adjoining the Site. A rural road runs parallel to the southern border of the Site.	

GEOSYNTEC CONSULTANTS
Photographic Record

Geosyntec consultants

Client: Seefried	**Project Number:** SC1129
Site Name: Bakersfield Property	**Site Location:** 2909 Houghton Road, Bakersfield

Photograph 5 **Date:** 5/19/2023 **Direction:** Southeast **Comments:** View from the southeast corner of the Site depicting the adjoining property to the south depicting crop rows, irrigation ditches, and associated irrigation structures.	

Photograph 6 **Date:** 5/19/2023 **Direction:** Northeast **Comments:** View looking north down the rural road that runs parallel to the eastern boundary of the Site.	

GEOSYNTEC CONSULTANTS Photographic Record	Geosyntec consultants
Client: Seefried	**Project Number:** SC1129
Site Name: Bakersfield Property	**Site Location:** 2909 Houghton Road, Bakersfield

Photograph 7 **Date:** 5/19/2023 **Direction:** East **Comments:** View of irrigation water structures located on the eastern portion of the Site.	
Photograph 8 **Date:** 5/19/2023 **Direction:** East **Comments:** Close up view of irrigation water well located at the Site.	

GEOSYNTEC CONSULTANTS
Photographic Record

Geosyntec consultants

Client: Seefried	**Project Number:** SC1129
Site Name: Bakersfield Property	**Site Location:** 2909 Houghton Road, Bakersfield

Photograph 9

Date: 5/19/2023

Direction: East

Comments: A portable tank that appears to contain fertilizer was located next to a pump and a water tank on the eastern dirt road at the Site.

Photograph 10

Date: 5/19/2023

Direction: East

Comments: Close up view of well pump and a water tank located on the dirt road on the eastern portion of the Site.

GEOSYNTEC CONSULTANTS
Photographic Record

Geosyntec consultants

Client: Seefried	**Project Number:** SC1129
Site Name: Bakersfield Property	**Site Location:** 2909 Houghton Road, Bakersfield

Photograph 11

Date: 5/19/2023

Direction: Southwest

Comments: View of capped metal piping, located on the eastern portion of the Site.

Photograph 12

Date: 5/19/2023

Direction: West

Comments: View from the eastern boundary of the Site, looking onto the Site. A warning sign for an underground gas line that runs beneath the Site.

GEOSYNTEC CONSULTANTS
Photographic Record

Geosyntec consultants

Client: Seefried	**Project Number:** SC1129
Site Name: Bakersfield Property	**Site Location:** 2909 Houghton Road, Bakersfield

Photograph 13

Date: 5/19/2023

Direction: East

Comments: View of east adjoining property, Houghton Road, and agriculture farmland beyond.

Photograph 14

Date: 5/19/2023

Direction: West

Comments: View of Site, looking west from northeastern corner, depicting Houghton Road, Martin Feed to the left of image and unidentified building to the right of image.

GEOSYNTEC CONSULTANTS
Photographic Record

Geosyntec consultants

Client: Seefried	**Project Number:** SC1129
Site Name: Bakersfield Property	**Site Location:** 2909 Houghton Road, Bakersfield

Photograph 15

Date: 5/19/2023

Direction: North

Comments: View of the north adjoining property occupied by Martin Feed, across Houghton Road.

Photograph 16

Date: 5/19/2023

Direction: South

Comments: View of the northwest adjoining property. The property is occupied by Martin Feed and appears to be a storage area of livestock feed/grains.

GEOSYNTEC CONSULTANTS
Photographic Record

Client: Seefried | **Project Number:** SC1129

Site Name: Bakersfield Property | **Site Location:** 2909 Houghton Road, Bakersfield

Photograph 17 **Date:** 5/19/2023 **Direction:** East **Comments:** View of the irrigation pond for Martin Feed at the northwest adjoining property.	
Photograph 18 **Date:** 5/19/2023 **Direction:** East **Comments:** View of the western boundary of the Site, depicting Wible Road, agriculture farmland and powerline posts.	

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Appendix G:
Hydrology and Water Quality Supporting Information

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G-1: Stormwater Drainage Study

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DRAINAGE STUDY

Project Ware Malcomb

APN: 184-391-08

January, 2024

PREPARED FOR:

Seefried Industrial Properties, Inc.
2201 E. Camelback Road, Suite 225B
Phoenix, AZ 85016

PREPARED BY:

Kimley»Horn

3801 University Avenue, Suite 300
Riverside, CA 92501
(951) 543-9868

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KHA Project # 195170029

This document, together with the concepts and designs presented herein, as an instrument of service, is intended only for the specific purpose and client for which it was prepared. Reuse of and improper reliance on this document without written authorization and adaptation by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.

This Drainage Report has been prepared by Kimley-Horn and Associates, Inc. under the direct supervision of the following California Registered Civil Engineer. The undersigned attests to the technical data contained in this study, and to the qualifications of technical specialists providing engineering computations upon which the recommendations and conclusions are based.

_____ _____

Davie Cowan, CA PE 86802
Registered Civil Engineer

Date

Contents

1 Introduction....2

1.1 Project Description....2

1.2 Project Location....2

2 Design Criteria....2

2.1 Methodology....2

2.2 Precipitation....3

2.3 Soil Types....3

2.4 Groundwater....4

2.5 FEMA Mapping....4

3 Existing Onsite Drainage Conditions....4

4 Proposed Onsite Drainage Conditions....4

5 Maintenance....5

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Appendices

Appendix A – Vicinity Map

Appendix B – NOAA Atlas 14

Appendix C – Existing/Proposed Drainage Exhibits

Appendix D – NRCS Web Soil Survey

Appendix E – Geotechnical Report & Infiltration Study

Appendix F – FEMA Flood Map

Appendix G – Storm Drain Pipe and Inlet Sizing

Appendix H – Retention Basin Sizing

1 INTRODUCTION

1.1 PROJECT DESCRIPTION

Kimley-Horn has been retained to prepare a Drainage Study for the proposed Project Ware Malcomb ("Project"). The report was prepared for the proposed ±629,186 square-foot warehouse and distribution facility, comprised of loading docks, truck courtyard, associate parking, landscape and stormwater Best Management Practices (BMPs) over the ±93.74-acre onsite project site area (overall project is 99.28 acres which consists of 5.54 acres of right-of-way dedication) .

1.2 PROJECT LOCATION

The Project site is located southeast of the intersection of Houghton Road and Wible Road in an unincorporated area of Kern County, California (APN 184-391-08). The site is currently agricultural farmland and is bordered on the northwest by a neighboring agricultural property, on the north by Houghton Road, on the east and south by private unpaved roads, and on the west by Wible Road.

See the vicinity map in **Appendix A.**

2 DESIGN CRITERIA

2.1 METHODOLOGY

The purpose of the report is to demonstrate the Project's compliance with the *Kern County Hydrology Manual* and *Kern County Public Works Division Four: Standards for Drainage*. Hydrologic analysis will be used to determine if the development's stormwater generation will have any impact on downstream properties, and appropriate stormwater facilities for mitigation.

A rational method analysis for the 100-year storm event will be used to calculate peak discharges for the existing and proposed conditions. Multiday rainfall mass ratios for this storm event will factor into the onsite underground and surface basins designed to mitigate peak flows and infiltrate design volumes per County guidance.

The following subsections, include but are not limited to, the referenced design standards for the basis of design calculations:

a) Rational Method (Peak Flow)

a. Q = CiA

Q = Peak Discharge in cfs
C = Runoff Coefficient
i = Precipitation Intensity for the 100-year, 5-min rainfall in in/hr.
A = Drainage Area in acres

b) 407-1.01 Closed Conduit Design Storm

a. 10-year storm

c) 407-1.06 Closed Conduit Minimum Cover

a. 24-inches onsite
b. 30-inches within street right-of-way

d) 407-1.09 Closed Conduit Minimum Slope

a. 0.001 (0.1%) unless otherwise approved by the Director

e) 407-4.01 Manhole Spacing

a. 300-feet for conduit 30-inches or less in diameter
b. 400-feet for conduit 30 to 48-inch in diameter
c. 500-feet for conduit 48-inch or more in diameter

f) 408-1 Basin Design Volume

a. $V = 0.12 \times D_{10} \times a_i \times A$

V = Runoff Volume
D_{10} = 10-year, 24-hr depth of rainfall in inches
a_i = Average percentage of impervious area
A = Drainage area of total development
0.12 = 1.44 x 1/12
1.44 = 5-day mass ratio (Kern County Hydrology Manual, Table B-1)
1/12 = Conversion from rainfall depth in inches to feet

g) 408-2 Hydraulic Design

a. Storm drain HGL line calculations shall assume that 50% of the design storm volume and 100% of the nuisance volume is in the basin when peak flows occur.

h) 408-3 Basin Freeboard

a. Freeboard required for design water depths exceeding 18-inches
b. 6-inch of freeboard required for design depth of 4-feet or less
c. 12-inches of freeboard required for design depth of 4-feet or more

i) 408-5 Basin Access

a. Access ramps required for design depths exceeding 18-inches
b. 12-foot-wide minimum ramp
c. 15% maximum slope. Exception – 20% maximum slope increase for ponding depth 4-feet or less

Hydrology and Hydraulic calculations were performed using Microsoft Excel and Bentley StormCAD. StormCAD is a program that utilizes the Rational Method to calculate peak flows and volumes based on a variety of parameters such as drainage area, flow length, flow slope, time of concentration, rainfall depth and design storm intensities.

2.2 PRECIPITATION

According to the *Kern County Hydrology Manual*, drainage reports shall use NOAA Atlas 2 data for hydrologic calculations. Kern County released Engineering Bulletins 11-01 and 11-02 to amend the hydrology manual to reference precipitation data from NOAA Atlas 14. The current data for site-specific point-precipitation depths and intensities will be taken from NOAA Atlas 14.

See additional tabular output precipitation data in **Appendix B.**

2.3 SOIL TYPES

The type of soil and soil conditions are major factors affecting infiltration and resultant storm water runoff. The Natural Resources Conservation Service (NRCS) has classified soils into four general hydrologic soil groups for comparing infiltration and runoff rates. The groups are based on properties that influence runoff, such as water infiltration rate, texture, natural discharge and moisture condition. The runoff potential is

based on the amount of runoff at the end of a long duration storm that occurs after wetting and swelling of the soil not protected by vegetation. Using the NRCS Web Soil Survey online tool, this site was identified as 73.0% Bakersfield fine sandy loam and 27.0% Vineland loamy sand. These soils are classified as Hydrologic Soil Group B, soils that have a moderate infiltration rate when thoroughly wet and have a moderate rate of water transmission.

See **Appendix D** for NRCS soil type classifications.

Additional site-specific soil characteristics have been outlined in the *Geotechnical Evaluation Warehouse Facility Project*, performed by Ninyo & Moore, dated September 15, 2021. Infiltration testing will be performed to identify accurate infiltration characteristics and will be provided during final design.

See **Appendix E** for Geotechnical Report and Infiltration Study.

2.4 GROUNDWATER

According the geotechnical investigation, borings ranging from 11.5 to 51.5 feet deep did not encounter any groundwater during the time of drilling. Data from the State of California Water Resources Board's GeoTracker website indicates that groundwater monitoring wells located 2.2 miles and 3.2 miles from the site show groundwater levels at 22.5 to 34-feet and 141 to 145-feet below ground, respectively. It is assumed that groundwater will not be a concern.

2.5 FEMA MAPPING

Research into the Federal Emergency Management Agency (FEMA) show the project site is covered by Map Number 06029C2725E of the FEMA Flood Insurance Rate Map (FIRM) for Kern County, California and Incorporated Areas. The project is within Zone X as defined by FEMA as area determined to be outside the 100-year flood. No portion of the site is located within the Special Flood Hazard Area (SFHA) inundated by the 100-year flood.

See **Appendix F** for the effective FEMA map is dated September 26, 2008.

3 EXISTING ONSITE DRAINAGE CONDITIONS

The Project site is a maintained agricultural area that is used to grow and harvest crops. At an elevation around 335-feet, the topography of the site generally flows from northeast to southwest with an average slope of 0.3%. Surface runoff flows toward dirt ditches bordering the site along the unpaved private roads, and along public Houghton Road and Wible Road. There is no municipal drainage infrastructure within the public right-of-way for the project area to discharge. Irrigation channels between the lot and bordering dirt roads are used to capture and reuse irrigation water from agricultural wells outside the Project boundary.

See **Appendix B** for Existing Drainage Exhibit.

4 PROPOSED ONSITE DRAINAGE CONDITIONS

The proposed Project conditions will divide the site into three (3) drainage management areas (DMAs). The three DMAs will outfall into respective surface retention basins (Basins A, B, and C). Stormwater runoff will sheet flow across pavement and landscape into various inlets and storm drain networks throughout the site.

The building roof is divided specific to plumbing conduits. Roof runoff is captured via roof drains/downspouts and conveyed underground to connect to the overall storm drainage system.

See **Appendix B** for Proposed Drainage Exhibit.

Hydrologic Analysis

The Rational Method is used to calculate conservative peak flow rates. Runoff coefficient values for pervious and impervious surfaces are 0.3 and 0.9, respectively. Precipitation intensity of 2.89-inches per hour is used for the 100-year, 5-minute storm event.

Design volumes are calculated using the runoff volume equation in the *Kern County Standards for Drainage* based on the multiday Intermediate Storm Design Discharge (ISDD). Although, the ISDD is a function of the 10-year storm event, the 100-year storm depth will be used for redundancy. See **Table 1** for a summary of the design volume results.

Table 1 Summary of Hydrologic Analysis

Drainage Management Areas	Area, A (ac)	*Peak Discharge, Q (cfs) 100 Year	Design Volume, V (ac-ft) 100 Year
BASIN A	26.78	69.64	8.80
BASIN B	49.16	127.86	16.80
BASIN C	17.80	46.29	5.85
TOTAL	**93.73**	**243.79**	**31.45**

(*) denotes peak flows that were calculated via Rational Method. Intensity of 2.89 in/hr for the 100-year, 5-minute storm event, C=0.3 for pervious surfaces, and C=0.9 for impervious surfaces. Refer to **Appendix B** for individual subbasin peak flows.

Hydraulic design

The hydraulic calculations will utilize rational method calculations to determine peak flows for the 100-year storm event. StormCAD will be used to model the Hydraulic Grade Line (HGL) based on Section 408-2 outlined above. Inlet sizing, pipe sizing, and pipe hydraulics will be provided during final design. It is anticipated that storm drain laterals will be sized with 4 to 18-inch pipe, while mains will range from 18 to 48-inches in diameter. The schematic horizontal configuration is provided in the attached storm drain plans.

See **Appendix G** for Storm Drain Plans.

5 MAINTENANCE

Seefried Industrial Properties, Inc. will be responsible for operation and maintenance of all proposed storm drain pipes and inlets, surface basins, and dry wells, until such time that the buildings are sold or leased.

APPENDICES

APPENDIX A

VICINITY MAP

APPENDIX B

NOAA ATLAS 14

NOAA Atlas 14, Volume 6, Version 2
Location name: Bakersfield, California, USA*
Latitude: 35.23°, Longitude: -119.0301°
Elevation: 330 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Trypaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**0.066** (0.053-0.083)	**0.085** (0.068-0.106)	**0.112** (0.090-0.141)	**0.136** (0.108-0.173)	**0.173** (0.134-0.226)	**0.205** (0.156-0.273)	**0.241** (0.179-0.327)	**0.281** (0.203-0.391)	**0.342** (0.239-0.494)	**0.394** (0.267-0.588)
10-min	**0.095** (0.077-0.119)	**0.121** (0.098-0.153)	**0.160** (0.129-0.202)	**0.195** (0.155-0.247)	**0.248** (0.192-0.324)	**0.294** (0.223-0.391)	**0.345** (0.256-0.469)	**0.402** (0.292-0.561)	**0.490** (0.342-0.708)	**0.565** (0.383-0.843)
15-min	**0.115** (0.093-0.144)	**0.147** (0.118-0.184)	**0.194** (0.155-0.244)	**0.236** (0.188-0.299)	**0.300** (0.232-0.392)	**0.355** (0.270-0.473)	**0.417** (0.310-0.567)	**0.487** (0.353-0.678)	**0.592** (0.413-0.856)	**0.684** (0.463-1.02)
30-min	**0.159** (0.128-0.200)	**0.203** (0.164-0.256)	**0.268** (0.215-0.338)	**0.327** (0.260-0.414)	**0.416** (0.321-0.543)	**0.492** (0.373-0.655)	**0.578** (0.429-0.785)	**0.674** (0.488-0.939)	**0.820** (0.573-1.19)	**0.947** (0.641-1.41)
60-min	**0.223** (0.180-0.280)	**0.285** (0.229-0.358)	**0.376** (0.301-0.473)	**0.457** (0.364-0.580)	**0.582** (0.450-0.760)	**0.689** (0.523-0.916)	**0.809** (0.601-1.10)	**0.944** (0.684-1.32)	**1.15** (0.802-1.66)	**1.33** (0.898-1.98)
2-hr	**0.322** (0.259-0.404)	**0.404** (0.325-0.508)	**0.524** (0.420-0.659)	**0.629** (0.501-0.798)	**0.786** (0.608-1.03)	**0.919** (0.698-1.22)	**1.06** (0.791-1.45)	**1.23** (0.889-1.71)	**1.47** (1.02-2.12)	**1.67** (1.13-2.49)
3-hr	**0.386** (0.310-0.484)	**0.484** (0.389-0.608)	**0.625** (0.501-0.787)	**0.748** (0.596-0.949)	**0.931** (0.720-1.22)	**1.08** (0.824-1.44)	**1.25** (0.930-1.70)	**1.44** (1.04-2.00)	**1.70** (1.19-2.46)	**1.93** (1.30-2.88)
6-hr	**0.495** (0.398-0.621)	**0.625** (0.503-0.786)	**0.809** (0.649-1.02)	**0.968** (0.771-1.23)	**1.20** (0.929-1.57)	**1.39** (1.06-1.85)	**1.60** (1.19-2.17)	**1.82** (1.32-2.54)	**2.14** (1.50-3.10)	**2.41** (1.63-3.59)
12-hr	**0.590** (0.475-0.741)	**0.771** (0.620-0.968)	**1.02** (0.820-1.29)	**1.24** (0.984-1.57)	**1.54** (1.20-2.02)	**1.80** (1.36-2.39)	**2.06** (1.53-2.80)	**2.35** (1.70-3.27)	**2.75** (1.92-3.98)	**3.08** (2.09-4.60)
24-hr	**0.718** (0.652-0.806)	**0.972** (0.882-1.09)	**1.32** (1.20-1.49)	**1.62** (1.45-1.84)	**2.04** (1.76-2.42)	**2.38** (2.01-2.89)	**2.74** (2.25-3.42)	**3.13** (2.48-4.03)	**3.69** (2.79-4.97)	**4.14** (3.02-5.81)
2-day	**0.827** (0.752-0.929)	**1.13** (1.03-1.27)	**1.56** (1.41-1.75)	**1.91** (1.72-2.18)	**2.42** (2.09-2.87)	**2.84** (2.39-3.44)	**3.28** (2.68-4.08)	**3.75** (2.98-4.83)	**4.43** (3.35-5.97)	**4.98** (3.63-6.98)
3-day	**0.886** (0.805-0.996)	**1.22** (1.10-1.37)	**1.68** (1.52-1.90)	**2.08** (1.86-2.36)	**2.64** (2.27-3.12)	**3.09** (2.60-3.75)	**3.58** (2.93-4.46)	**4.10** (3.25-5.28)	**4.86** (3.67-6.55)	**5.48** (3.99-7.68)
4-day	**0.937** (0.851-1.05)	**1.29** (1.17-1.45)	**1.79** (1.62-2.02)	**2.22** (1.98-2.52)	**2.82** (2.43-3.34)	**3.31** (2.78-4.01)	**3.83** (3.13-4.77)	**4.38** (3.48-5.64)	**5.19** (3.92-6.99)	**5.84** (4.25-8.18)
7-day	**1.06** (0.959-1.18)	**1.46** (1.33-1.64)	**2.04** (1.84-2.30)	**2.53** (2.27-2.88)	**3.22** (2.78-3.82)	**3.78** (3.18-4.58)	**4.36** (3.57-5.43)	**4.97** (3.94-6.39)	**5.83** (4.41-7.86)	**6.51** (4.74-9.13)
10-day	**1.12** (1.02-1.26)	**1.56** (1.42-1.76)	**2.19** (1.98-2.47)	**2.72** (2.44-3.10)	**3.49** (3.01-4.12)	**4.09** (3.44-4.95)	**4.71** (3.86-5.87)	**5.37** (4.26-6.91)	**6.29** (4.76-8.48)	**7.01** (5.10-9.82)
20-day	**1.35** (1.22-1.51)	**1.90** (1.73-2.14)	**2.71** (2.45-3.06)	**3.40** (3.04-3.87)	**4.39** (3.79-5.20)	**5.19** (4.37-6.29)	**6.02** (4.93-7.51)	**6.90** (5.47-8.87)	**8.08** (6.12-10.9)	**9.01** (6.56-12.6)
30-day	**1.57** (1.43-1.76)	**2.23** (2.02-2.50)	**3.18** (2.88-3.59)	**4.02** (3.60-4.58)	**5.24** (4.52-6.20)	**6.22** (5.24-7.54)	**7.24** (5.92-9.02)	**8.30** (6.58-10.7)	**9.76** (7.39-13.2)	**10.9** (7.92-15.2)
45-day	**1.88** (1.71-2.11)	**2.67** (2.42-3.00)	**3.82** (3.45-4.31)	**4.84** (4.33-5.51)	**6.34** (5.47-7.50)	**7.57** (6.37-9.17)	**8.84** (7.24-11.0)	**10.2** (8.07-13.1)	**12.0** (9.08-16.2)	**13.4** (9.76-18.8)
60-day	**2.15** (1.96-2.42)	**3.04** (2.75-3.41)	**4.36** (3.94-4.91)	**5.52** (4.95-6.29)	**7.25** (6.25-8.58)	**8.67** (7.30-10.5)	**10.2** (8.32-12.7)	**11.7** (9.28-15.0)	**13.8** (10.5-18.6)	**15.4** (11.2-21.6)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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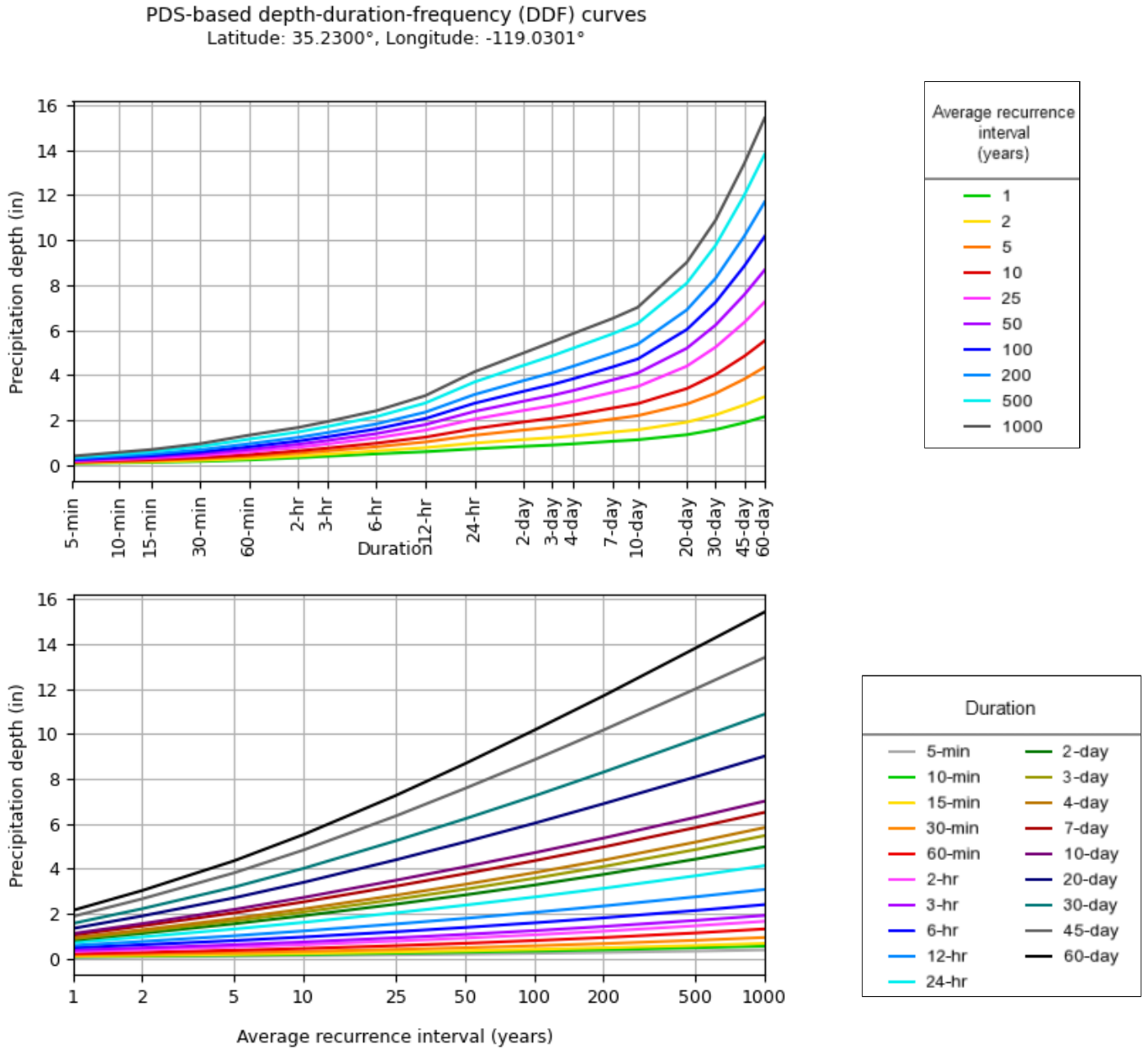
PF graphical



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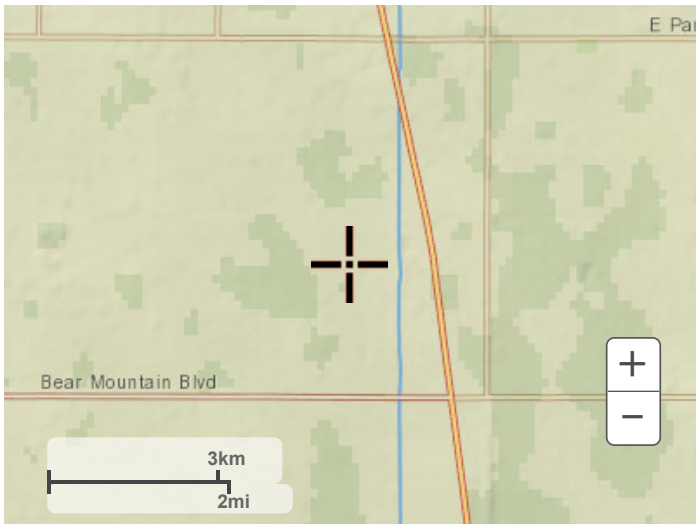
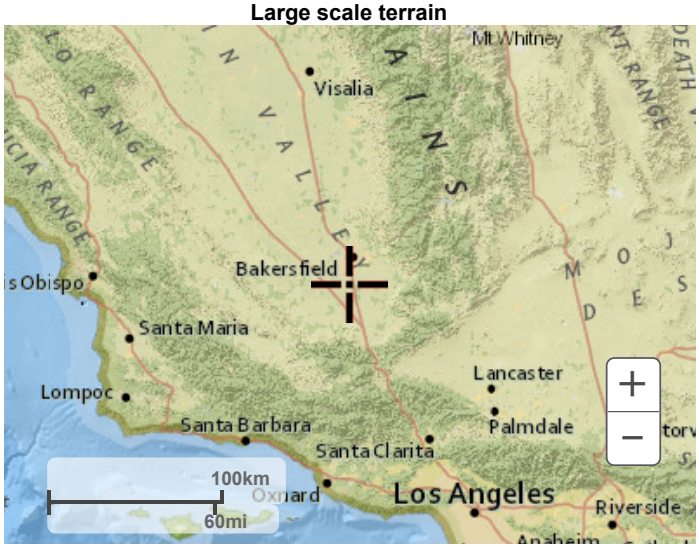
Maps & aerials

Small scale terrain



Large scale terrain



Large scale map

Large scale aerial

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National Weather Service
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1325 East West Highway
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Questions?: HDSC.Questions@noaa.gov

Disclaimer

NOAA Atlas 14, Volume 6, Version 2
Location name: Bakersfield, California, USA*
Latitude: 35.23°, Longitude: -119.0301°
Elevation: 330 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Trypaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches/hour)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**0.792** (0.636-0.996)	**1.02** (0.816-1.27)	**1.34** (1.08-1.69)	**1.63** (1.30-2.08)	**2.08** (1.61-2.71)	**2.46** (1.87-3.28)	**2.89** (2.15-3.92)	**3.37** (2.44-4.69)	**4.10** (2.87-5.93)	**4.73** (3.20-7.06)
10-min	**0.570** (0.462-0.714)	**0.726** (0.588-0.918)	**0.960** (0.774-1.21)	**1.17** (0.930-1.48)	**1.49** (1.15-1.94)	**1.76** (1.34-2.35)	**2.07** (1.54-2.81)	**2.41** (1.75-3.37)	**2.94** (2.05-4.25)	**3.39** (2.30-5.06)
15-min	**0.460** (0.372-0.576)	**0.588** (0.472-0.736)	**0.776** (0.620-0.976)	**0.944** (0.752-1.20)	**1.20** (0.928-1.57)	**1.42** (1.08-1.89)	**1.67** (1.24-2.27)	**1.95** (1.41-2.71)	**2.37** (1.65-3.42)	**2.74** (1.85-4.08)
30-min	**0.318** (0.256-0.400)	**0.406** (0.328-0.512)	**0.536** (0.430-0.676)	**0.654** (0.520-0.828)	**0.832** (0.642-1.09)	**0.984** (0.746-1.31)	**1.16** (0.858-1.57)	**1.35** (0.976-1.88)	**1.64** (1.15-2.37)	**1.89** (1.28-2.83)
60-min	**0.223** (0.180-0.280)	**0.285** (0.229-0.358)	**0.376** (0.301-0.473)	**0.457** (0.364-0.580)	**0.582** (0.450-0.760)	**0.689** (0.523-0.916)	**0.809** (0.601-1.10)	**0.944** (0.684-1.32)	**1.15** (0.802-1.66)	**1.33** (0.898-1.98)
2-hr	**0.161** (0.129-0.202)	**0.202** (0.162-0.254)	**0.262** (0.210-0.329)	**0.314** (0.250-0.399)	**0.393** (0.304-0.513)	**0.459** (0.349-0.611)	**0.532** (0.395-0.724)	**0.613** (0.444-0.855)	**0.733** (0.512-1.06)	**0.834** (0.565-1.24)
3-hr	**0.128** (0.103-0.161)	**0.161** (0.129-0.202)	**0.208** (0.166-0.262)	**0.249** (0.198-0.316)	**0.310** (0.239-0.404)	**0.361** (0.274-0.480)	**0.416** (0.309-0.566)	**0.477** (0.346-0.666)	**0.567** (0.396-0.820)	**0.641** (0.434-0.957)
6-hr	**0.082** (0.066-0.103)	**0.104** (0.084-0.131)	**0.135** (0.108-0.170)	**0.161** (0.128-0.205)	**0.200** (0.155-0.262)	**0.232** (0.176-0.309)	**0.266** (0.198-0.362)	**0.304** (0.220-0.424)	**0.358** (0.250-0.518)	**0.402** (0.272-0.600)
12-hr	**0.048** (0.039-0.061)	**0.063** (0.051-0.080)	**0.084** (0.068-0.106)	**0.102** (0.081-0.130)	**0.128** (0.099-0.167)	**0.148** (0.113-0.198)	**0.171** (0.127-0.232)	**0.194** (0.141-0.271)	**0.228** (0.159-0.330)	**0.255** (0.173-0.381)
24-hr	**0.029** (0.027-0.033)	**0.040** (0.036-0.045)	**0.055** (0.049-0.062)	**0.067** (0.060-0.076)	**0.085** (0.073-0.100)	**0.099** (0.083-0.120)	**0.114** (0.093-0.142)	**0.130** (0.103-0.167)	**0.153** (0.116-0.207)	**0.172** (0.125-0.241)
2-day	**0.017** (0.015-0.019)	**0.023** (0.021-0.026)	**0.032** (0.029-0.036)	**0.039** (0.035-0.045)	**0.050** (0.043-0.059)	**0.059** (0.049-0.071)	**0.068** (0.055-0.085)	**0.078** (0.061-0.100)	**0.092** (0.069-0.124)	**0.103** (0.075-0.145)
3-day	**0.012** (0.011-0.013)	**0.016** (0.015-0.018)	**0.023** (0.021-0.026)	**0.028** (0.025-0.032)	**0.036** (0.031-0.043)	**0.042** (0.036-0.052)	**0.049** (0.040-0.061)	**0.056** (0.045-0.073)	**0.067** (0.051-0.090)	**0.076** (0.055-0.106)
4-day	**0.009** (0.008-0.010)	**0.013** (0.012-0.015)	**0.018** (0.016-0.021)	**0.023** (0.020-0.026)	**0.029** (0.025-0.034)	**0.034** (0.029-0.041)	**0.039** (0.032-0.049)	**0.045** (0.036-0.058)	**0.054** (0.040-0.072)	**0.060** (0.044-0.085)
7-day	**0.006** (0.005-0.007)	**0.008** (0.007-0.009)	**0.012** (0.010-0.013)	**0.015** (0.013-0.017)	**0.019** (0.016-0.022)	**0.022** (0.018-0.027)	**0.025** (0.021-0.032)	**0.029** (0.023-0.038)	**0.034** (0.026-0.046)	**0.038** (0.028-0.054)
10-day	**0.004** (0.004-0.005)	**0.006** (0.005-0.007)	**0.009** (0.008-0.010)	**0.011** (0.010-0.012)	**0.014** (0.012-0.017)	**0.017** (0.014-0.020)	**0.019** (0.016-0.024)	**0.022** (0.017-0.028)	**0.026** (0.019-0.035)	**0.029** (0.021-0.040)
20-day	**0.002** (0.002-0.003)	**0.003** (0.003-0.004)	**0.005** (0.005-0.006)	**0.007** (0.006-0.008)	**0.009** (0.007-0.010)	**0.010** (0.009-0.013)	**0.012** (0.010-0.015)	**0.014** (0.011-0.018)	**0.016** (0.012-0.022)	**0.018** (0.013-0.026)
30-day	**0.002** (0.001-0.002)	**0.003** (0.002-0.003)	**0.004** (0.003-0.004)	**0.005** (0.004-0.006)	**0.007** (0.006-0.008)	**0.008** (0.007-0.010)	**0.010** (0.008-0.012)	**0.011** (0.009-0.014)	**0.013** (0.010-0.018)	**0.015** (0.010-0.021)
45-day	**0.001** (0.001-0.001)	**0.002** (0.002-0.002)	**0.003** (0.003-0.003)	**0.004** (0.004-0.005)	**0.005** (0.005-0.006)	**0.007** (0.005-0.008)	**0.008** (0.006-0.010)	**0.009** (0.007-0.012)	**0.011** (0.008-0.014)	**0.012** (0.009-0.017)
60-day	**0.001** (0.001-0.001)	**0.002** (0.001-0.002)	**0.003** (0.002-0.003)	**0.003** (0.003-0.004)	**0.005** (0.004-0.005)	**0.006** (0.005-0.007)	**0.007** (0.005-0.008)	**0.008** (0.006-0.010)	**0.009** (0.007-0.012)	**0.010** (0.007-0.015)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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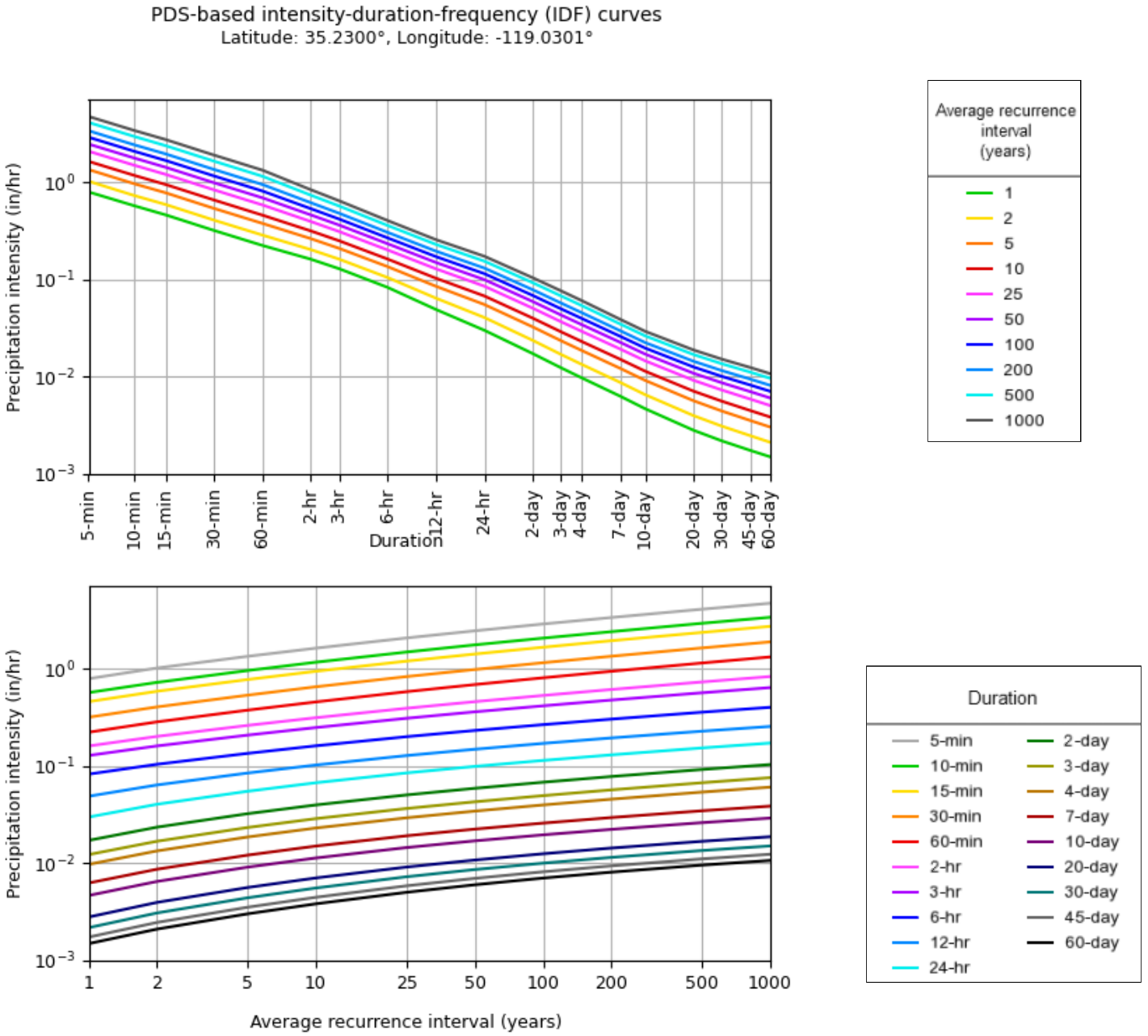
PF graphical



NOAA Atlas 14, Volume 6, Version 2

Created (GMT): Wed Jan 10 15:05:05 2024

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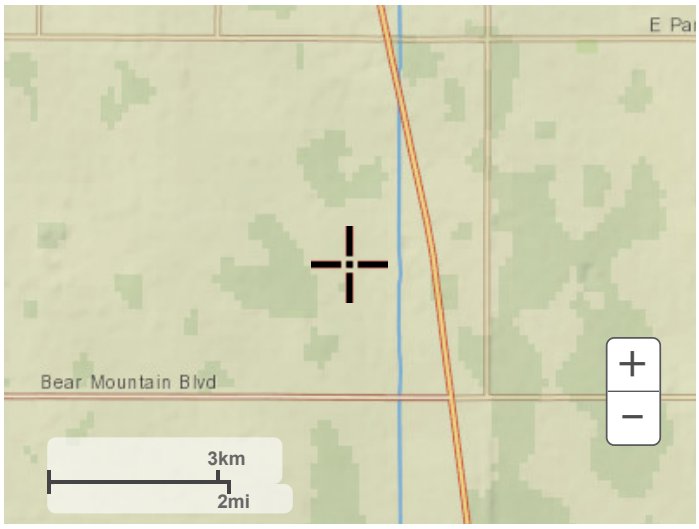
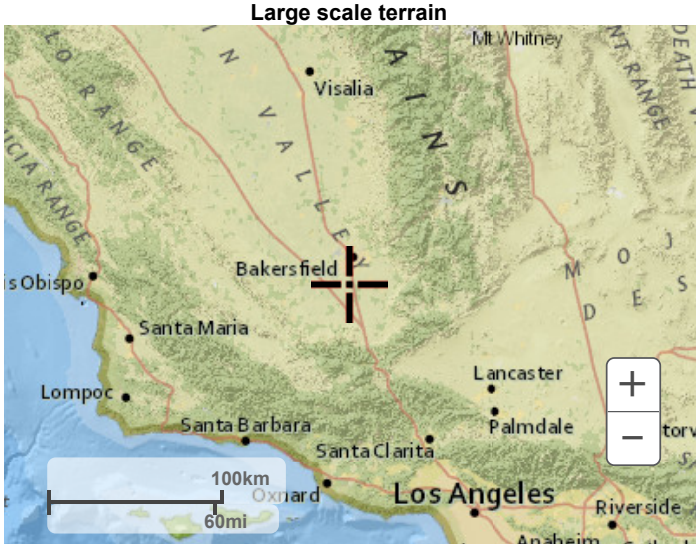
Maps & aerials

Small scale terrain



Large scale terrain



Large scale map

Large scale aerial

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US Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

Disclaimer

APPENDIX C

EXISTING/PROPOSED DRAINAGE EXHIBITS

SUMMARY		
DMA ID	AREA (AC)	Q_{100} (CFS)
DMA 1.1	10.10	8.68
DMA 1.2	53.75	46.58
DMA 1.3	1.59	1.38
DMA 1.4	0.62	0.54
DMA1.5	3.01	2.69
DMA 1.6	22.63	19.45
TOTAL	91.70	79.32

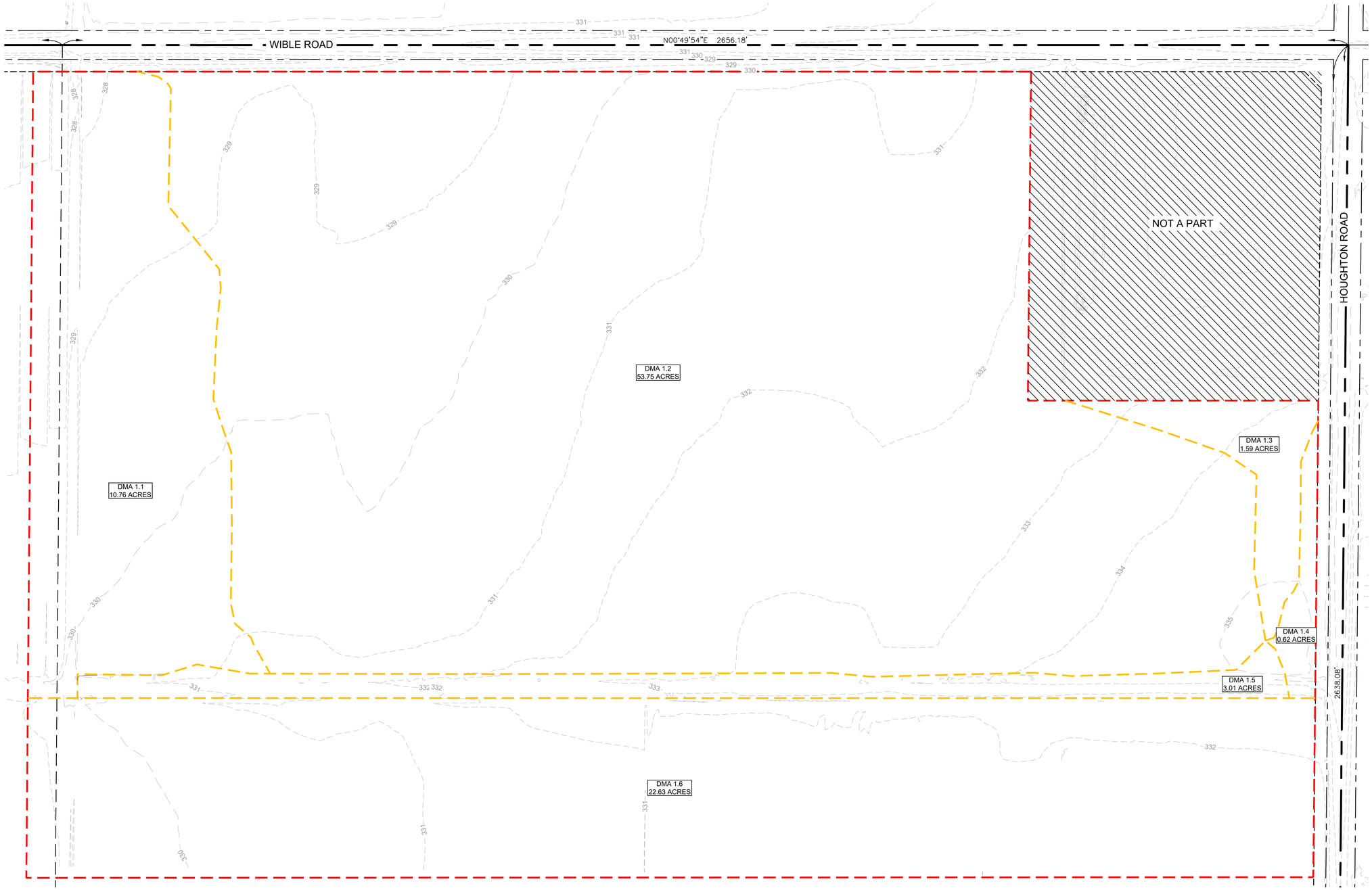
LEGEND

DMA ID
DMA XX
XX ACRES
AREA

OVERALL DMA BOUNDARY

SUB-DMA BOUNDARY

XXX EXISTING CONTOURS



No.	REVISIONS	DATE	BY

Kimley»Horn

401 B STREET, SUITE 600, SAN DIEGO, CA
92101 PHONE: 619-234-9411
WWW.KIMLEY-HORN.COM

KHA PROJECT #195170015
DATE 4/24/2023
SCALE AS SHOWN
DESIGNED BY EH
DRAWN BY EH
CHECKED BY CJ

PPD #XXXX-XXXX

WARE MALCOMB INDUSTRIAL PROJECT
BAKERSFIELD, CA

EXISTING DRAINAGE EXHIBIT

HOUGHTON RD AND WIBLE RD
BAKERSFIELD, CA

SHEET NUMBER
1 OF 1

Plotted By:Armstrong, Caroline Sheet Set:Kha Layout:24X36 April 24, 2023 10:48:09am Wkimley-horn.com\ca_riv2\RIV_LDEV\195170029 - Steinfeld Kern County\Engineering\Drainage\Drainage Study\Exhibit\EXISTING DRAINAGE EXHIBIT.dwg
This document, together with the concepts and designs presented herein, as an instrument of service, is intended only for the specific purpose and client for which it was prepared. Reuse of and improper reliance on this document without written authorization and adaptation by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.

BASIN A SUMMARY

DMA ID	AREA (AC)	Q_{100} (CFS)
DA A1	3.90	10.13
DA A2	0.63	1.65
DA A3	2.92	7.60
DA A4	3.23	8.41
DA A5	2.70	7.02
DA A6	2.00	5.19
DA A7	1.48	3.85
DA A8	1.02	2.65
DA A9	2.69	6.99
DA A10	2.44	6.35
DA A11	1.29	3.36
DA A12	1.38	3.59
DA A13	1.10	2.86
TOTAL	**22.25**	**57.86**

BASIN B SUMMARY

DMA ID	AREA (AC)	Q_{100} (CFS)
DA B1	10.54	27.41
DA B2	0.51	1.34
DA B3	0.61	1.60
DA B4	0.61	1.60
DA B5	0.50	1.31
DA B6	0.51	1.34
DA B7	4.10	10.67
DA B8	3.39	8.81
DA B9	3.99	10.37
DA B10	6.75	17.57
DA B11	4.74	12.32
DA B12	4.04	10.51
DA B13	4.04	10.51
DA B14	2.87	7.47
DA B15	1.94	5.05
TOTAL	**49.16**	**127.86**

BASIN C SUMMARY

DMA ID	AREA (AC)	Q_{100} (CFS)
DA C1	3.13	8.14
DA C2	0.48	1.25
DA C3	3.30	8.57
DA C4	3.49	9.08
DA C5	2.86	7.44
DA C6	2.92	7.59
DA C7	1.62	4.21
TOTAL	**17.80**	**46.29**

SITE SUMMARY

AREA (AC)	Q_{100} (CFS)
93.73	243.79

LEGEND

DMA ID / DMA XX / BASIN ID / BASIN / XX ACRES / AREA

- STORM DRAIN CURB INLET
- STORM DRAIN OUTLET HEADWALL
- GRATED INLET WITH CONC APRON
- OVERALL DMA BOUNDARY
- SUB-DMA BOUNDARY
- SD — STORM LINE
- XXX — MAJOR CONTOURS
- XXX — MINOR CONTOURS

GRAPHIC SCALE IN FEET
0 50 100 200

NORTH

No.	REVISIONS	DATE	BY

Kimley»Horn
401 B STREET, SUITE 800, SAN DIEGO, CA
92101 PHONE: 619-234-9411
WWW.KIMLEY-HORN.COM

KHA PROJECT #195170015
DATE 1/9/2024
SCALE AS SHOWN
DESIGNED BY EH
DRAWN BY EH
CHECKED BY CJ

PPD #XXXX-XXXX

WARE MALCOMB INDUSTRIAL PROJECT
BAKERSFIELD, CA
HOUGHTON RD AND WIBLE RD
BAKERSFIELD, CA

PROPOSED DRAINAGE EXHIBIT

SHEET NUMBER
1 OF 1

Plotted By:Maxwell, Camille Sheet Set:### Layout:24X36 January 09, 2024 01:06:08pm K:\RIV_LDEV\195170029 - Sweetfred Kern County\Engineering\Drainage\Drainage Study\Exhibit\PROPOSED DRAINAGE EXHIBIT.dwg
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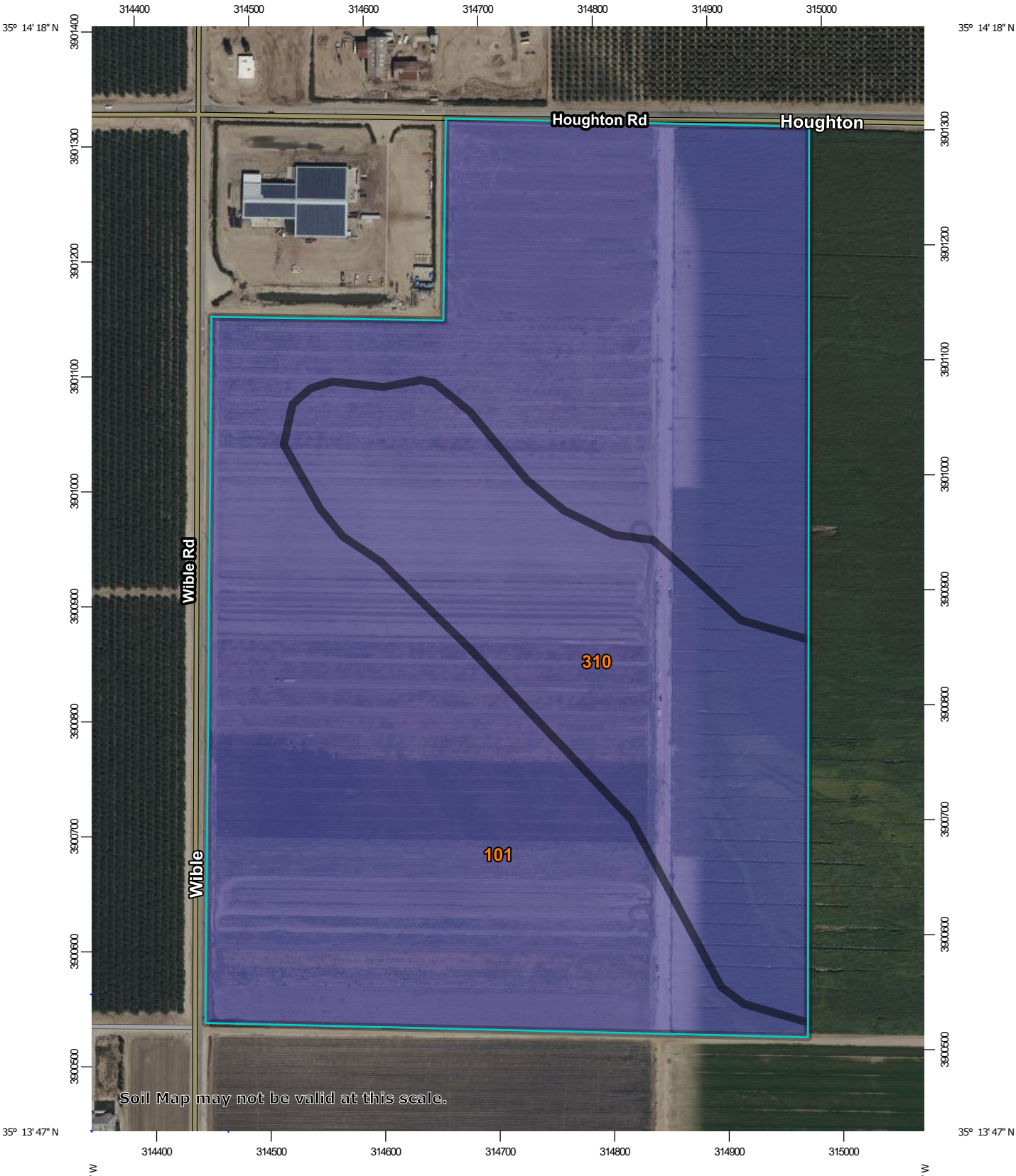
APPENDIX D

NRCS WEB SOIL SURVEY



Map Scale: 1:4,690 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 50 100 200 300

Feet
0 200 400 800 1200

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Soil Rating Lines

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Soil Rating Points

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Kern County, California, Southwest Part
Survey Area Data: Version 13, Sep 1, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 12, 2022—Oct 25, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
101	Bakersfield fine sandy loam, drained, 0 to 1 percent slopes	B	68.5	73.0%
310	Vineland loamy sand, drained, 0 to 1 percent slopes	B	25.4	27.0%
Totals for Area of Interest			**93.9**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

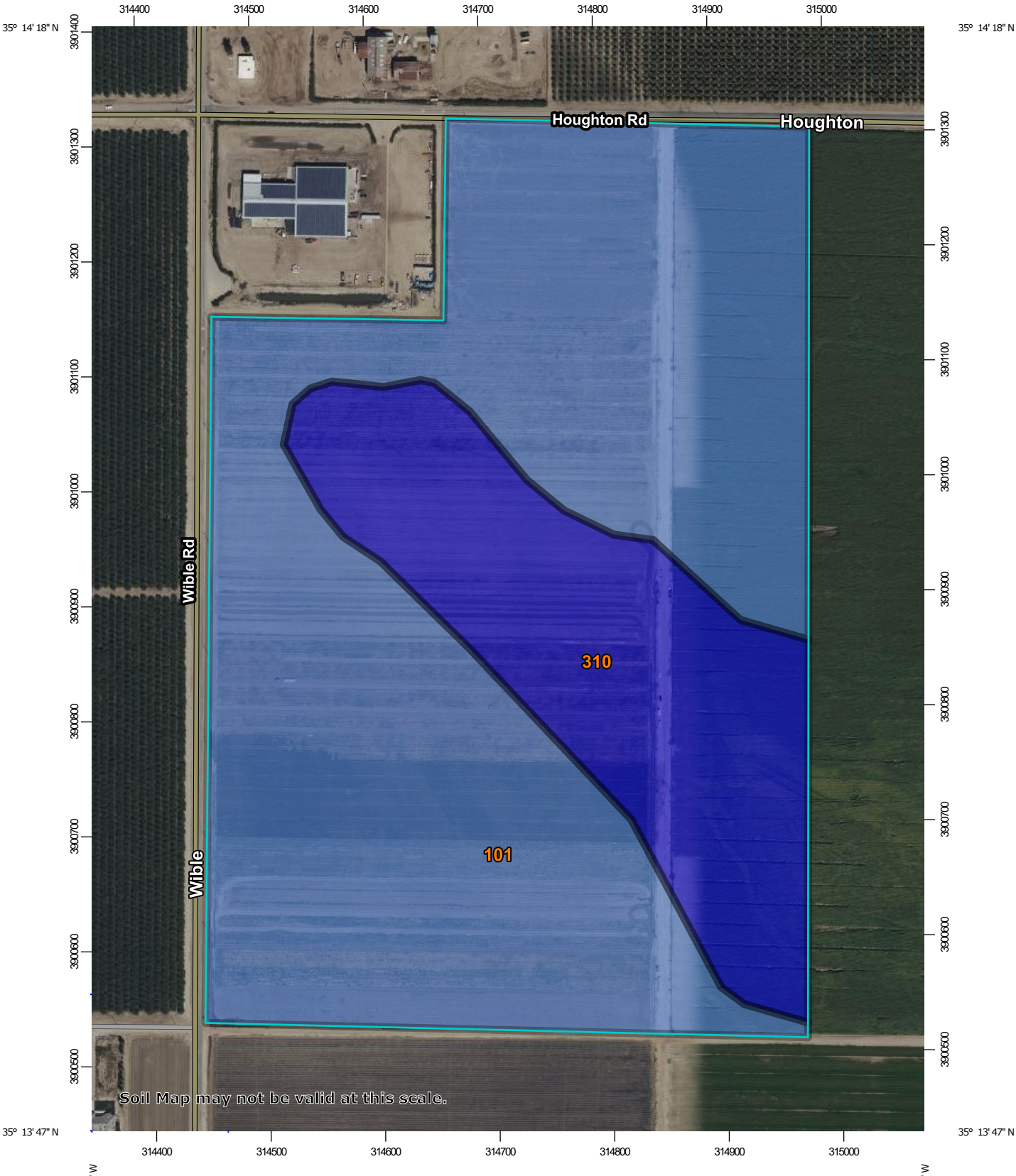
If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher



Map Scale: 1:4,690 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 50 100 200 300

Feet
0 200 400 800 1200

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- Very Low (0.0 - 0.01)
- Low (0.01 - 0.1)
- Moderately Low (0.1 - 1)
- Moderately High (1 - 10)
- High (10 - 100)
- Very High (100 - 705)
- Not rated or not available

Soil Rating Lines
- Very Low (0.0 - 0.01)
- Low (0.01 - 0.1)
- Moderately Low (0.1 - 1)
- Moderately High (1 - 10)
- High (10 - 100)
- Very High (100 - 705)
- Not rated or not available

Soil Rating Points
- Very Low (0.0 - 0.01)
- Low (0.01 - 0.1)
- Moderately Low (0.1 - 1)
- Moderately High (1 - 10)
- High (10 - 100)
- Very High (100 - 705)
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Kern County, California, Southwest Part
Survey Area Data: Version 13, Sep 1, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 12, 2022—Oct 25, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Saturated Hydraulic Conductivity (Ksat), Standard Classes

Map unit symbol	Map unit name	Rating (micrometers per second)	Acres in AOI	Percent of AOI
101	Bakersfield fine sandy loam, drained, 0 to 1 percent slopes	24.9098	68.5	73.0%
310	Vineland loamy sand, drained, 0 to 1 percent slopes	154.6516	25.4	27.0%
Totals for Area of Interest			**93.9**	**100.0%**

Description

Saturated hydraulic conductivity (Ksat) refers to the ease with which pores in a saturated soil transmit water. The estimates are expressed in terms of micrometers per second. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Saturated hydraulic conductivity is considered in the design of soil drainage systems and septic tank absorption fields.

For each soil layer, this attribute is actually recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.

The numeric Ksat values have been grouped according to standard Ksat class limits. The classes are:

Very low: 0.00 to 0.01

Low: 0.01 to 0.1

Moderately low: 0.1 to 1.0

Moderately high: 1 to 10

High: 10 to 100

Very high: 100 to 705

Rating Options

Units of Measure: micrometers per second

Aggregation Method: Dominant Component

Component Percent Cutoff: None Specified

Tie-break Rule: Fastest

Interpret Nulls as Zero: No

Layer Options (Horizon Aggregation Method): Depth Range (Weighted Average)

Top Depth: 12

Bottom Depth: 60

Units of Measure: Inches

APPENDIX E

GEOTECHNICAL REPORT & INFILTRATION STUDY

Geotechnical Evaluation
Warehouse Facility Project
Houghton Road and Wible Road
Bakersfield, California

Seefried Industrial Properties
2201 East Camelback Road | Phoenix, Arizona 85016

September 15, 2021 | Project No. 211696001

Geotechnical | Environmental | Construction Inspection & Testing | Forensic Engineering & Expert Witness

Geophysics | Engineering Geology | Laboratory Testing | Industrial Hygiene | Occupational Safety | Air Quality | GIS

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants

Geotechnical Evaluation
Warehouse Facility Project
Houghton Road and Wible Road
Bakersfield, California

Mr. Sean Sheppard
Seefried Industrial Properties
2201 East Camelback Road | Phoenix, Arizona 85016

September 15, 2021 | Project No. 211696001

Ronald D. Hallum, PG, CEG
Principal Geologist

Soumitra Guha, PhD, PE, GE
Principal Engineer

GM/AES/RDH/SG/mlc

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3 SITE DESCRIPTION 1
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A – Boring Logs
B – Laboratory Testing

1 INTRODUCTION

In accordance with your request and authorization, we have performed a geotechnical evaluation for the proposed warehouse facility to be located at Wible Road and Houghton Road in Kern County, California (Figure 1). The purpose of our study was to evaluate the soil and geologic conditions at the project site in order to provide geotechnical recommendations for the design and construction of the project. This report presents our findings, conclusions, and recommendations for design and construction of the proposed improvements.

2 SCOPE OF SERVICES

Our scope of services included the following:

- Project coordination, planning, and scheduling of the subsurface exploration.
- Review of readily available background materials, including published geologic maps and literature, in-house information, aerial photographs, and plans provided by the client.
- Site reconnaissance to observe the general site conditions, mark the proposed boring locations, and coordinate with Underground Service Alert for utility clearance.
- Acquisition of an encroachment permit from the County of Kern Public Works Department, Building and Development Division, for drilling borings within the County Right-of-Way on Houghton Road and Wible Road.
- Subsurface exploration consisting of drilling, logging, and sampling of eighteen small-diameter, hollow-stem auger borings to depths of up to approximately 51.5 feet below the existing ground surface. The borings were logged by a representative of our firm and relatively undisturbed and bulk soil samples were collected at selected intervals for laboratory testing.
- Laboratory testing of representative soil samples. Laboratory tests included evaluation of in-situ moisture content and dry density, percentage of particles finer than the No. 200 sieve, consolidation characteristics, direct shear strength, Proctor density and optimum moisture content, R-value, and soil corrosivity.
- Data compilation and engineering analysis of the information obtained from our background review, subsurface exploration, and laboratory testing.
- Preparation of this report presenting our findings, conclusions, and geotechnical recommendations pertaining to the geotechnical aspects of the design and construction of the proposed improvements.

3 SITE DESCRIPTION

The site is located southeast of the intersection of Houghton Road and Wible Road in an unincorporated area of Kern County, approximately 1.5 miles south of the city limits of Bakersfield, California (Figure 1). The site consists of an approximately 66 acres of currently undeveloped

land formerly used for agricultural purposes. The site is bounded on the northwest corner by another agricultural property, on the north by Houghton Road, on the west by Wible Road, and on the south and east by unpaved roads and agricultural properties. The existing ground surface at the site is tilled and covered with scattered dry grasses, hay, and/or old crop. Topographically, the project site is relatively flat with a ground surface elevation of approximately 330 feet above mean sea level (United States Geological Survey [USGS], 2018a).

4 PROPOSED CONSTRUCTION

The project consists of the design and construction of a new warehouse facility and includes upgraded pavement sections for approximately 0.6 miles of Wible Road and approximately 1.3 miles of Houghton Road (Figures 2 and 3). The new facility will include a single-story tilt-up warehouse building with a footprint area of approximately 601,795 square feet and office space with an area of approximately 33,017 square feet. Large asphalt concrete-paved loading and parking areas will be located around the perimeter of the building (Ware Malcomb, 2021). The new warehouse will also include approximately 53 loading dock spaces on the north and east sides of the building. The paved parking areas will include approximately 292 trailer parking stalls on the north and east sides of the facility and approximately 1,797 associate parking stalls on the west and south sides of the facility. Additional site improvements include a relatively large storm water detention basin, proposed to be located on the northeast corner of the site and new roads on the south and east side of the facility (Ware Malcomb, 2021). Grading for the project will generally include remedial grading, relatively shallow excavations for foundation and floor slab preparation, and utility installation via cut-and-cover trenching.

5 SUBSURFACE EVALUATION AND LABORATORY TESTING

Our subsurface exploration was performed on July 14, July 15, August 10, and August 11, 2021, and consisted of drilling, logging, and sampling of eighteen small-diameter borings using a truck-mounted drill rig with 8-inch-diameter hollow-stem augers to depths ranging from approximately 11.5 to 51.5 feet below the ground surface. The approximate locations of the exploratory borings are shown on Figures 2 and 3. The borings were logged by a representative from our firm. Bulk and relatively undisturbed soil samples were obtained at selected depths for laboratory testing. The borings within the site boundary were backfilled with onsite soil, the borings within County streets were backfilled and patched per the encroachment permit from the County of Kern Public Works Department, Building and Development Division requirements. The logs of the exploratory borings are presented in Appendix A.

Laboratory testing was performed on representative samples to evaluate in-situ moisture content and dry density, percentage of particles finer than the No. 200 sieve, consolidation characteristics, direct shear strength, Proctor density, R-value, and corrosivity. The results of the in-situ moisture content and dry density tests are presented on the boring logs in Appendix A. The remaining laboratory test results are presented in Appendix B.

6 GEOLOGY AND SUBSURFACE CONDITIONS

6.1 Regional Geology

The project site is located on a broad, relatively flat southern portion of the Great Valley Geomorphic Province (Norris and Webb, 1990). The Great Valley extends nearly 500 miles north and south, separating the Sierra Nevada from the Coast Ranges by an average of 40 miles. The Great Valley surficial deposits generally consists of alluvial, flood, and delta plains of the Sacramento and San Joaquin Rivers and their tributaries. The Great Valley is divided into a northern segment, the Sacramento Valley, and a southern segment, the San Joaquin Valley. The project site, located within southern portion of the San Joaquin Valley, is underlain by silt, sand, and gravel alluvial fan deposits which are in turn underlain by a thick sedimentary sequence (Norris and Webb, 1990). Geologic mapping by Smith (1964) indicates that the site is underlain by Quaternary-aged alluvial fan deposits (Figure 4).

6.2 Subsurface Conditions

Materials encountered during our subsurface exploration consisted of asphalt concrete (AC) pavement sections underlain by shallow fill soils and alluvium. Pavement was encountered at borings B-1 through B-5 and B-14. Borings B-6 through B-13 and B-15 through B-18 were located on unpaved surfaces. The AC ranged in thickness from approximately 5 to 7 inches. The AC was underlain by approximately 2 inches of aggregate base (AB) in boring B-14 and generally consisted of moist, dense, silty sand with gravel.

Fill was encountered below the pavement sections in borings B-1 through B-5 and B-14 and at the ground surface in borings B-6 through B-13 and B-15 through B-18, to depths of approximately 1 to 2 feet below the ground surface. The fill material generally consisted of disturbed/tilled, moist, loose to medium dense, sandy silt, silty sand, and poorly graded sand.

Alluvium/alluvial fan deposits were encountered in our borings below the fill to the total depths explored of approximately 51.5 feet. The alluvium generally consisted of interbedded, moist, loose to very dense, sandy silt, clayey sand, silty sand, poorly graded sand with silt, and poorly graded

sand, and moist, firm to very stiff, lean clay. Detailed descriptions of the materials encountered in our borings are presented on the boring logs in Appendix A.

7 GROUNDWATER

Groundwater was not encountered in our borings at the time of drilling. Groundwater monitoring well data from the State of California Water Resources Control Board's GeoTracker website (2021) indicates that the depth to groundwater at a monitoring well located approximately 2.2 miles southeast of the site ranges from approximately 22.5 to 34 feet below the ground surface. An additional groundwater monitoring well, located approximately 3.2 miles northeast of the site, indicates that the depth to groundwater ranges from approximately 141 to 145 feet below the ground surface. Fluctuations in groundwater levels may occur due to variations in precipitation, ground surface topography, subsurface stratification, irrigation, groundwater pumping, and other factors that may not have been evident at the time of our field evaluation.

8 FLOOD HAZARDS

Based on review of the Kern Master Environmental Assessment Resource's Flood Plain and Dam Inundation Areas Map (Kern Council of Governments, 2004b), the site is located within a mapped dam inundation area for the Lake Isabella reservoir. Areas in the Lake Isabella inundation area would be subject to approximately 1 to 2 feet of sheet flooding. Based on our review of flood insurance rate maps for the project area (Federal Emergency Management Agency [FEMA], 2009), the project site is located within FEMA's designated Other Areas - Zone X, which includes areas assigned to be outside the 500-year floodplain.

9 FAULTING, SEISMICITY, AND GEOLOGIC HAZARDS

The project site is located in a seismically active area, as is the majority of central and southern California. The numerous faults in California include active, potentially active, and inactive faults. As defined by the California Geological Survey (CGS), active faults are faults that have ruptured within Holocene time, or within approximately the last 11,000 years. Potentially active faults are those that show evidence of movement during Quaternary time (approximately the last 1.6 million years) but for which evidence of Holocene movement has not been established. Inactive faults have not ruptured in the last approximately 1.6 million years. The approximate locations of major active faults in the region and their geographic relationship to the project sites are shown on Figure 5.

Based on our review of seismic hazard maps, geologic literature, and geologic maps, the site is not located within a State of California Earthquake Fault Zone (formerly known as Alquist-Priolo

Special Studies Zone), and no active faults are known to cross the subject site. The principal seismic and geologic hazards evaluated at the subject site are surface ground rupture, ground motion, liquefaction, and regional subsidence. A brief description of these hazards and the potential for their occurrences on site are discussed in the following sections.

9.1 Surface Ground Rupture

Based on our review of the referenced literature and our site reconnaissance, no active faults are known to cross the project site. Therefore, the probability of damage from surface fault rupture is considered to be low. However, lurching or cracking of the ground surface as a result of nearby seismic events is possible.

9.2 Site-Specific Seismic Ground Motion

Considering the proximity of the site to active faults capable of producing a maximum moment magnitude of 6.0 or more, the project area has a high potential for experiencing strong ground motion. The 2019 California Building Code (CBC) specifies that the risk-targeted maximum considered earthquake (MCE_R) ground motion response accelerations be used to evaluate seismic loads for design of buildings and other structures. Per the 2019 CBC, a site-specific ground motion hazard analysis shall be performed for structures on Site Class D with a mapped MCE_R, 5 percent damped, spectral response acceleration parameter at a period of 1 second (S_1) greater than or equal to 0.2g in accordance with Sections 21.2 and 21.3 of the American Society of Civil Engineers (ASCE) Publication 7-16 (2016) for the Minimum Design Loads and Associated Criteria for Building and Other Structures. We calculated that the S_1 for the site is equal to 0.392g using the 2021 Applied Technology Council (ATC) seismic design tool (web-based); therefore, a site-specific ground motion hazard analysis was performed for the project area.

The site-specific ground motion hazard analysis consisted of the review of available seismologic information for nearby faults and performance of probabilistic seismic hazard analysis (PSHA) and deterministic seismic hazard analysis (DSHA) to develop acceleration response spectrum curves corresponding to the MCE_R for 5 percent damping. Prior to the site-specific ground motion hazard analysis, we obtained the mapped seismic ground motion values and developed the general MCE_R response spectrum for 5 percent damping in accordance with Section 11.4 of ASCE 7-16 (ATC, 2021). The average shear wave velocity (V_S) for the upper 30 meters of soil (V_{S30}) is assumed to be 228 meters per second (m/s) (CGS/Wills et al., 2017) and the depths to V_S = 1,000 m/s and V_S = 2,500 m/s are assumed to be 90 meters and 5,800 meters, respectively (Southern California Earthquake Center Community Velocity Model).

The 2014 new generation attenuation (NGA) West-2 relationships were used to evaluate the site-specific ground motions. The NGA relationships that we used for developing the probabilistic and deterministic response spectra are by Chiou and Youngs (2014), Campbell and Bozorgnia (2014), Boore, Stewart, Seyhan, and Atkinson (2014), and Abrahamson, Silva, and Kamai (2014). The Open Seismic Hazard Analysis software developed by USGS (USGS, 2020) was used for performing the PSHA. The Calculation of Weighted Average 2014 NGA Models spreadsheet by the Pacific Earthquake Engineering Research Center was used for performing the DSHA (Seyhan, 2014).

PSHA was performed for earthquake hazards having a 2 percent chance of being exceeded in 50 years multiplied by the risk coefficients per ASCE 7-16. The maximum rotated components of ground motions were considered in PSHA with 5 percent damping. For the DSHA, we analyzed accelerations from characteristic earthquakes on active faults within the region using the hazard curves and deaggregation plots at the site obtained from the USGS Unified Hazard Tool application (USGS, 2021). A magnitude 8.1 event on the San Andreas Fault with a rupture distance of 43.4 kilometers from the site was evaluated to be the controlling earthquake. Hence, the deterministic seismic hazard analysis was performed for the site using this event and corrections were made to the spectral accelerations for the 84th percentile of the maximum rotated component of ground motion with 5 percent damping.

The site-specific MCE_R response spectrum was taken as the lesser of the spectral response acceleration at any period from the PSHA and DSHA, and the site-specific general response spectrum was determined by taking two-thirds of the MCE_R response spectrum with some conditions in accordance with Section 21.3 of ASCE 7-16. Figure 6 presents the site-specific MCE_R response spectrum and the site-specific design response spectrum. The general mapped design response spectrum calculated in accordance with Section 11.4 of ASCE 7-16 is also presented on Figure 6 for comparison. The site-specific spectral response acceleration parameters, consistent with the 2019 CBC, are provided in Section 11.2 for the evaluation of seismic loads on buildings and other structures. The site-specific maximum considered earthquake geometric mean (MCE_G) peak ground acceleration, PGA_M, was calculated as 0.550g.

9.3 Liquefaction Potential

Liquefaction is the phenomenon in which loosely deposited granular soils and non-plastic silts located below the water table undergo rapid loss of shear strength when subjected to strong earthquake-induced ground shaking. Ground shaking of sufficient duration results in the loss of grain-to-grain contact due to a rapid rise in pore water pressure, and causes the soil to behave

as a fluid for a short period of time. Liquefaction is known generally to occur in saturated or near-saturated cohesionless soils at depths shallower than 50 feet below the ground surface. Liquefaction is also known to occur in relatively fine-grained soils (i.e., sandy silt and clayey silt) with a plasticity index (PI) of less than 12 and an in-place moisture content more than 85 percent of the liquid limit (LL) and sensitive silts and clays with a PI more than 18. Factors known to influence liquefaction potential include composition and thickness of soil layers, grain size, relative density, groundwater level, degree of saturation, and both intensity and duration of ground shaking.

The project site is not located in an area mapped as a liquefaction hazard (CalOES, 2021). In addition, groundwater was not encountered in our borings to the depths explored of 51.5 feet. Accordingly, it is our opinion that liquefaction and liquefaction-related seismic hazards (e.g., dynamic settlement and/or lateral spreading) are not design considerations for the project.

9.4 Regional Subsidence

Subsidence is characterized as a sinking of the ground surface relative to surrounding areas, and can generally occur where deep, unconsolidated soil deposits are present. Regional land subsidence is typically associated with regional groundwater withdrawal, oil and/or natural gas withdrawal, hydro-compaction, or oxidation and compaction of peat soils following drainage of marshland (Faunt, 2009). Subsidence can result in the development of ground surface cracks, larger scale ground failures, such as surface faulting and/or earth fissuring, ground surface drainage problems due to permanent subsurface aquifer compaction, increased incidences of flooding, and sinkholes, differential settlement, and damaged wells in the vicinity of the groundwater removal equipment areas (Baum et al., 2008).

According to the USGS, the San Joaquin Valley where the project site is located, has been subject to historical subsidence due to groundwater pumping with some areas experiencing as much as 28 feet of historical ground subsidence (USGS, 2018b). In general, current groundwater practices have improved over the years to help reduce land subsidence due to groundwater pumping. Management strategies are used by governing agencies to store water for future use in an effort to meet water demands reliably. However, periods of drought and/or reduced surface water availability have the potential to cause renewed groundwater pumping and subsidence in the San Joaquin Valley.

10 CONCLUSIONS

Based on the results of our evaluation, it is our opinion that construction of the proposed project improvements is feasible from a geotechnical perspective, provided that the following recommendations are incorporated into the design and construction of the project. In general, the following conclusions were made:

- The site is generally underlain by moist, loose to very dense, sandy silts, clayey sands, silty sands, poorly graded sand with silt and poorly graded sand with some scattered inter-beds of moist, stiff to very stiff, lean clay. Excavations during site grading should be feasible with earthmoving equipment in good working order.

- The on-site sandy soils should be suitable for re-use as compacted fill once moisture-conditioned to near the optimum moisture content. Oversize materials with a diameter of 4 inches or more are not considered to be suitable for use as fill.

- Granular alluvial soils encountered at the site may be subject to caving. These soils should be considered as Type C soils in accordance with Occupational Safety and Health Administration (OSHA) regulations.

- Groundwater was not encountered during our subsurface exploration. Groundwater levels in the vicinity of the site range from approximately 22.5 to 145 feet below the ground surface. Fluctuations in groundwater levels may occur due to variations in precipitation, ground surface topography, subsurface stratification, irrigation, groundwater pumping, and other factors which may not have been evident at the time of our field evaluation.

- The site soils are not considered susceptible to significant dynamic settlements due to earthquake-induced liquefaction.

- The subject site is not located within a State of California Earthquake Fault Zone. Based on our review of published geologic maps and aerial photographs, there are no known active faults that underlie the site. The potential for surface fault rupture at the site is considered to be low.

- The design PGA_M was calculated as 0.550g for the site.

- Our limited laboratory corrosivity testing indicates that the on-site materials can be classified as corrosive based on the California Department of Transportation (Caltrans, 2021) corrosion guidelines.

11 RECOMMENDATIONS

The following sections provide our geotechnical recommendations for the design and construction of the proposed warehouse building and associated improvements. These recommendations are based on our evaluation of the site geotechnical conditions and our understanding of the planned construction, including anticipated foundation loads. The proposed work should be performed in conformance with the recommendations presented in this report, project specifications, and appropriate agency standards.

11.1 Earthwork

Earthwork at the site is anticipated to consist of remedial grading of the near-surface soils, fill placement, foundation excavations, trenching and backfilling for new utilities, pavement construction, and finish grading for establishment of site drainage. Earthwork operations should be performed in accordance with the requirements of the applicable governing agencies and the recommendations presented in the following sections of this report.

11.1.1 Pre-Construction Conference

We recommend that a pre-construction conference be held. The owner and/or their representative, the governing agencies' representatives, the civil engineer, Ninyo & Moore, and the contractor should be in attendance to discuss the work plan and project schedule and earthwork requirements.

11.1.2 Site Preparation

Prior to performing excavations or other earthwork, the site should be cleared of surface obstructions, deleterious materials, and vegetation, as well as surface soils containing organic materials. Existing utilities within the project limits (if any) should be re-routed or protected from damage by construction activities. Obstructions that extend below the finished grade should be removed and the resulting holes filled with compacted soil. Materials generated from the clearing operations should be removed from the project site and disposed of at a legal dump site.

11.1.3 Excavation Characteristics

Based on our field exploration, we anticipate that excavations within alluvial materials at the site may be accomplished with conventional earthmoving equipment in good working condition. Based on our site reconnaissance and review of geologic literature, we anticipate that the materials encountered will be comprised predominantly of sandy silts, clayey sand, silty sands, poorly graded sand with silt, and poorly graded sand with some scattered inter-beds of lean clay. Oversize materials including cobbles and boulders, if encountered during excavation operations, may not be suitable for backfill and should be disposed of off-site. Contractors should make their own independent evaluation of the excavatability of the on-site materials prior to submitting their bids.

Temporary near-vertical excavations not exceeding a depth of approximately 4 feet should be feasible. Excavations that are unstable or deeper than 4 feet should be laid back to slope inclinations of approximately 1½:1 (horizontal to vertical) or flatter. Where temporary slopes

are not possible, shoring will be needed. Excavations should be performed in accordance with OSHA's regulations. On-site soils should be considered as Type C soils in accordance with OSHA guidelines.

11.1.4 Treatment of Near-Surface Soils

In order to provide suitable support for the proposed building we recommend that the building pad be overexcavated to a depth of approximately 7 feet below the existing ground surface or 5 feet beneath the bottom of the footings, whichever is deeper. The over-excavation should remove existing loose surficial soils and should expose relatively dense alluvial deposits. Additional overexcavation of loose, soft, and/or wet areas, and/or undocumented fill may be appropriate. The limits of the excavation should extend laterally so that the overexcavation is approximately 10 feet beyond the perimeter of the building or a distance equal to the depth of the overexcavation, whichever is greater. The excavation bottom should be evaluated by our representative during the excavation work. The exposed subgrade should be scarified to a depth of approximately 8 inches, moisture-conditioned, and compacted prior to the placement of fill.

In areas of pavements subject to vehicle traffic and exterior flatwork, the near-surface soils should be removed to a depth of approximately 2 feet below the pavement or flatwork subgrade. The actual depths of overexcavation should be evaluated by our representative based on the materials exposed at the time of construction. The limits of overexcavation should extend laterally beyond the improvements to a distance equal to the depth of over-excavation. The subgrade at the bottoms of the overexcavation should be scarified to a depth of 8 inches, moisture-conditioned to slightly above the laboratory optimum moisture content, and compacted to a relative compaction of 90 percent or more. The overexcavated areas should be backfilled to the finished grade with the on-site soils with very low to low expansion potential and compacted to a relative compaction of 90 percent or more.

11.1.5 Fill Material

In general, the on-site granular soils should be suitable for re-use as fill, structural fill, and trench backfill provided they are free of trash, debris, roots, vegetation, or other deleterious materials. Fill should generally be free of rocks or solid lumps of material in excess of 4 inches in diameter. Rocks or solid lumps larger than approximately 4 inches in diameter should be broken into smaller pieces or should be removed from the site. On-site soils used as fill will involve moisture-conditioning to achieve appropriate moisture content for compaction.

Imported materials, if used, should consist of clean, non-expansive, granular material that conforms to the latest edition of "Greenbook" Standard Specifications for Public Works Construction for structure backfill in accordance with ASTM International (ASTM) D 4829 (CBC, 2019). Soil should also be tested for corrosive properties prior to importing. We recommend that the imported materials comply with the Caltrans (2021) criteria for non-corrosive soils (i.e., soils having a chloride concentration of 500 parts per million (ppm) or less, a soluble sulfate content of approximately 0.15 percent (1,500 ppm) or less, a pH value of 5.5 or higher, or an electrical resistivity of 1,500 ohm-centimeters [ohm-cm] or more). Materials for use as fill should be evaluated by the geotechnical consultant prior to importing. The contractor should be responsible for the uniformity of import material brought to the site.

11.1.6 Fill Placement and Compaction

Fill placed for support of the new warehouse building or other miscellaneous improvements should be compacted in horizontal lifts to a relative compaction of 90 percent or more as evaluated by ASTM D 1557. Fill soils should be placed at slightly above the optimum moisture content as evaluated by ASTM D 1557. The optimum lift thickness of fill will depend on the type of compaction equipment used but generally should not exceed 8 inches in loose thickness. Placement and compaction of the fill soils should be in general accordance with appropriate governing agency grading ordinances and good construction practice.

11.2 Site-Specific Seismic Design Considerations

Design of the proposed improvements should be performed in accordance with the requirements of the governing jurisdictions and applicable building codes. Table 1 presents the site-specific spectral response acceleration parameters in accordance with the CBC (2019) guidelines.

Table 1 – 2019 California Building Code Seismic Design Criteria

Site Coefficients and Spectral Response Acceleration Parameters	Values
Site Class	D
Mapped Spectral Response Acceleration at 0.2-second Period, S_S	1.080g
Mapped Spectral Response Acceleration at 1.0-second Period, S_1	0.392g
Site-Specific Spectral Response Acceleration at 0.2-second Period, S_{MS}	1.350g
Site-Specific Spectral Response Acceleration at 1.0-second Period, S_{M1}	0.982
Site-Specific Design Spectral Response Acceleration at 0.2-second Period, S_{DS}	0.900
Site-Specific Design Spectral Response Acceleration at 1.0-second Period, S_{D1}	0.655
Site-Specific Maximum Considered Earthquake Geometric Mean (MCE_G) Peak Ground Acceleration, PGA_M	0.550g

11.3 Foundations

The proposed warehouse facility may be supported on shallow, spread footings bearing on engineered fill compacted in accordance with the recommendations presented in Section 11.1 of

this report. Foundations should be designed in accordance with structural considerations and the following recommendations. In addition, requirements of the appropriate governing jurisdictions and applicable building codes should be considered in the design of the structures.

11.3.1 Footings

Footings should extend 24 inches or more below the lowest adjacent finished grade. Continuous footings should have a width of 24 inches or more. Isolated pad footings should have a width of 36 inches or more and extend 24 inches or more below the lowest adjacent finish grade. Spread footings should be reinforced with a minimum of two No. 4 steel reinforcing bars, one placed near the top and one placed near the bottom of the footings, and further detailed in accordance with the recommendations of the structural engineer.

Footings, as described above and bearing on compacted fill soils with very low to low expansion potential, may be designed using a net allowable bearing capacity of 2,500 pounds per square foot (psf). The bearing capacity may be increased by 250 psf and 500 psf for every additional foot of increase in width and depth, respectively, up to a value of 3,500 psf.

Total and differential settlements for footings designed and constructed in accordance with the above recommendations are estimated to be less than approximately 1 inch and ½ inch over a horizontal span of 40 feet, respectively.

Footings bearing on compacted fill may be designed using a coefficient of friction of 0.35, where the total frictional resistance equals the coefficient of friction times the dead load. Footings may be designed using a passive resistance of 350 psf per foot of depth for level ground condition up to a value of 3,500 psf. The allowable lateral resistance can be taken as the sum of the frictional resistance and passive resistance provided the passive resistance does not exceed one-half of the total allowable resistance. The passive resistance may be increased by one-third when considering loads of short duration such as wind or seismic forces.

11.3.2 Building Floor Slabs

Building floor slabs should be designed by the project structural engineer based on the anticipated loading conditions. Building floor slabs should be underlain by compacted soil prepared in accordance with the recommendations presented in this report. We recommend that slabs be, at a minimum, 5 inches thick and reinforced with No. 3 steel reinforcing bars placed 18 inches on-center (each way) placed near the mid-height of the slab. The placement

of the reinforcement in the slab is vital for satisfactory performance. The floor slab and foundations should be tied together by extending the slab reinforcement into the foundations. The slab should be underlain by a 4-inch-thick capillary break (consisting of either sand or crushed rock) overlain by a polyethylene vapor retarder (with a thickness of 10 mils or more). The steel reinforcements for the floor slab shall be placed on the vapor retarder using chairs, as appropriate. The vapor retarder is recommended in areas where moisture-sensitive floor coverings are anticipated. Soils underlying the slabs should be moisture-conditioned and compacted in accordance with the recommendations presented in this report prior to concrete placement. Joints should be constructed at intervals designed by the structural engineer to help reduce random cracking of the slab.

11.4 Exterior Flatwork

Exterior flatwork should be supported on subgrade soils prepared in accordance with the remedial recommendations presented in Section 11.1 of this report. Exterior flatwork should have a thickness of 4 inches or more. The flatwork should be reinforced with No. 3 steel reinforcing bars placed 24 inches on-center (each way) near the mid-height of the slab.

To reduce the potential for distress to exterior concrete flatwork due to movement of the underlying soil, we recommend that flatwork be installed with crack-control joints at appropriate spacing as designed by the structural engineer. Exterior flatwork should be underlain by 4 inches of clean sand. Positive drainage should be established and maintained adjacent to flatwork.

11.5 Underground Utilities

We anticipate that utility pipelines will be supported on compacted fill or native alluvium. The depths of the pipelines are not known; however, we anticipate that the pipe invert depths will not exceed 10 feet.

11.5.1 Pipe Bedding

We recommend that pipelines be supported on 6 inches or more of granular bedding material such as sand with a sand equivalent (SE) value of 30 or more. Bedding material should be placed and compacted around the pipe, and 12 inches or more above the top of the pipe in accordance with the current “Greenbook” Standard Specifications for Public Works. We do not recommend the use of crushed rock for bedding material. It has been our experience that the voids within a crushed rock material are sufficiently large enough to allow fines to migrate into the voids, thereby creating the potential for sinkholes and depressions to develop at the ground surface.

Special care should be taken not to allow voids beneath and around the pipe. Bedding material and compaction requirements should be in accordance with the recommendations of this report, the project specifications, and applicable requirements of the appropriate agencies. Compaction of the bedding material and backfill should proceed along both sides of the pipe concurrently and be compacted to 90 percent or more relative compaction as evaluated by ASTM D 1557.

11.5.2 Modulus of Soil Reaction

The modulus of soil reaction is used to characterize the stiffness of soil backfill placed on the sides of buried flexible pipelines for the purpose of evaluating lateral deflection caused by the weight of the backfill above the pipe. We recommend that a modulus of soil reaction of 1,200 pounds per square inch (psi) be used for design, provided that granular bedding material is placed adjacent to the pipe, as recommended in this report.

11.6 Pavement Recommendations

Installing pavements for Wible Road and Houghton Road, paved access roads, and parking stalls will be part of the proposed improvements for this project. Accordingly, the pavement sections were designed based on the subgrade soil conditions and our laboratory testing. Laboratory testing of a representative soil sample was performed and indicated an R-value of approximately 61 for the on-site subgrade soils. However, considering the variability in density and strength of near-surface soils across the site and in accordance with the Caltrans criteria, an R-value of 50 was used for the pavement design. We have evaluated pavement structural sections for Traffic Indices (TI) of 4.0, 6.0, 8.0, and 10.0. Our pavement analysis was performed using the methodology outlined in the Caltrans Highway Design Manual (Caltrans, 2019b). The analysis assumes a 20-year design life for the new pavements. Based on the design R-value and TI, our preliminary estimates of pavement structural sections are provided below in Table 2.

Table 2 – Preliminary Structural Pavement Sections

Traffic Index	AC over CAB or AC over CMB (inches)	Full Depth AC (inches)	Full Depth PCC (inches)
≤4	2.5 over 4.5	4.5	5.0
6	3.0 over 4.5	6.0	6.5
8	5.0 over 5.5	8.0	9.5
10	6.0 over 8.0	10.0	12.5

Notes:
AC – Asphalt Concrete
CAB – Crushed Aggregate Base
CMB – Crushed Miscellaneous Base
PCC – Portland Cement Concrete with a 28-day compressive strength of 2,500 psi

Pavements should be supported on subgrade soils prepared in accordance with the remedial recommendations presented in Section 11.1 of this report. Base material should be placed at a relative compaction of 95 percent or more as evaluated by ASTM D 1557. If a full depth AC pavement is selected, the subgrade soil should be compacted to 95 percent relative compaction.

Aggregate base material should conform to the latest specifications in Section 200 2.2 for crushed aggregate base or Section 200 2.4 for crushed miscellaneous base of the Greenbook and should be compacted to a relative compaction of 95 percent in accordance with ASTM D 1557. AC should conform to Section 203.6 of the Greenbook and should be compacted to a relative compaction of 95 percent in accordance with ASTM D 1557.

11.7 Soil Corrosivity and Concrete

Limited testing for corrosion potential of the site soils was performed by Ninyo & Moore using the results of a selected, representative near-surface sample obtained from boring B-5. Laboratory testing was performed to evaluate pH, minimum electrical resistivity, soluble sulfate, and chloride content. Soluble sulfate content is addressed in the following section of this report. The soil pH and minimum resistivity tests were performed in accordance with California Test Method (CT) 643. The test for chloride content of the soils was performed using CT 422. Sulfate testing was performed in general accordance with CT 417. The laboratory test results are presented in Appendix B.

The chloride content of the sample tested was approximately 110 ppm. The sulfate content was approximately 170 ppm. The soil pH of the sample was approximately 7.1, and the electrical resistivity measured in the laboratory was approximately 762 ohm-cm. Based on the laboratory test results and Caltrans (2021) criteria, the project site can be classified as a corrosive site, which is defined as having earth materials with more than 500 ppm chlorides, more than 1,500 ppm of sulfates, a pH of 5.5 or less, or an electrical resistivity of less than 1,500 ohm-cm. The results of the corrosivity tests are presented in Appendix B.

11.8 Concrete

Concrete in contact with soil or water that contains high concentrations of water-soluble sulfates can be subject to premature chemical and/or physical deterioration. Based on the American Concrete Institute (ACI) criteria (2016), the potential for sulfate attack is negligible for water-soluble sulfate contents in soil ranging from 0.00 to 0.10 percent by weight and moderate for water-soluble sulfate contents ranging from 0.10 to 0.20 percent by weight. The potential for sulfate attack is severe for water-soluble sulfate contents ranging from 0.20 to 2.00 percent by

weight and very severe for water-soluble sulfate contents over 2.00 percent by weight. The sample tested during this evaluation indicated water-soluble sulfate contents of approximately 0.017 percent by weight (i.e., about 170 ppm). Accordingly, the on-site soils are considered to have a negligible potential for sulfate attack. Per ACI (2016), Type II cement is appropriate for the site improvements. However, due to the potential variability of soils on site, consideration should be given to using Type II/V cement for the project.

In order to reduce the potential for shrinkage cracks in the concrete during curing, we recommend that the concrete for the proposed structures be placed with a slump of 4 inches based on ASTM C 143. The slump should be checked periodically at the site prior to concrete placement. We further recommend that concrete cover over reinforcing steel for foundations be provided in accordance with CBC (2019). The structural engineer should be consulted for additional concrete specifications.

11.9 Drainage

Positive surface drainage is imperative for satisfactory performance of the site. Positive drainage should be provided and maintained to direct surface water away from foundations and offsite. Positive drainage is defined as a slope of 2 percent or more for a distance of 5 feet or more away from foundations and other site improvements. Runoff should then be directed by the use of swales or pipes into a collective drainage system. Surface waters should not be allowed to pond adjacent to footings or on pavements. Concentrated runoff should not be allowed to flow over pavement as this can result in early deterioration of the pavement. We recommend that the top level of the structures have roof drains and downspouts installed to collect runoff. Area drains for landscaped and paved areas are recommended.

12 CONSTRUCTION OBSERVATION

The recommendations provided in this report are based on our understanding of the proposed project and our evaluation of the data collected based on subsurface conditions observed in our exploratory borings. It is imperative that the geotechnical consultant checks the subsurface conditions during construction.

During construction, we recommend that the duties of the geotechnical consultant include, but not be limited to:

- Observing clearing, grubbing, and removals.
- Observing excavation, placement, and compaction of fill, including trench backfill.

- Evaluating on-site soil for suitability of its use as engineered fill/structural backfill prior to placement.
- Evaluating imported materials prior to their use as fill, if any.
- Performing field tests to evaluate fill compaction.
- Observing foundation excavations for bearing material prior to placement of reinforcing steel or concrete.

The recommendations provided in this report are based on the assumption that Ninyo & Moore will provide geotechnical observation and testing services during construction. In the event that the services of Ninyo & Moore are not used during construction, we request that the selected consultant provide the owner with a letter (with a copy to Ninyo & Moore) indicating that they fully understand Ninyo & Moore's recommendations and that they are in full agreement with the design parameters and recommendations contained in this report.

13 LIMITATIONS

The field evaluation, laboratory testing, and geotechnical analyses presented in this geotechnical report have been conducted in general accordance with current practice and the standard of care exercised by geotechnical consultants performing similar tasks in the project area. No warranty, expressed or implied, is made regarding the conclusions, recommendations, and opinions presented in this report. There is no evaluation detailed enough to reveal every subsurface condition. Variations may exist and conditions not observed or described in this report may be encountered during construction. Uncertainties relative to subsurface conditions can be reduced through additional subsurface exploration. Additional subsurface evaluation will be performed upon request.

This document is intended to be used only in its entirety. No portion of the document, by itself, is designed to completely represent any aspect of the project described herein. Ninyo & Moore should be contacted if the reader requires additional information or has questions regarding the content, interpretations presented, or completeness of this document.

This report is intended for design purposes only. It does not provide sufficient data to prepare an accurate bid by contractors. It is suggested that the bidders and their geotechnical consultant perform an independent evaluation of the subsurface conditions in the project areas. The independent evaluations may include, but not be limited to, review of other geotechnical reports prepared for the adjacent areas, site reconnaissance, and additional exploration and laboratory testing.

Our conclusions, recommendations, and opinions are based on an analysis of the observed site conditions. If geotechnical conditions different from those described in this report are encountered, our office should be notified, and additional recommendations, if warranted, will be provided upon request. It should be understood that the conditions of a site could change with time as a result of natural processes or the activities of man at the subject site or nearby sites. In addition, changes to the applicable laws, regulations, codes, and standards of practice may occur due to government action or the broadening of knowledge. The findings of this report may, therefore, be invalidated over time, in part or in whole, by changes over which Ninyo & Moore has no control.

This report is intended exclusively for use by the client. Any use or reuse of the findings, conclusions, and/or recommendations of this report by parties other than the client is undertaken at said parties' sole risk.

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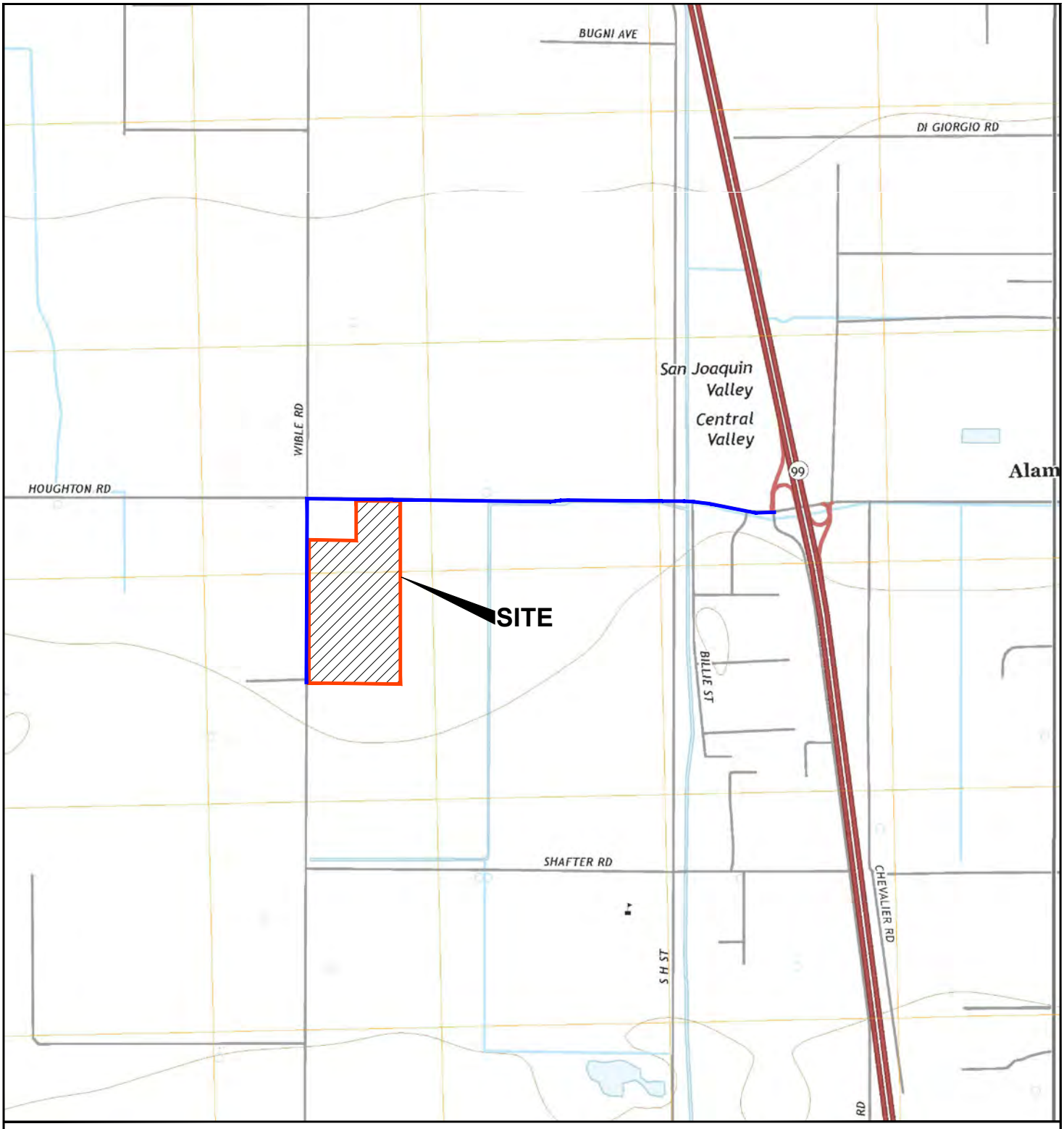
FIGURES



LEGEND

PROPOSED STREET IMPROVEMENTS

NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE. I REFERENCE: USGS, 2018.

N

FEET

0 2,000 4,000

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FIGURE 1

SITE LOCATION

BAKERSFIELD WAREHOUSE FACILITY
BAKERSFIELD, CALIFORNIA

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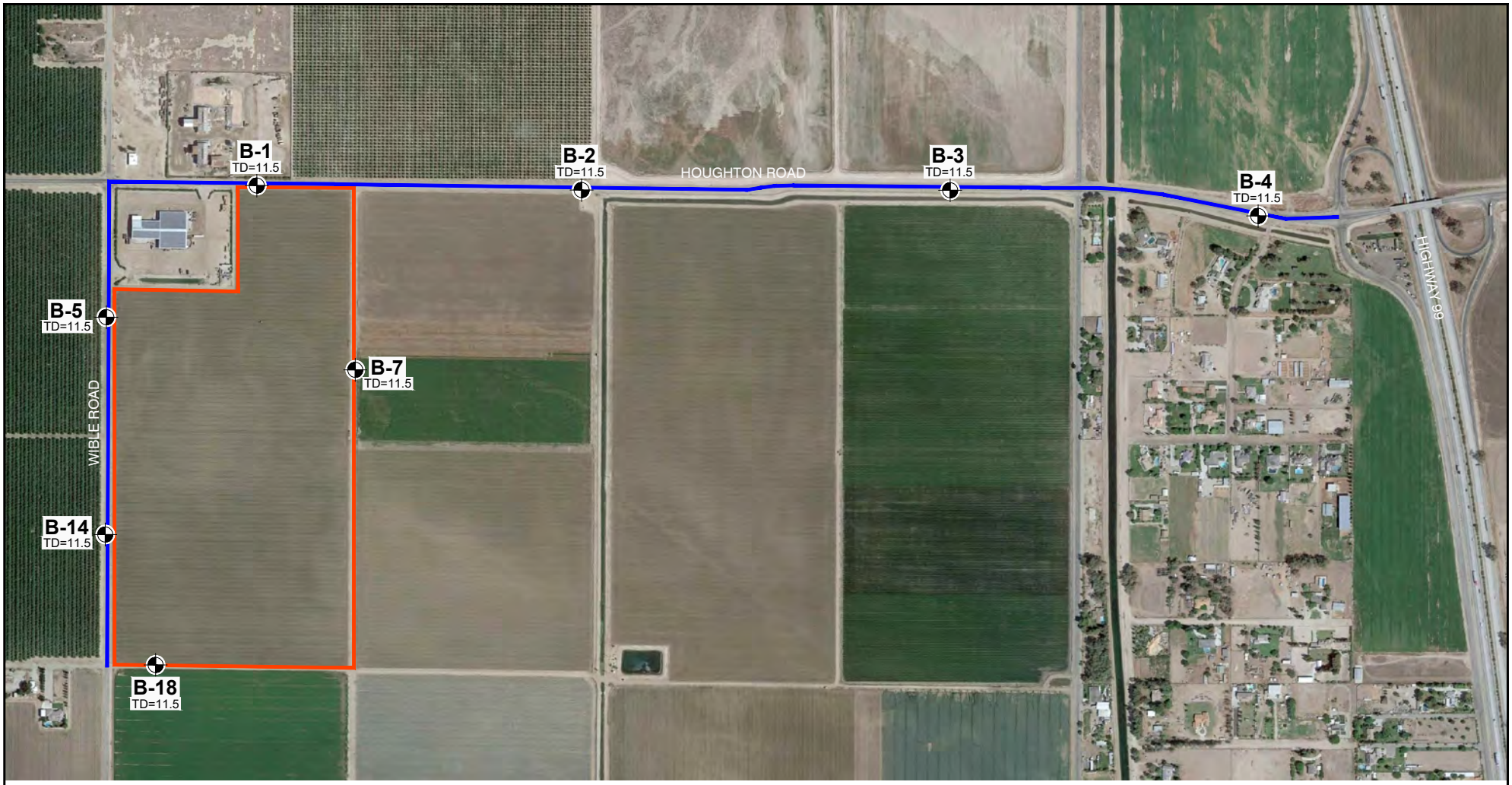
Geotechnical & Environmental Sciences Consultants



LEGEND

SITE BOUNDARY

PROPOSED STREET IMPROVEMENTS

B-18 TD=11.5 BORING; TD=TOTAL DEPTH IN FEET

NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE. I REFERENCE: GOOGLE EARTH, 2021.

N

FEET

0 800 1,600

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FIGURE 2

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SITE AERIAL AND STREET BORING LOCATIONS

BAKERSFIELD WAREHOUSE FACILITY
BAKERSFIELD, CALIFORNIA

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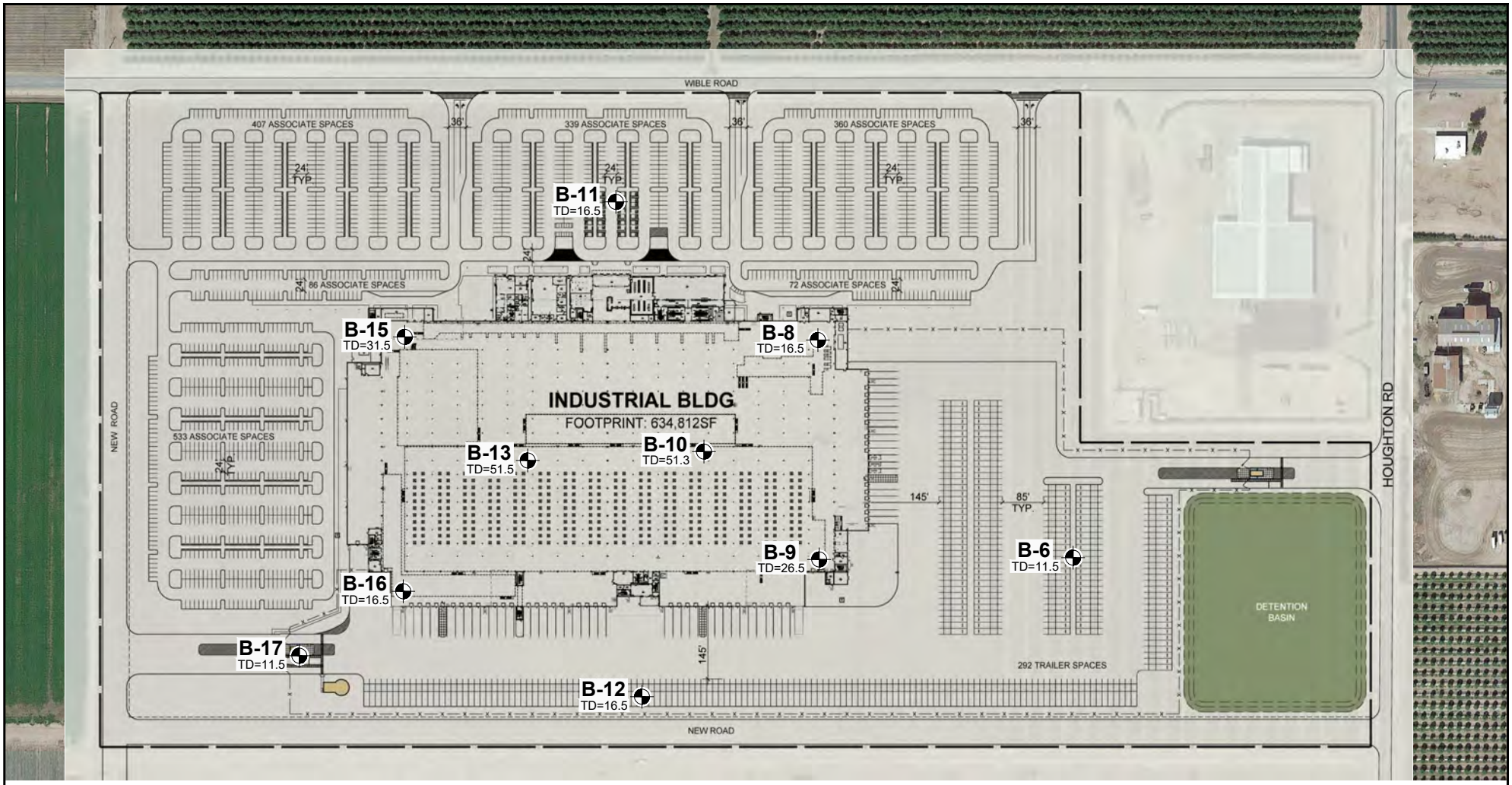

LEGEND

SITE BOUNDARY

B-17 TD=11.5 BORING; TD=TOTAL DEPTH IN FEET

NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE. I REFERENCE: GOOGLE EARTH, 2021.

N

FEET

0 300 600

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FIGURE 3

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SITE PLAN AND BORING LOCATIONS

BAKERSFIELD WAREHOUSE FACILITY
BAKERSFIELD, CALIFORNIA

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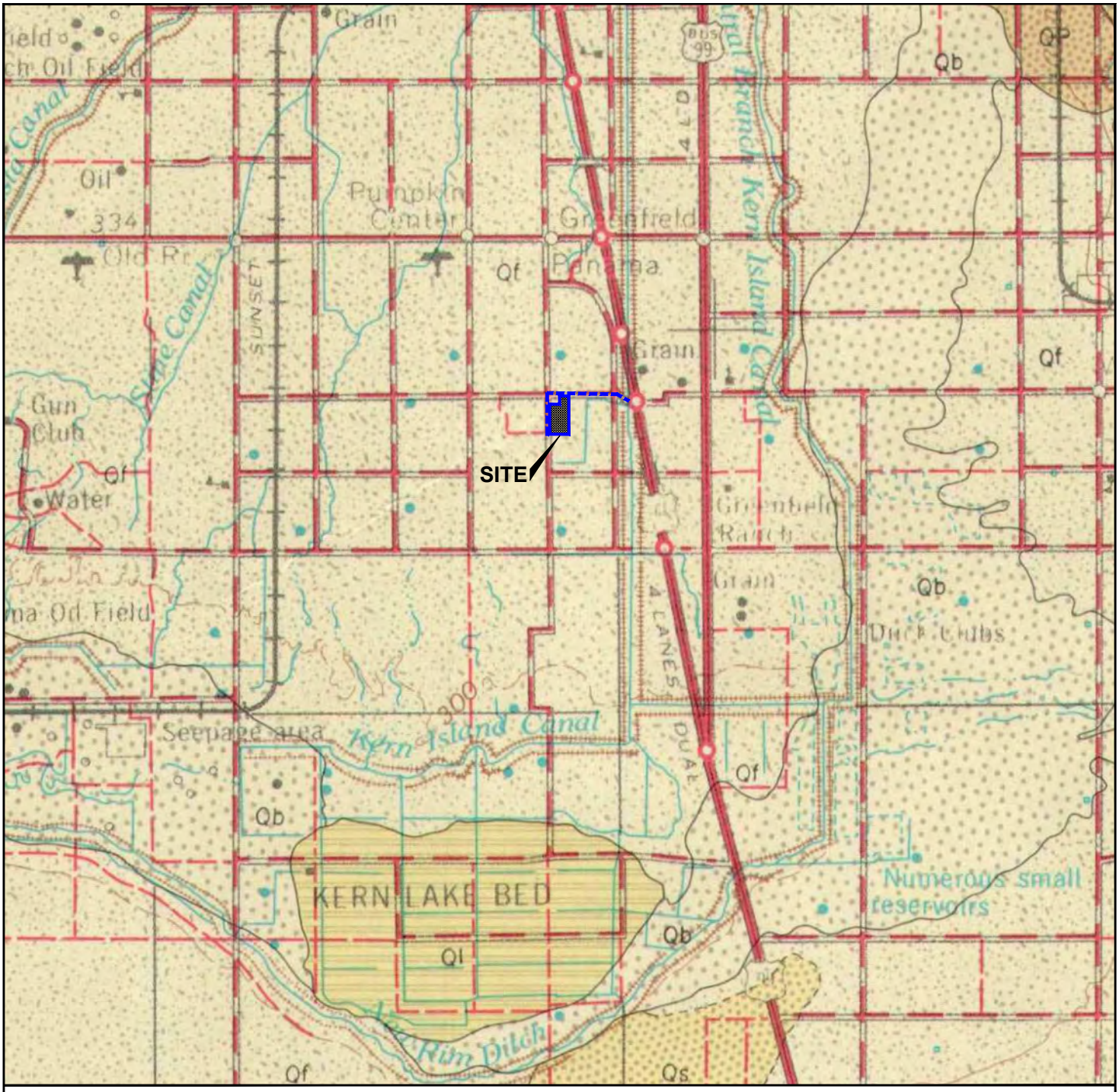

LEGEND

Qf	FAN DEPOSITS (QUATERNARY)		GEOLOGIC CONTACT
Qs	DUNE SAND DEPOSITS (QUATERNARY)		FAULT
Ql	LAKE DEPOSITS (QUATERNARY)		PROPOSED STREET IMPROVEMENTS

NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE. I REFERENCE: ARTHUR R. SMITH, 1964.

N

FEET

0 10,000 20,000

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FIGURE 4

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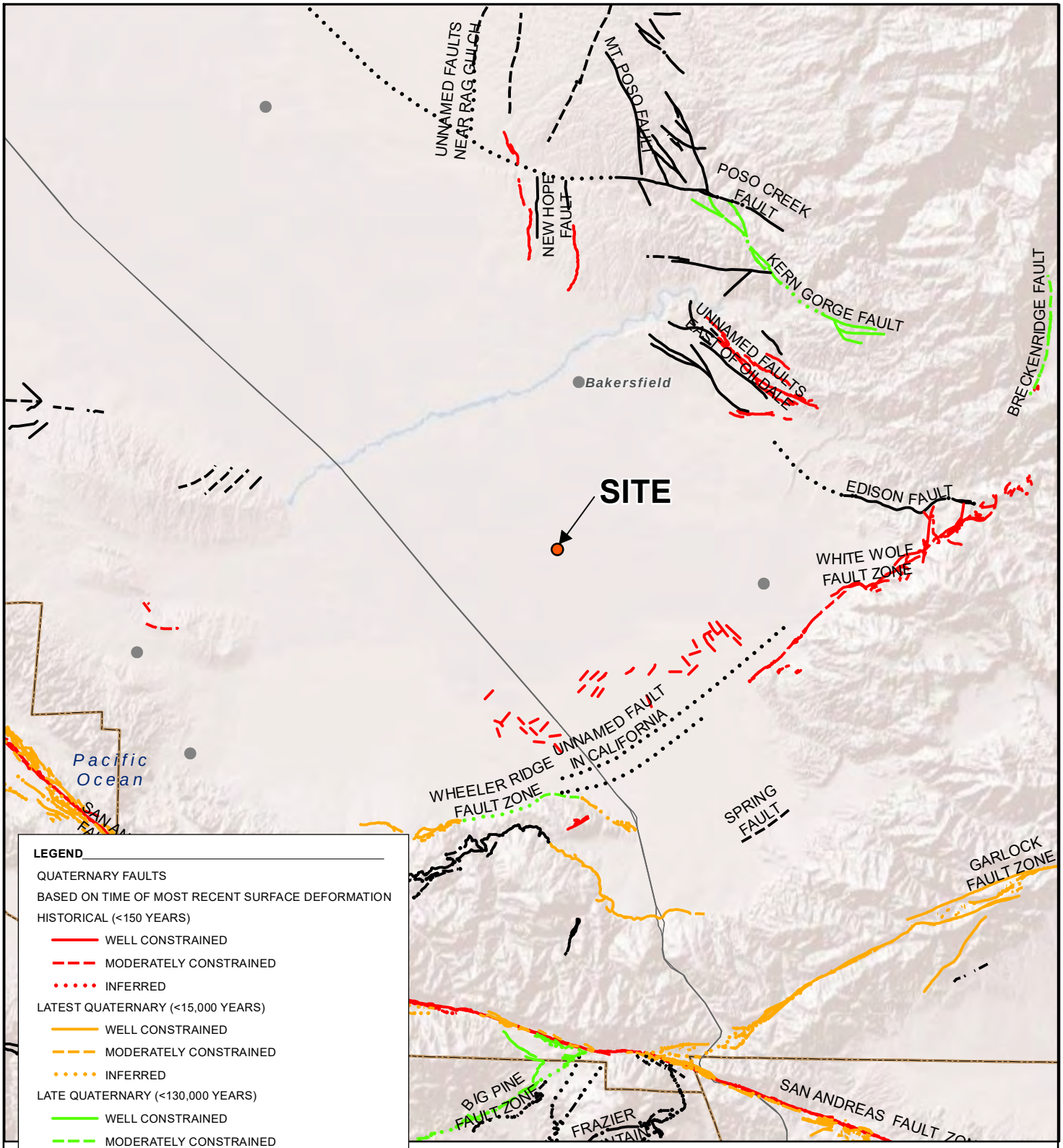
REGIONAL GEOLOGY

BAKERSFIELD WAREHOUSE FACILITY
BAKERSFIELD, CALIFORNIA

211696001 I 9/21



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NOTE: DIRECTIONS, DIMENSIONS AND LOCATIONS ARE APPROXIMATE.

SOURCES: CALIFORNIA GEOLOGICAL SURVEY, ACCESSED AUGUST 23, 2021, AT: https://www.usgs.gov/natural-hazards/earthquake-hazards/faults; ESRI, 2021.

FIGURE 5

FAULT LOCATIONS

BAKERSFIELD WAREHOUSE FACILITY
BAKERSFIELD, CALIFORNIA

211696001 | 9/21

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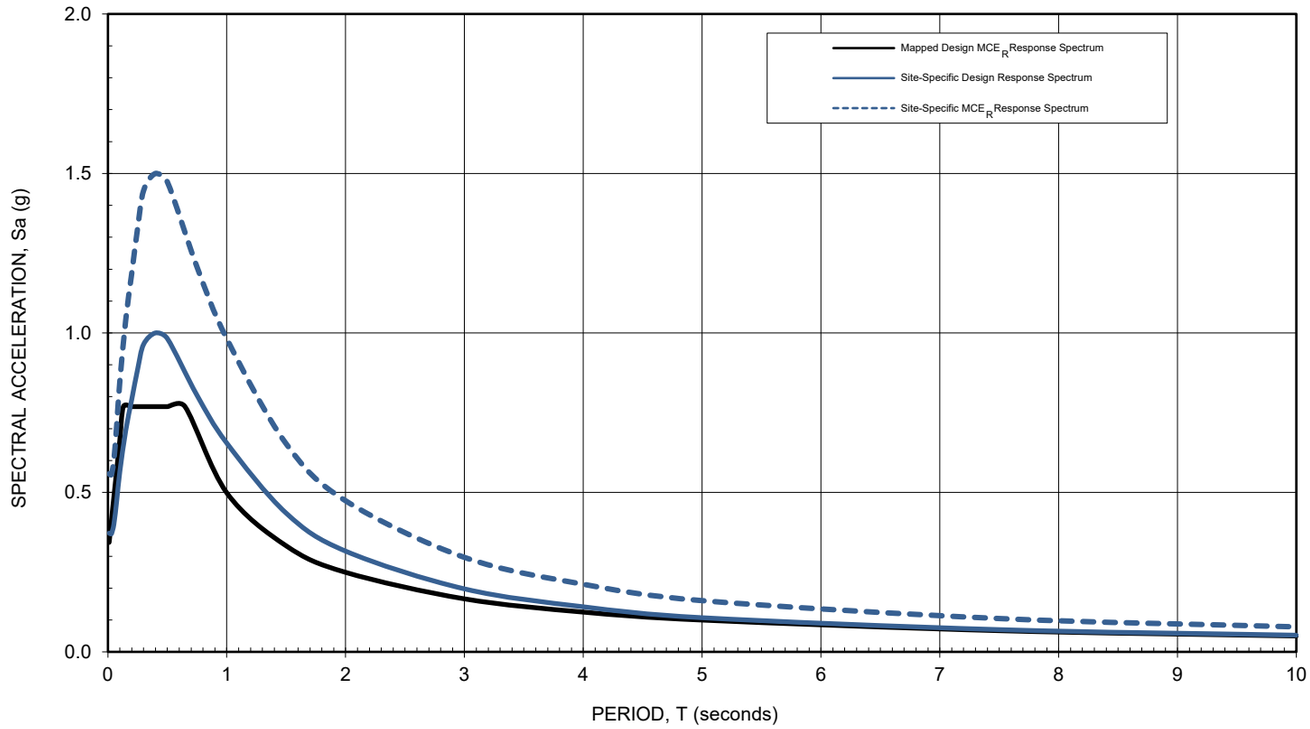
PERIOD (seconds)	SITE-SPECIFIC MCE_R RESPONSE SPECTRUM Sa (g)	SITE-SPECIFIC DESIGN RESPONSE SPECTRUM Sa (g)
0.010	0.558	0.372
0.020	0.555	0.370
0.030	0.556	0.371
0.050	0.600	0.400
0.075	0.717	0.478
0.100	0.848	0.565
0.150	1.042	0.695
0.200	1.186	0.791
0.250	1.329	0.886
0.300	1.446	0.964
0.400	1.500	1.000

PERIOD (seconds)	SITE-SPECIFIC MCE_R RESPONSE SPECTRUM Sa (g)	SITE-SPECIFIC DESIGN RESPONSE SPECTRUM Sa (g)
0.500	1.473	0.982
0.750	1.206	0.804
1.000	0.982	0.655
1.500	0.652	0.435
2.000	0.474	0.316
3.000	0.296	0.197
4.000	0.212	0.141
5.000	0.161	0.107
7.500	0.105	0.070
10.000	0.078	0.052

S_{DS} =	0.900 g	S_{D1} =	0.655 g	S_{MS} =	1.350 g	S_{M1} =	0.982 g	PGA_M =	0.550 g



NOTES:

1 The probabilistic ground motion spectral response accelerations are based on the risk-targeted Maximum Considered Earthquake (MCE_R) having a 2% probability of exceedance in 50 years in the maximum direction using the Chiou & Youngs (2014), Campbell & Bozorgnia (2014), Boore et al. (2014), and Abrahamson et al. (2014) attenuation relationships and the risk coefficients.

2 The deterministic ground motion spectral response accelerations are for the 84th percentile of the geometric mean values in the maximum direction using the Chiou & Youngs (2014), Campbell & Bozorgnia (2014), Boore et al. (2014), and Abrahamson et al. (2014) attenuation relationships for deep soil sites considering a Mw 8.1 event on the San Andreas fault zone located 43.4 kilometers from the site. It conforms with the lower bound limit per ASCE 7-16 Section 21.2.2.

3 The Site-Specific MCE_R Response Spectrum is the lesser of spectral ordinates of deterministic and probabilistic accelerations at each period per ASCE 7-16 Section 21.2.3. The Site-Specific Design Response Spectrum conforms with lower bound limit per ASCE 7-16 Section 21.3.

4 The Mapped Design MCE_R Response Spectrum is computed from mapped spectral ordinates modified for Site Class D (stiff soil profile) per ASCE 7-16 Section 11.4. It is presented for the sake of comparison.

FIGURE 6

ACCELERATION RESPONSE SPECTRA

BAKERSFIELD WAREHOUSE FACILITY
BAKERSFIELD, CALIFORNIA

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APPENDIX A

Boring Logs

APPENDIX A

BORING LOGS

Field Procedure for the Collection of Disturbed Samples
Disturbed soil samples were obtained in the field using the following method.

Bulk Samples
Bulk samples of representative earth materials were obtained from the exploratory borings. The samples were bagged and transported to the laboratory for testing.

The Standard Penetration Test (SPT) Sampler
Disturbed drive samples of earth materials were obtained by means of a Standard Penetration Test sampler. The sampler is composed of a split barrel with an external diameter of 2 inches and an unlined internal diameter of 13/8 inches. The sampler was driven into the ground 12 to 18 inches with a 140-pound hammer falling freely from a height of 30 inches in general accordance with ASTM D 1586. The blow counts were recorded for every 6 inches of penetration; the blow counts reported on the logs are those for the last 12 inches of penetration. Soil samples were observed and removed from the sampler, bagged, sealed and transported to the laboratory for testing.

Undisturbed Samples
Relatively undisturbed soil samples were obtained in the field using the following method.

The Modified Split-Barrel Drive Sampler
The sampler, with an external diameter of 3 inches, was lined with 1-inch-long, thin brass rings with inside diameters of approximately 2.4 inches. The sample barrel was driven into the ground with the weight of a hammer in general accordance with ASTM D 3550. The driving weight was permitted to fall freely. The approximate length of the fall, the weight of the hammer, and the number of blows per foot of driving are presented on the boring logs as an index to the relative resistance of the materials sampled. The samples were removed from the sample barrel in the brass rings, sealed, and transported to the laboratory for testing.

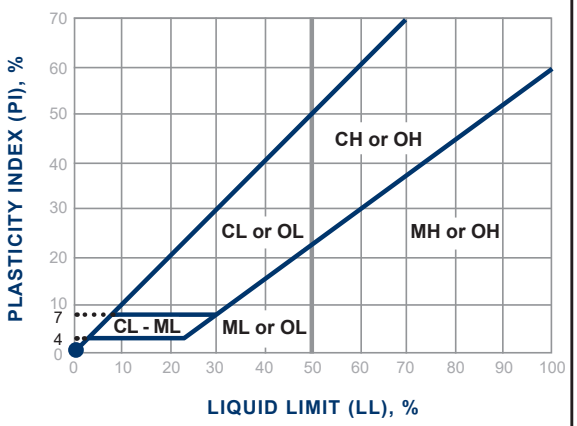
Soil Classification Chart Per ASTM D 2488

Primary Divisions			Secondary Divisions	
			Group Symbol	Group Name
COARSE-GRAINED SOILS more than 50% retained on No. 4 sieve	**GRAVEL** more than 50% of coarse fraction retained on No. 4 sieve	CLEAN GRAVEL less than 5% fines	GW	well-graded GRAVEL
			GP	poorly graded GRAVEL
		GRAVEL with DUAL CLASSIFICATIONS 5% to 12% fines	GW-GM	well-graded GRAVEL with silt
			GP-GM	poorly graded GRAVEL with silt
			GW-GC	well-graded GRAVEL with clay
			GP-GC	poorly graded GRAVEL with clay
		GRAVEL with FINES more than 12% fines	GM	silty GRAVEL
			GC	clayey GRAVEL
			GC-GM	silty, clayey GRAVEL
	SAND 50% or more of coarse fraction passes No. 4 sieve	CLEAN SAND less than 5% fines	SW	well-graded SAND
			SP	poorly graded SAND
		SAND with DUAL CLASSIFICATIONS 5% to 12% fines	SW-SM	well-graded SAND with silt
			SP-SM	poorly graded SAND with silt
			SW-SC	well-graded SAND with clay
			SP-SC	poorly graded SAND with clay
		SAND with FINES more than 12% fines	SM	silty SAND
			SC	clayey SAND
			SC-SM	silty, clayey SAND
FINE-GRAINED SOILS 50% or more passes No. 200 sieve	**SILT and CLAY** liquid limit less than 50%	INORGANIC	CL	lean CLAY
			ML	SILT
			CL-ML	silty CLAY
		ORGANIC	OL (PI > 4)	organic CLAY
			OL (PI < 4)	organic SILT
	SILT and CLAY liquid limit 50% or more	INORGANIC	CH	fat CLAY
			MH	elastic SILT
		ORGANIC	OH (plots on or above "A"-line)	organic CLAY
			OH (plots below "A"-line)	organic SILT
	Highly Organic Soils		PT	Peat

Grain Size

Description		Sieve Size	Grain Size	Approximate Size
Boulders		> 12"	> 12"	Larger than basketball-sized
Cobbles		3 - 12"	3 - 12"	Fist-sized to basketball-sized
Gravel	Coarse	3/4 - 3"	3/4 - 3"	Thumb-sized to fist-sized
	Fine	#4 - 3/4"	0.19 - 0.75"	Pea-sized to thumb-sized
Sand	Coarse	#10 - #4	0.079 - 0.19"	Rock-salt-sized to pea-sized
	Medium	#40 - #10	0.017 - 0.079"	Sugar-sized to rock-salt-sized
	Fine	#200 - #40	0.0029 - 0.017"	Flour-sized to sugar-sized
Fines		Passing #200	< 0.0029"	Flour-sized and smaller

Plasticity Chart



Apparent Density - Coarse-Grained Soil

Apparent Density	Spooling Cable or Cathead		Automatic Trip Hammer	
	SPT (blows/foot)	Modified Split Barrel (blows/foot)	SPT (blows/foot)	Modified Split Barrel (blows/foot)
Very Loose	≤ 4	≤ 8	≤ 3	≤ 5
Loose	5 - 10	9 - 21	4 - 7	6 - 14
Medium Dense	11 - 30	22 - 63	8 - 20	15 - 42
Dense	31 - 50	64 - 105	21 - 33	43 - 70
Very Dense	> 50	> 105	> 33	> 70

Consistency - Fine-Grained Soil

Consis-tency	Spooling Cable or Cathead		Automatic Trip Hammer	
	SPT (blows/foot)	Modified Split Barrel (blows/foot)	SPT (blows/foot)	Modified Split Barrel (blows/foot)
Very Soft	< 2	< 3	< 1	< 2
Soft	2 - 4	3 - 5	1 - 3	2 - 3
Firm	5 - 8	6 - 10	4 - 5	4 - 6
Stiff	9 - 15	11 - 20	6 - 10	7 - 13
Very Stiff	16 - 30	21 - 39	11 - 20	14 - 26
Hard	> 30	> 39	> 20	> 26

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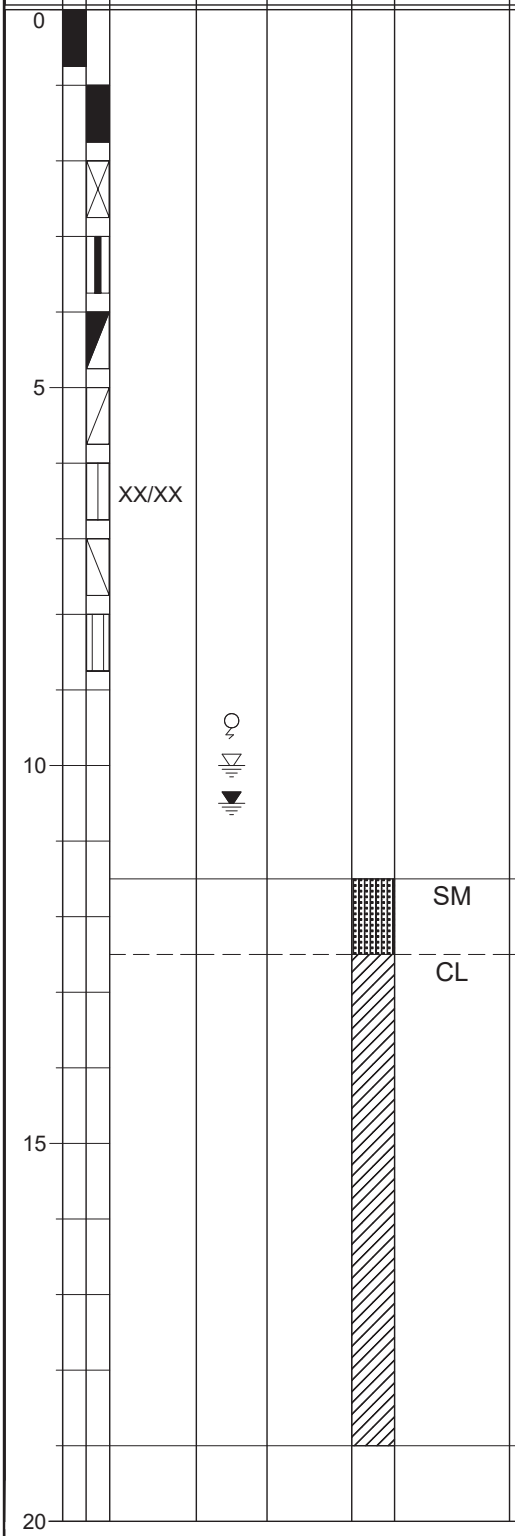
USCS METHOD OF SOIL CLASSIFICATION

BORING LOG EXPLANATION SHEET



Bulk sample.

Modified split-barrel drive sampler.

No recovery with modified split-barrel drive sampler.

Sample retained by others.

Standard Penetration Test (SPT).

No recovery with a SPT.

Shelby tube sample. Distance pushed in inches/length of sample recovered in inches.

No recovery with Shelby tube sampler.

Continuous Push Sample.

Seepage.

Groundwater encountered during drilling.

Groundwater measured after drilling.

SM

MAJOR MATERIAL TYPE (SOIL):

Solid line denotes unit change.

CL

Dashed line denotes material change.

Attitudes: Strike/Dip
b: Bedding
c: Contact
j: Joint
f: Fracture
F: Fault
cs: Clay Seam
s: Shear
bss: Basal Slide Surface
sf: Shear Fracture
sz: Shear Zone
sbs: Shear Bedding Surface

The total depth line is a solid line that is drawn at the bottom of the boring.

DATE DRILLED 7/15/21 BORING NO. B-1

GROUND ELEVATION 330' ± (MSL) SHEET 1 OF 1

METHOD OF DRILLING 8" Hollow-Stem Auger (2R Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 18"

SAMPLED BY VAM LOGGED BY VAM REVIEWED BY SG

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0							ASPHALT CONCRETE: Approximately 5 inches thick.
						SM	FILL: Light brown, moist, loose, silty SAND.
						SM	ALLUVIUM: Dark brown, moist, loose, silty SAND.
		12	6.6	106.4			Brown.
10		18					Light brown; medium dense.
							Total Depth = 11.5 feet. Groundwater not encountered during drilling. Backfilled with two-sack cement grout and patched with hot asphalt on 7/19/21.
							Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.
							The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.
20							
30							
40							

FIGURE A- 1

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BAKERSFIELD WAREHOUSE FACILITY
BAKERSFIELD, CALIFORNIA

DATE DRILLED 7/15/21 BORING NO. B-2

GROUND ELEVATION 330' ± (MSL) SHEET 1 OF 1

METHOD OF DRILLING 8" Hollow-Stem Auger (2R Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 18"

SAMPLED BY VAM LOGGED BY VAM REVIEWED BY SG

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0						SM	ASPHALT CONCRETE: Approximately 6 inches thick.
						SM	FILL: Brown, moist, loose, silty SAND. ALLUVIUM: Brown, moist, loose, silty SAND; iron oxide staining.
		14	4.2	106.5			
10		11				ML	Dark brown, moist, loose, sandy SILT. Total Depth = 11.5 feet. Groundwater not encountered during drilling. Backfilled with two-sack cement grout and patched with hot asphalt on 7/19/21.
20							Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report. The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.
30							
40							

FIGURE A- 2

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BAKERSFIELD WAREHOUSE FACILITY
BAKERSFIELD, CALIFORNIA

211696001 | 9/21

DATE DRILLED 7/15/21 BORING NO. B-3

GROUND ELEVATION 330' ± (MSL) SHEET 1 OF 1

METHOD OF DRILLING 8" Hollow-Stem Auger (2R Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 18"

SAMPLED BY VAM LOGGED BY VAM REVIEWED BY SG

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0						SM	ASPHALT CONCRETE: Approximately 6 inches thick.
						ML	FILL: Light brown, moist, medium dense, silty SAND.
						SM	ALLUVIUM: Brown, moist, medium dense, sandy SILT.
							Brown, moist, medium dense, silty SAND.
		19	3.3	104.1			Light brown.
						ML	Brown, moist, medium dense, sandy SILT.
10		22				SM	Brown, moist, medium dense, silty SAND.
							Total Depth = 11.5 feet.
							Groundwater not encountered during drilling.
							Backfilled with two-sack cement grout and patched with hot asphalt on 7/19/21.
20							Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.
							The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.
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FIGURE A- 3

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DATE DRILLED 7/15/21 BORING NO. B-4

GROUND ELEVATION 330' ± (MSL) SHEET 1 OF 1

METHOD OF DRILLING 8" Hollow-Stem Auger (2R Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 18"

SAMPLED BY VAM LOGGED BY VAM REVIEWED BY SG

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0							ASPHALT CONCRETE: Approximately 7 inches thick.
						SM	FILL: Brown, moist, medium dense, silty SAND; sandy silt interlayers.
						SM	ALLUVIUM: Brown, moist, medium dense, silty SAND.
		15					
10		15	23.0	98.5			Caliche veins.
							Total Depth = 11.5 feet. Groundwater not encountered during drilling. Backfilled with two-sack cement grout and patched with hot asphalt on 7/19/21.
							Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.
							The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.
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FIGURE A- 4

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DATE DRILLED 7/14/21 BORING NO. B-5

GROUND ELEVATION 330' ± (MSL) SHEET 1 OF 1

METHOD OF DRILLING 8" Hollow-Stem Auger (2R Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 18"

SAMPLED BY VAM LOGGED BY VAM REVIEWED BY SG

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0							ASPHALT CONCRETE:
						SM	Approximately 5 inches thick.
							FILL:
						SM	Reddish brown, moist, loose, silty SAND.
							ALLUVIUM:
							Reddish brown, moist, loose, silty SAND.
		12	21.8	105.0			
						SC	Brown, moist, loose, clayey SAND.
10		12					
							Total Depth = 11.5 feet.
							Groundwater not encountered during drilling.
							Backfilled with two-sack cement grout and patched with hot asphalt on 7/19/21.
							Notes:
							Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.
							The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.
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DATE DRILLED 8/11/21 BORING NO. B-6

GROUND ELEVATION 330' ± (MSL) SHEET 1 OF 1

METHOD OF DRILLING 8" Hollow-Stem Auger (2R Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY GM LOGGED BY GM REVIEWED BY SG

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0						SM	FILL (TILLED SOIL): Grayish brown, moist, medium dense, silty SAND.
						SM	ALLUVIUM: Grayish brown, moist, medium dense, silty SAND.
		15	10.7	108.8			
10		20					
							Total Depth = 11.5 feet. Groundwater not encountered during drilling. Backfilled with on-site soil on 8/11/21. Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report. The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.
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DATE DRILLED 7/15/21 BORING NO. B-7

GROUND ELEVATION 330' ± (MSL) SHEET 1 OF 1

METHOD OF DRILLING 8" Hollow-Stem Auger (2R Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 18"

SAMPLED BY VAM LOGGED BY VAM REVIEWED BY SG

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0						SM	FILL: Brown, moist, loose, silty SAND.
						SM	ALLUVIUM: Brown, moist, loose, silty SAND.
						ML	Dark brown, moist, loose, sandy SILT.
		9				SM	Dark brown, moist, loose, silty SAND.
10		13					
20							Total Depth = 11.5 feet. Groundwater not encountered during drilling. Backfilled with on-site soil on 7/15/21.
30							Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report. The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.
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FIGURE A- 7

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DATE DRILLED 8/10/21 BORING NO. B-8

GROUND ELEVATION 330' ± (MSL) SHEET 1 OF 1

METHOD OF DRILLING 8" Hollow-Stem Auger (2R Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY GM LOGGED BY GM REVIEWED BY SG

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0						SM	FILL (TILLED SOIL): Olive brown, moist, medium dense, silty SAND; trace rootlets.
						SP	ALLUVIUM: Grayish brown, moist, medium dense, poorly graded SAND.
		15	20.4	102.3		ML	Reddish brown, moist, medium dense, sandy SILT.
10		14				SC	Reddish brown, moist, loose, clayey SAND.
		13				SM	Reddish brown, moist, medium dense, silty SAND.
20							Total Depth = 16.5 feet. Groundwater not encountered during drilling. Backfilled with on-site oil on 8/10/21. Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report. The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.
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FIGURE A- 8

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DATE DRILLED 8/10/21 BORING NO. B-9

GROUND ELEVATION 330' ± (MSL) SHEET 1 OF 1

METHOD OF DRILLING 8" Hollow-Stem Auger (2R Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY GM LOGGED BY GM REVIEWED BY SG

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0						SM	FILL (TILLED SOIL): Olive brown, moist, medium dense, silty SAND; trace rootlets.
						SM	ALLUVIUM: Olive brown, moist, loose, silty SAND.
						SP	Olive brown, moist, loose, poorly graded SAND.
		14				SM	Olive brown, moist, loose, silty SAND.
10		11	20.9	99.3			
		13					
20		16					Medium dense.
						CL	Olive brown, moist, very stiff, lean CLAY.
						SM	Olive brown, moist, medium dense, silty SAND.
		39					
30							Total Depth = 26.5 feet. Groundwater not encountered during drilling. Backfilled with on-site soil on 8/10/21. Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report. The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.
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FIGURE A- 9

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DATE DRILLED 8/10/21 BORING NO. B-10

GROUND ELEVATION 330' ± (MSL) SHEET 1 OF 2

METHOD OF DRILLING 8" Hollow-Stem Auger (2R Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY GM LOGGED BY GM REVIEWED BY SG

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0						SM	FILL (TILLED SOIL): Grayish brown, moist, medium dense, silty SAND; trace rootlets.
						SM	ALLUVIUM: Grayish brown, moist, medium dense, silty SAND.
		18	6.1	104.0			
10		14					Loose.
		12					Medium dense.
						SP-SM	Grayish brown, moist, medium dense, poorly graded SAND with silt.
						SM	Grayish brown, moist, medium dense, silty SAND.
20		32					
						CL	Olive brown, moist, firm, lean CLAY.
		5					
						SM	Olive brown, moist, loose, silty SAND.
						SP	Grayish brown, moist, very dense, poorly graded SAND.
30		78					
		18					Medium dense.
40							

FIGURE A- 10

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DATE DRILLED 8/10/21 BORING NO. B-10

GROUND ELEVATION 330' ± (MSL) SHEET 2 OF 2

METHOD OF DRILLING 8" Hollow-Stem Auger (2R Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY GM LOGGED BY GM REVIEWED BY SG

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
40		74/11"				SP	ALLUVIUM: (Continued) Very light gray, moist, very dense, poorly graded SAND.
		33					Dense.
50		87/9"					Very dense.
							Total Depth = 51.3 feet. Groundwater not encountered during drilling. Backfilled with on-site soil on 8/10/21. Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report. The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.
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70							
80							

FIGURE A- 11

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DATE DRILLED 8/10/21 BORING NO. B-11

GROUND ELEVATION 330' ± (MSL) SHEET 1 OF 1

METHOD OF DRILLING 8" Hollow-Stem Auger (2R Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY GM LOGGED BY GM REVIEWED BY SG

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0						SP	FILL (TILLED SOIL): Olive brown, moist, medium dense, poorly graded SAND; trace rootlets.
						SP	ALLUVIUM: Olive brown, moist, medium dense, poorly graded SAND.
		18					
10		16	3.2	89.4			
		10					
20							Total Depth = 16.5 feet. Groundwater not encountered during drilling. Backfilled with on-site soil on 8/10/21. Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report. The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.
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FIGURE A- 12

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DATE DRILLED 8/11/21 BORING NO. B-12

GROUND ELEVATION 330' ± (MSL) SHEET 1 OF 1

METHOD OF DRILLING 8" Hollow-Stem Auger (2R Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY GM LOGGED BY GM REVIEWED BY SG

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0						SM	FILL (TILLED SOIL): Grayish brown, moist, medium dense, silty SAND.
		12	6.4	111.2		SM	ALLUVIUM: Grayish brown, moist, loose, silty SAND.
10		11					
		10				SC	Grayish brown, moist, medium dense, clayey SAND.
20							Total Depth = 16.5 feet. Groundwater not encountered during drilling. Backfilled with on-site soil on 8/11/21.
30							Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.
40							The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.

DATE DRILLED 8/11/21 BORING NO. B-13

GROUND ELEVATION 330' ± (MSL) SHEET 1 OF 2

METHOD OF DRILLING 8" Hollow-Stem Auger (2R Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY GM LOGGED BY GM REVIEWED BY SG

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0						SM	FILL (TILLED SOIL): Grayish brown, moist, medium dense, silty SAND.
						SM	ALLUVIUM: Grayish brown, moist, medium dense, silty SAND.
		15	11.9	109.3			
10		14					Loose.
						ML	Grayish brown, moist, loose, sandy SILT.
		13	19.8	106.4			
20		7					
						CL	Olive brown, moist, stiff, lean CLAY.
		30				SM	Yellowish brown, moist, medium dense, silty SAND.
30		23				SP	Yellowish brown, moist, dense, poorly graded SAND.
						SM	Gray, moist, dense, silty SAND.
		43				SP	Yellowish brown, moist, dense, poorly graded SAND.
40							

FIGURE A- 14

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DATE DRILLED 8/11/21 BORING NO. B-13

GROUND ELEVATION 330' ± (MSL) SHEET 2 OF 2

METHOD OF DRILLING 8" Hollow-Stem Auger (2R Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY GM LOGGED BY GM REVIEWED BY SG

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
40		32				SP	ALLUVIUM: (Continued) Gray, moist, dense, poorly graded SAND.
		50/6"					Very dense.
50		36					
							Total Depth = 51.5 feet. Groundwater not encountered during drilling. Backfilled with on-site soil on 8/11/21. Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report. The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.
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80							

FIGURE A- 15

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DATE DRILLED 7/15/21 BORING NO. B-14

GROUND ELEVATION 330' ± (MSL) SHEET 1 OF 1

METHOD OF DRILLING 8" Hollow-Stem Auger (2R Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 18"

SAMPLED BY VAM LOGGED BY VAM REVIEWED BY SG

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0						SM	ASPHALT CONCRETE: Approximately 5 inches thick.
						ML	AGGREGATE BASE: Dark brown, moist, dense, silty SAND with gravel; approximately 2 inches thick.
						SM	FILL: Dark brown, moist, loose, sandy SILT.
		13					ALLUVIUM: Dark brown, moist, loose, silty SAND.
						ML	Brown, moist, loose, sandy SILT.
10		15				SM	Brown, moist, medium dense, silty SAND.
							Total Depth = 11.5 feet. Groundwater not encountered during drilling. Backfilled with two-sack cement grout and patched with hot asphalt on 7/19/21.
20							Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.
							The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.
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FIGURE A- 16

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DATE DRILLED 8/10/21 BORING NO. B-15

GROUND ELEVATION 330' ± (MSL) SHEET 1 OF 1

METHOD OF DRILLING 8" Hollow-Stem Auger (2R Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY GM LOGGED BY GM REVIEWED BY SG

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0						SM	FILL (TILLED SOIL): Olive brown, moist, loose, silty SAND.
						SM	ALLUVIUM: Olive brown, moist, loose, silty SAND.
		14					
10		10	21.5	103.8			
		9				ML	Olive brown, moist, medium dense, sandy SILT.
						CL	Olive brown, moist, stiff, lean CLAY.
20		12				SM	Olive brown, moist, loose, silty SAND.
		7				CL	Olive brown, moist, stiff, lean CLAY.
						SP	Yellowish brown, moist, dense, poorly graded SAND.
30		63					
							Total Depth = 31.5 feet. Groundwater not encountered during drilling. Backfilled with on-site soil on 8/10/21.
40							

Notes:
Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.

The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.

FIGURE A- 17

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DATE DRILLED 8/10/21 BORING NO. B-16

GROUND ELEVATION 330' ± (MSL) SHEET 1 OF 1

METHOD OF DRILLING 8" Hollow-Stem Auger (2R Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY GM LOGGED BY GM REVIEWED BY SG

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0						SP	FILL (TILLED SOIL): Olive brown, moist, medium dense, poorly graded SAND.
		15	4.3	94.7		SP	ALLUVIUM: Olive brown, moist, medium dense, poorly graded SAND.
10		17					
		8					
20							Total Depth = 16.5 feet. Groundwater not encountered during drilling. Backfilled with on-site soil on 8/10/21. Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report. The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.
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DATE DRILLED 8/10/21 BORING NO. B-17

GROUND ELEVATION 330' ± (MSL) SHEET 1 OF 1

METHOD OF DRILLING 8" Hollow-Stem Auger (2R Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"

SAMPLED BY GM LOGGED BY GM REVIEWED BY SG

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0						SP	FILL (TILLED SOIL): Olive brown, moist, medium dense, poorly graded SAND.
						SP	ALLUVIUM: Olive brown, moist, medium dense, poorly graded SAND.
		17					
10		13	4.3	96.3			Loose.
							Total Depth = 11.5 feet. Groundwater not encountered during drilling. Backfilled with on-site soil on 8/10/21. Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report. The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.
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FIGURE A- 19

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DATE DRILLED 7/14/21 BORING NO. B-18

GROUND ELEVATION 330' ± (MSL) SHEET 1 OF 1

METHOD OF DRILLING 8" Hollow-Stem Auger (2R Drilling)

DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 18"

SAMPLED BY VAM LOGGED BY VAM REVIEWED BY SG

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0						SM	FILL: Dark brown, moist, loose, silty SAND.
						SM	ALLUVIUM: Dark brown, moist, loose, silty SAND.
		12	16.8	109.4		CL	Brown, moist, stiff, lean CLAY.
						SM	Brown, moist, loose, silty SAND.
10		11					
							Total Depth = 11.5 feet. Groundwater not encountered during drilling. Backfilled with on-site soil on 7/14/21.
							Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.
							The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.
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FIGURE A- 20

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APPENDIX B

Laboratory Testing

APPENDIX B

LABORATORY TESTING

Classification
Soils were visually and texturally classified in accordance with the Unified Soil Classification System (USCS) in general accordance with ASTM D 2488. Soil classifications are indicated on the logs of the exploratory borings in Appendix A.

In-Place Moisture and Density Tests
The moisture content and dry density of relatively undisturbed samples obtained from the exploratory borings were evaluated in general accordance with ASTM D 2937. The test results are presented on the logs of the exploratory borings in Appendix A.

200 Wash
An evaluation of the percentage of particles passing the No. 200 sieve in selected soil samples was performed in general accordance with ASTM D 1140. The results of the tests are summarized on Figures B-1 and B-2.

Consolidation Tests
A consolidation test was performed on a selected relatively undisturbed soil sample in general accordance with ASTM D 2435. The sample was inundated during testing to represent adverse field conditions. The percent of consolidation for each load cycle was recorded as a ratio of the amount of vertical compression to the original height of the sample. The results of the test are summarized on Figure B-3.

Direct Shear Tests
Direct shear tests were performed on remolded and relatively undisturbed samples in general accordance with ASTM D 3080 to evaluate the shear strength characteristics of the selected materials. The samples were inundated during shearing to represent adverse field conditions. The results are shown on Figures B-4 through B-6.

Proctor Density Tests
The maximum dry density and optimum moisture content of a selected representative soil sample was evaluated using the Modified Proctor method in general accordance with ASTM D 1557. The results of this test are summarized on Figure B-7.

R-Value
The resistance value, or R-value, for site soils was evaluated in general accordance with California Test (CT) 301. A sample was prepared and evaluated for exudation pressure and expansion pressure. The equilibrium R-value is reported as the lesser or more conservative of the two calculated results. The test results are shown on Figure B-8.

Soil Corrosivity Tests
Soil pH and minimum resistivity tests were performed on a representative sample in general accordance with CT 643. The chloride content of the selected sample was evaluated in general accordance with CT 422. The sulfate content of the selected sample was evaluated in general accordance with CT 417. The test results are presented on Figure B-9.

SAMPLE LOCATION	SAMPLE DEPTH (ft)	DESCRIPTION	PERCENT PASSING NO. 4	PERCENT PASSING NO. 200	USCS (TOTAL SAMPLE)
B-1	0.4-4.5	SILTY SAND	100	32	SM
B-2	5.0-6.5	SILTY SAND	100	37	SM
B-3	6.0-7.0	SILTY SAND	100	43	SM
B-6	5.0-6.5	SILTY SAND	100	27	SM
B-7	5.0-6.0	SANDY SILT	100	57	ML
B-8	5.0-6.5	SANDY SILT	100	64	ML
B-9	0.0-4.0	SILTY SAND	100	41	SM
B-10	5.0-6.5	SILTY SAND	100	17	SM
B-10	16.0-16.5	POORLY GRADED SAND WITH SILT	100	9	SP-SM

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 1140

FIGURE B-1

NO. 200 SIEVE ANALYSIS TEST RESULTS

BAKERSFIELD WAREHOUSE FACILITY
BAKERSFIELD, CALIFORNIA

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants

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SAMPLE LOCATION	SAMPLE DEPTH (ft)	DESCRIPTION	PERCENT PASSING NO. 4	PERCENT PASSING NO. 200	USCS (TOTAL SAMPLE)
B-11	5.0-6.5	POORLY GRADED SAND	100	4	SP
B-12	5.0-6.5	SILTY SAND	100	16	SM
B-13	5.0-6.5	SILTY SAND	100	38	SM
B-13	15.0-16.5	SANDY SILT	100	55	ML
B-14	5.0-6.5	SILTY SAND	99	29	SM
B-16	10.0-11.5	POORLY GRADED SAND	100	3	SP
B-17	5.0-6.5	POORLY GRADED SAND	100	4	SP
B-18	0.0-5.0	SILTY SAND	100	13	SM

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 1140

FIGURE B-2

NO. 200 SIEVE ANALYSIS TEST RESULTS

BAKERSFIELD WAREHOUSE FACILITY
BAKERSFIELD, CALIFORNIA

211696001 | 9/21

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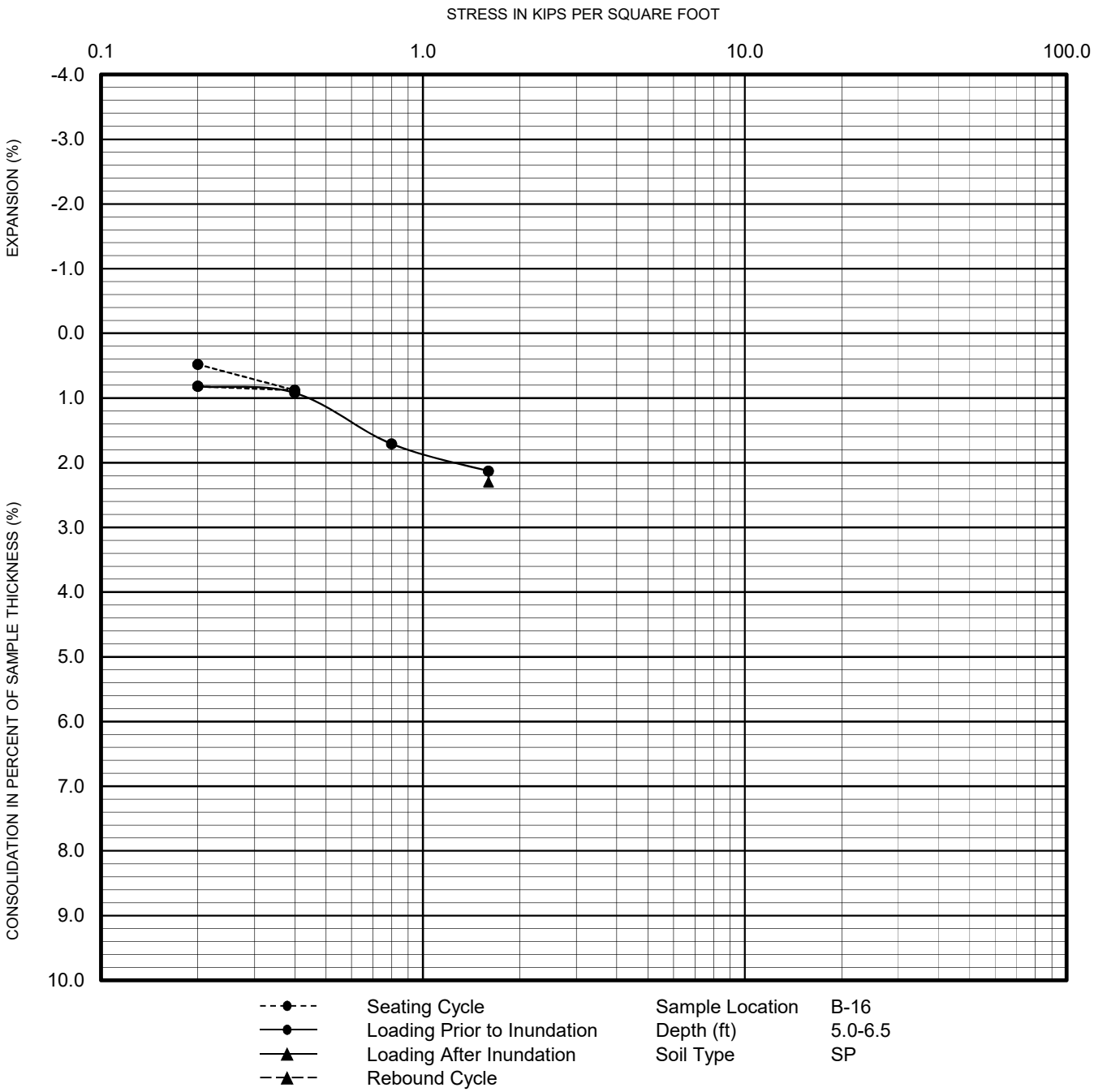

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 2435

FIGURE B-3

CONSOLIDATION TEST RESULTS

BAKERSFIELD WAREHOUSE FACILITY
BAKERSFIELD, CALIFORNIA

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants

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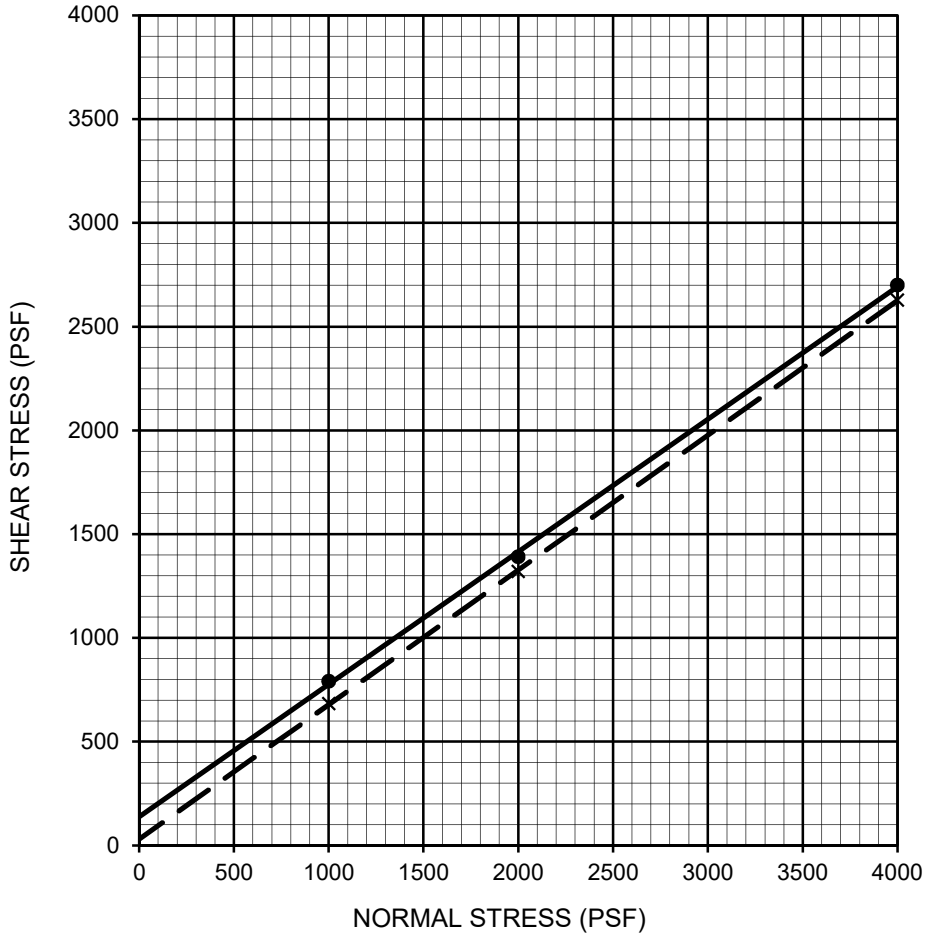

Description	Symbol	Sample Location	Depth (ft)	Shear Strength	Cohesion (psf)	Friction Angle (degrees)	Soil Type
SILTY SAND	—●—	B-9	0.0-4.0	Peak	138	33	SM
SILTY SAND	– – X – –	B-9	0.0-4.0	Ultimate	30	33	SM

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 3080 ON A SAMPLE REMOLDED TO 90% RELATIVE COMPACTION

FIGURE B-4

DIRECT SHEAR TEST RESULTS

BAKERSFIELD WAREHOUSE FACILITY
BAKERSFIELD, CALIFORNIA

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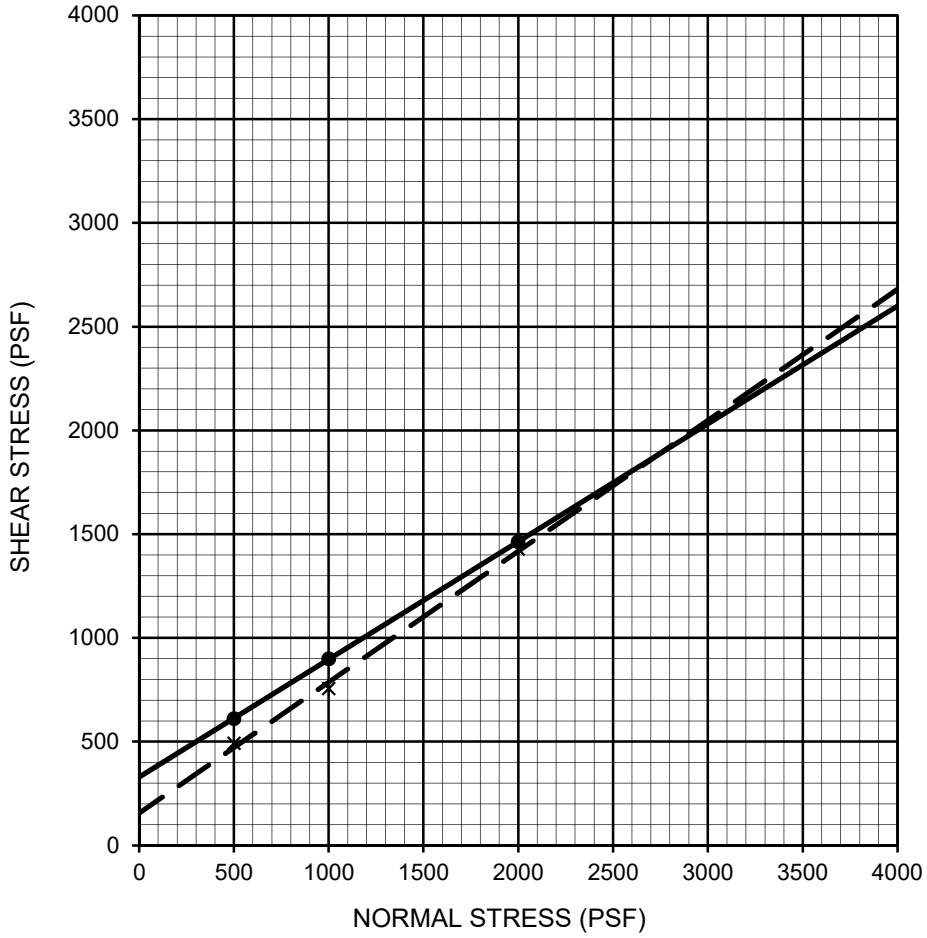

Description	Symbol	Sample Location	Depth (ft)	Shear Strength	Cohesion (psf)	Friction Angle (degrees)	Soil Type
SILTY SAND	—●—	B-13	5.0-6.5	Peak	330	30	SM
SILTY SAND	– – X – –	B-13	5.0-6.5	Ultimate	156	32	SM

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 3080

FIGURE B-5

DIRECT SHEAR TEST RESULTS

BAKERSFIELD WAREHOUSE FACILITY
BAKERSFIELD, CALIFORNIA

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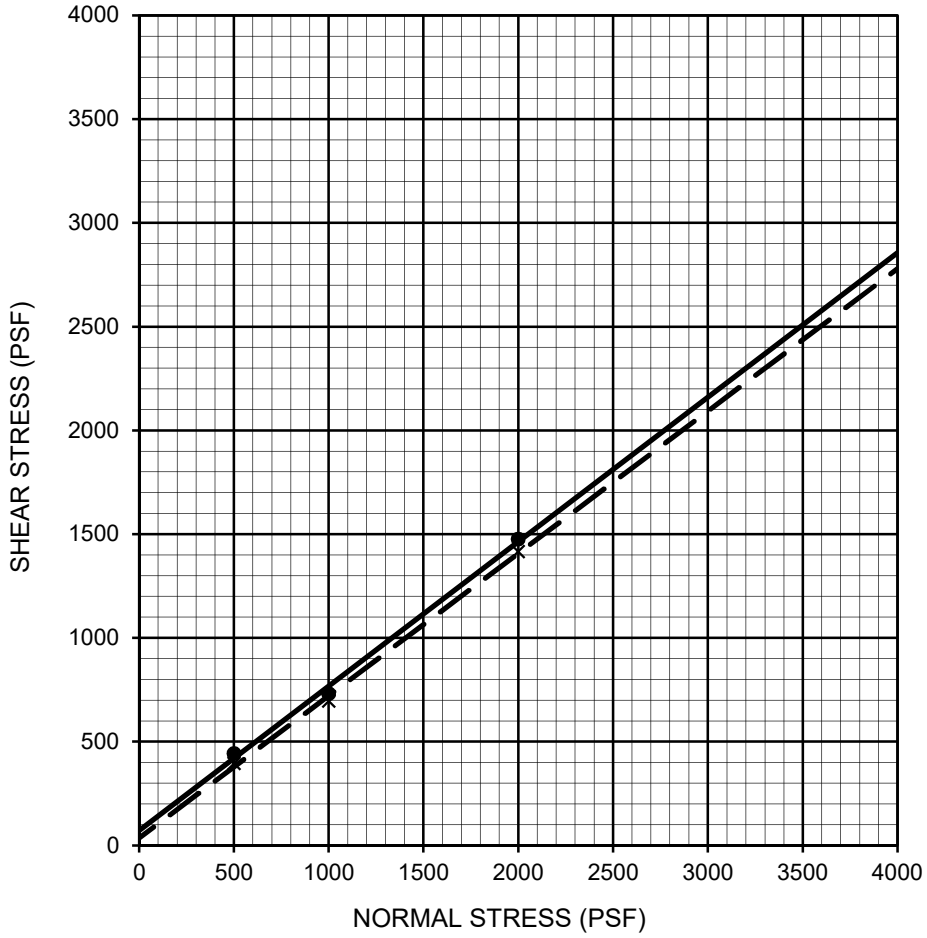
Ninyo & Moore
Geotechnical & Environmental Sciences Consultants



Description	Symbol	Sample Location	Depth (ft)	Shear Strength	Cohesion (psf)	Friction Angle (degrees)	Soil Type
SILTY SAND	—●—	B-14	5.0-6.5	Peak	72	35	SM
SILTY SAND	– – X – –	B-14	5.0-6.5	Ultimate	36	34	SM

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 3080

FIGURE B-6

DIRECT SHEAR TEST RESULTS

BAKERSFIELD WAREHOUSE FACILITY
BAKERSFIELD, CALIFORNIA

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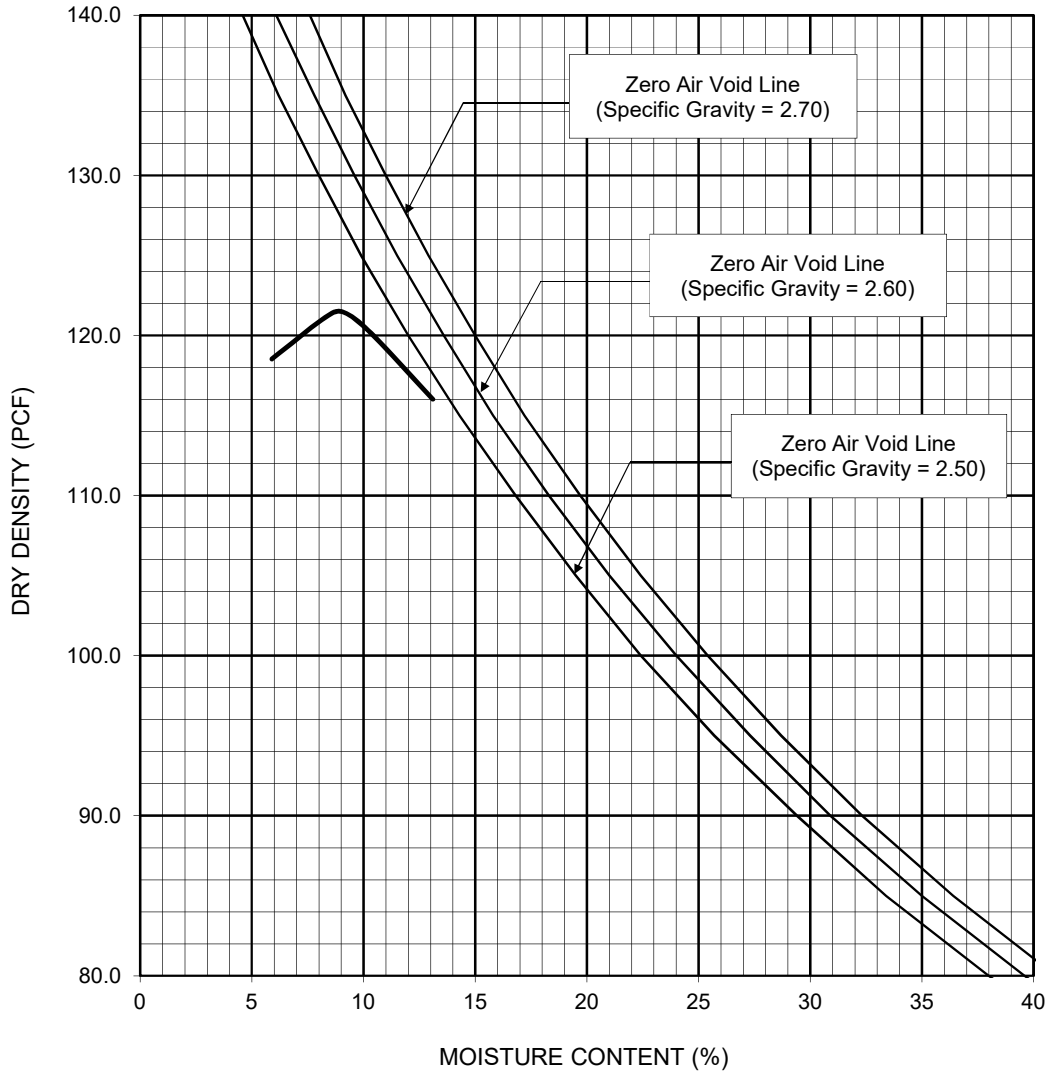

Sample Location	Depth (ft)	Soil Description	Maximum Dry Density (pcf)	Optimum Moisture Content (percent)
B-9	0.0-4.0	Brown Silty Sand	121.5	9.0
Dry Density and Moisture Content Values Corrected for Oversize (ASTM D 4718)			N/A	N/A

☑ ASTM D 1557 ☐ ASTM D 698

PERFORMED IN GENERAL ACCORDANCE WITH METHOD ☐ A ☑ B ☐ C

FIGURE B-7

PROCTOR DENSITY TEST RESULTS

BAKERSFIELD WAREHOUSE FACILITY
BAKERSFIELD, CALIFORNIA

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SAMPLE LOCATION	SAMPLE DEPTH (ft)	SOIL TYPE	R-VALUE
B-18	0.0-5.0	SM	61

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 2844/CT 301

FIGURE B-8

R-VALUE TEST RESULTS

BAKERSFIELD WAREHOUSE FACILITY
BAKERSFIELD, CALIFORNIA

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SAMPLE LOCATION	SAMPLE DEPTH (ft)	pH [1]	RESISTIVITY [1] (ohm-cm)	SULFATE CONTENT [2]		CHLORIDE CONTENT [3] (ppm)
				(ppm)	(%)	
B-5	0.4-5.0	7.1	762	170	0.017	110

[1] PERFORMED IN GENERAL ACCORDANCE WITH CALIFORNIA TEST METHOD 643
[2] PERFORMED IN GENERAL ACCORDANCE WITH CALIFORNIA TEST METHOD 417
[3] PERFORMED IN GENERAL ACCORDANCE WITH CALIFORNIA TEST METHOD 422

FIGURE B-9

CORROSIVITY TEST RESULTS

BAKERSFIELD WAREHOUSE FACILITY
BAKERSFIELD, CALIFORNIA

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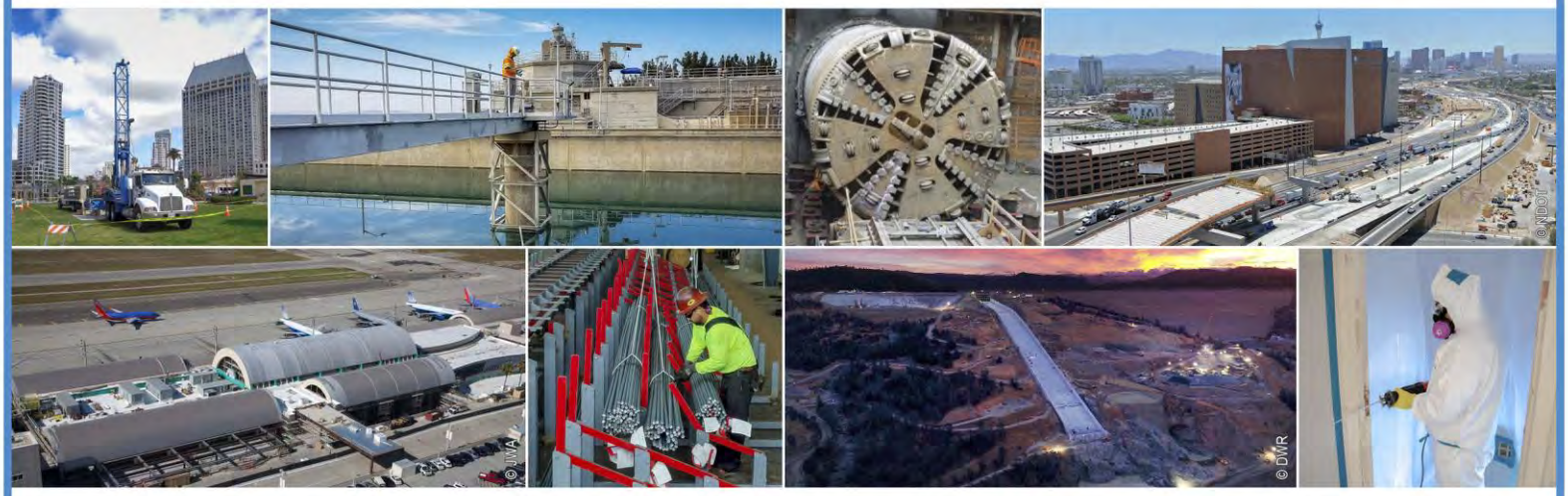

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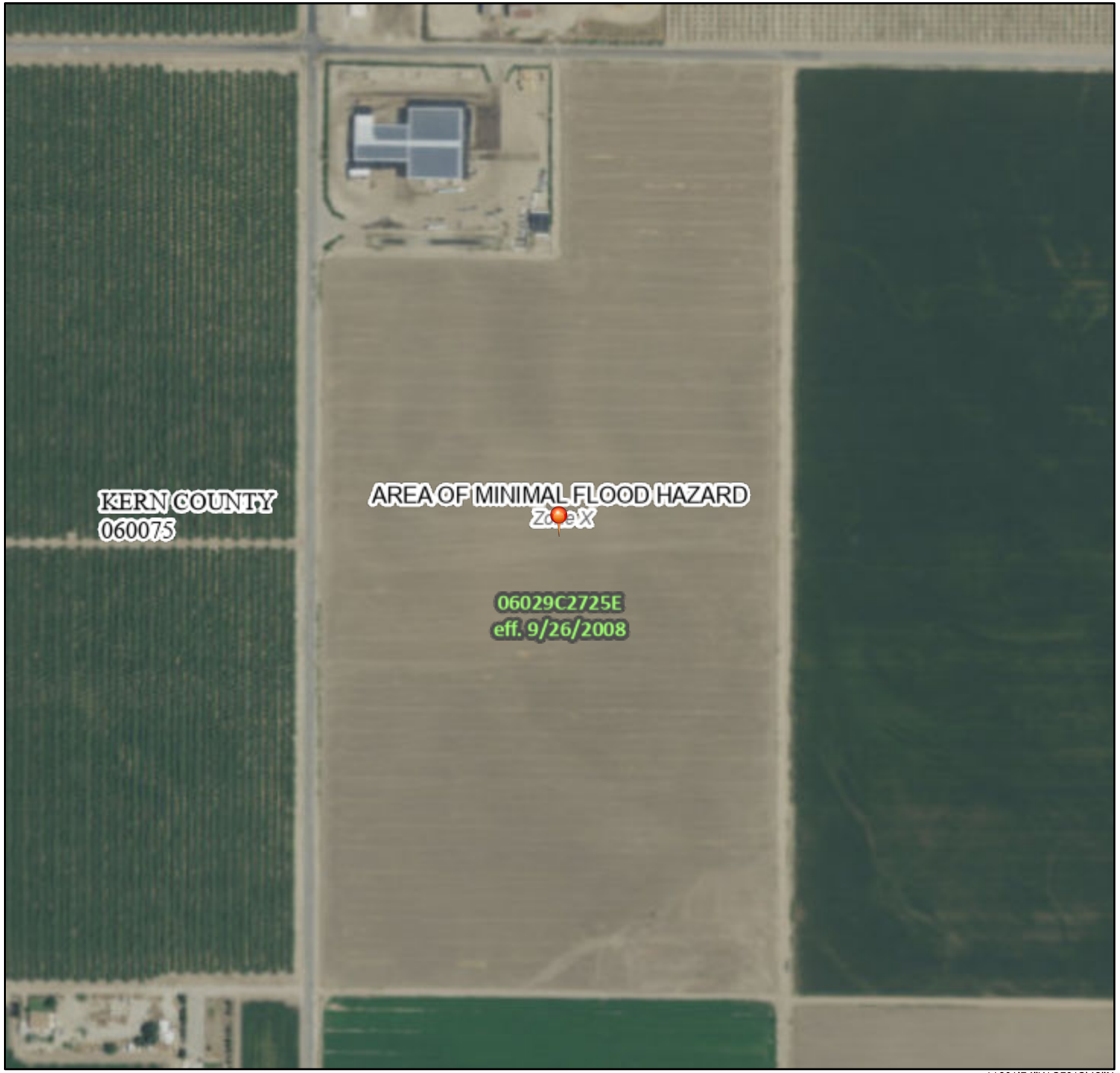
APPENDIX F

FEMA FLOOD MAP

National Flood Hazard Layer FIRMette

FEMA

119°2'31"W 35°14'18"N



119°1'54"W 35°13'48"N

Feet 1:6,000

0 250 500 1,000 1,500 2,000

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN — Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 — Cross Sections with 1% Annual Chance
- 17.5 — Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 1/18/2022 at 4:37 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures.** Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Universal Transverse Mercator (UTM) zone 11. The **horizontal datum** was NAD83, GRS1980 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum.** For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov/ or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, MD 20910-3282

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at **(301) 713-3242,** or visit its website at http://www.ngs.noaa.gov/.

Base map information shown on this FIRM was derived from USDA –Farm Service Agency –Aerial Photography Field Office dated 2005 and from U.S. Geological Survey Digital Orthophoto Quadrangles produced at a scale of 1:12,000 from photography dated 1992 or later.

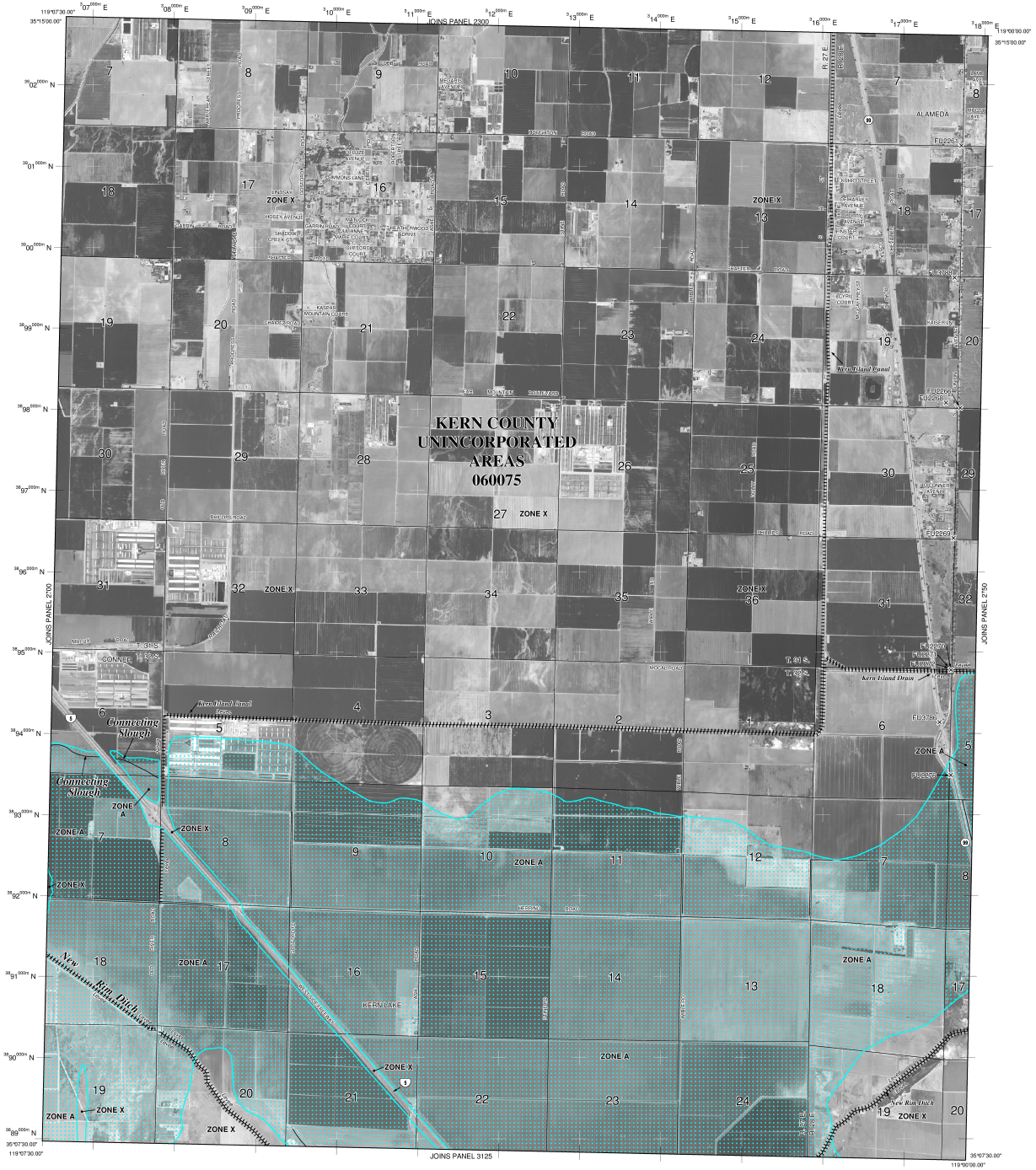
This map reflects more detailed and up-to-date **stream channel configurations** than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables *in the Flood Insurance Study report (which contains authoritative hydraulic data)* may reflect stream channel distances that differ from what is shown on this map.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

Contact the **FEMA Map Service Center** at 1-800-358-9616 for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, *a Flood Insurance Study report*, and/or digital versions of this map. The FEMA Map Service Center may also be reached by Fax at 1-800-358-9620 and its website at http://www.msc.fema.gov/.

If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call **1-877-FEMA MAP** (1-877-336-2627) or visit the FEMA website at http://www.fema.gov/.



LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A No Base Flood Elevations determined.

ZONE AE Base Flood Elevations determined.

ZONE AH Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.

ZONE AO Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.

ZONE AR Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.

ZONE A99 Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.

ZONE V Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.

ZONE VE Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X Areas determined to be outside the 0.2% annual chance floodplain.

ZONE D Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

- 1% annual chance floodplain boundary
- 0.2% annual chance floodplain boundary
- Floodway boundary
- Zone D boundary
- CBRS and OPA boundary
- Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
- 513 — Base Flood Elevation line and value; elevation in feet*
- (EL 987) — Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988 (NAVD 88)

- A — A — Cross section line
- 23 — 23 — Transect line
- 97°07'30", 32°22'30" — Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)
- 4275000 mN — 1000-meter Universal Transverse Mercator grid ticks, zone 11
- 6000000 M — 5000-foot grid ticks: California State Plane coordinate system, V zone (FIPSZONE 0405), Lambert Conformal Conic
- DX5510 — Bench mark (see explanation in Notes to Users section of this FIRM panel)
- M1.6 — River Mile

MAP REPOSITORIES
Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
September 26, 2008
EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 2000'
1000 0 2000 4000 FEET
600 0 600 1200 METERS

NFIP
NATIONAL FLOOD INSURANCE PROGRAM

PANEL 2725E

FIRM
FLOOD INSURANCE RATE MAP

KERN COUNTY, CALIFORNIA
AND INCORPORATED AREAS

PANEL 2725 OF 4125
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
KERN COUNTY	060075	2725	E

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
06029C2725E

EFFECTIVE DATE
SEPTEMBER 26, 2008

Federal Emergency Management Agency

APPENDIX G

STORM DRAIN PIPE AND INLET SIZING

DMA	C	10-YEAR I	A (AC)	Q
DA A1	0.9	1.63	3.90	5.716
DA A2	0.9	1.63	0.63	0.930
DA A3	0.9	1.63	2.92	4.288
DA A4	0.9	1.63	3.23	4.741
DA A5	0.9	1.63	2.70	3.961
DA A6	0.9	1.63	2.00	2.928
DA A7	0.9	1.63	1.48	2.171
DA A8	0.9	1.63	1.02	1.494
DA A9	0.9	1.63	2.69	3.940
DA A10	0.9	1.63	2.44	3.579
DA A11	0.9	1.63	1.29	1.892
DA A12	0.9	1.63	1.38	2.024
DA A13	0.9	1.63	1.10	1.614
DA B1	0.9	1.63	10.54	15.462
DA B2	0.9	1.63	0.51	0.754
DA B3	0.9	1.63	0.61	0.901
DA B4	0.9	1.63	0.61	0.901
DA B5	0.9	1.63	0.50	0.736
DA B6	0.9	1.63	0.51	0.755
DA B7	0.9	1.63	4.10	6.020
DA B8	0.9	1.63	3.39	4.968
DA B9	0.9	1.63	3.99	5.850
DA B10	0.9	1.63	6.75	9.908
DA B11	0.9	1.63	4.74	6.947
DA B12	0.9	1.63	4.04	5.927
DA B13	0.9	1.63	4.04	5.927
DA B14	0.9	1.63	2.87	4.213
DA B15	0.9	1.63	1.94	2.846
DA C1	0.9	1.63	3.13	4.591
DA C2	0.9	1.63	0.48	0.704
DA C3	0.9	1.63	3.30	4.836
DA C4	0.9	1.63	3.49	5.120
DA C5	0.9	1.63	2.86	4.198
DA C6	0.9	1.63	2.92	4.281
DA C7	0.9	1.63	1.62	2.377

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DMA	C	100-YEAR I	A	Q
DA A1	0.9	2.89	3.90	10.134
DA A2	0.9	2.89	0.63	1.649
DA A3	0.9	2.89	2.92	7.603
DA A4	0.9	2.89	3.23	8.407
DA A5	0.9	2.89	2.70	7.023
DA A6	0.9	2.89	2.00	5.192
DA A7	0.9	2.89	1.48	3.849
DA A8	0.9	2.89	1.02	2.648
DA A9	0.9	2.89	2.69	6.986
DA A10	0.9	2.89	2.44	6.346
DA A11	0.9	2.89	1.29	3.355
DA A12	0.9	2.89	1.38	3.589
DA A13	0.9	2.89	1.10	2.861
DA B1	0.9	2.89	10.54	27.415
DA B2	0.9	2.89	0.51	1.337
DA B3	0.9	2.89	0.61	1.598
DA B4	0.9	2.89	0.61	1.598
DA B5	0.9	2.89	0.50	1.305
DA B6	0.9	2.89	0.51	1.338
DA B7	0.9	2.89	4.10	10.673
DA B8	0.9	2.89	3.39	8.809
DA B9	0.9	2.89	3.99	10.372
DA B10	0.9	2.89	6.75	17.567
DA B11	0.9	2.89	4.74	12.317
DA B12	0.9	2.89	4.04	10.509
DA B13	0.9	2.89	4.04	10.508
DA B14	0.9	2.89	2.87	7.469
DA B15	0.9	2.89	1.94	5.046
DA C1	0.9	2.89	3.13	8.139
DA C2	0.9	2.89	0.48	1.248
DA C3	0.9	2.89	3.30	8.574
DA C4	0.9	2.89	3.49	9.077
DA C5	0.9	2.89	2.86	7.443
DA C6	0.9	2.89	2.92	7.589
DA C7	0.9	2.89	1.62	4.214

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Catch Basin Sizing					
DMA	Inlet Name	Peak/ Design Flow	Type	Size	Capacity Flow
DA A1	A1	10.13	-	-	-
DA A2	A2	1.65	Catch Basin	3.5' Curb Inlet	4.29
DA A3	A3	7.60	Catch Basin	14' Curb Inlet	14.51
DA A4	A4	8.41	Catch Basin	14' Curb Inlet	14.51
DA A5	A5	7.02	Catch Basin	7' Curb Inlet	7.11
DA A6	A6	5.19	Catch Basin	7' Curb Inlet	7.11
DA A7	A7	3.85	Catch Basin	3.5' Curb Inlet	4.29
DA A8	A8	2.65	-	-	-
DA A9	A9	6.99	-	-	-
DA A10	10	6.35	Catch Basin	7' Curb Inlet	7.11
DA A11	11	3.36	Catch Basin	3.5' Curb Inlet	4.29
DA A12	12	3.59	Catch Basin	3.5' Curb Inlet	4.29
DA A13	13	2.86	Catch Basin	3.5' Curb Inlet	4.29
DA B1	B1	27.41	-	-	-
DA B2	B2	1.34	Drop Inlet	24"x24" Grate	9.80
DA B3	B3	1.60	Drop Inlet	24"x24" Grate	9.80
DA B4	B4	1.60	Drop Inlet	24"x24" Grate	9.80
DA B5	B5	1.31	Drop Inlet	24"x24" Grate	9.80
DA B6	B6	1.34	Drop Inlet	24"x24" Grate	9.80
DA B7	B7	10.67	Catch Basin	14' Curb Inlet	14.51
DA B8	B8	8.81	Catch Basin	14' Curb Inlet	14.51
DA B9	B9	10.37	-	-	-
DA B10	10	17.57	-	-	-
DA B11	11	12.32	Drop Inlet	24"x48" Grate	14.70
DA B12	12	10.51	Drop Inlet	24"x48" Grate	14.70
DA B13	13	10.51	Drop Inlet	24"x48" Grate	14.70
DA B14	14	7.47	Catch Basin	14' Curb Inlet	14.51
DA B15	15	5.05	Drop Inlet	24"x24" Grate	9.80
DA C1	C1	8.14	-	-	-
DA C2	C2	1.25	Catch Basin	3.5' Curb Inlet	4.29
DA C3	C3	8.57	Catch Basin	14' Curb Inlet	14.51
DA C4	C4	9.08	Catch Basin	14' Curb Inlet	14.51
DA C5	C5	7.44	Catch Basin	14' Curb Inlet	14.51
DA C6	C6	7.59	Catch Basin	14' Curb Inlet	14.51
DA C7	C7	4.21	Catch Basin	3.5' Curb Inlet	4.29

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Weir Equation

Drop Inlet Type	Width/Perimeter (ft)	Ponded Depth (in)	% Opening of Grate	Full Capacity (cfs)	Clogging Factor (%)	Clogged Capacity (cfs)
12"x12" Grate	4	8	100	6.53	75	4.90
18"x18" Grate	6	8	100	9.80	75	7.35
24"x24" Grate	8	8	100	13.06	75	9.80
24"x48" Grate	12	8	100	19.60	75	14.70
36"X36" Grate	12	8	100	19.60	75	14.70

Weir Equation

Catch Basin Type	Width/Perimeter (ft)	Ponded Depth (in)	% Opening of Grate	Full Capacity (cfs)	Clogging Factor (%)	Clogged Capacity (cfs)
3.5' Curb Inlet	3.5	8	100	5.72	75	4.29
7' Curb Inlet	7	5.83	100	7.11	100	7.11
14' Curb Inlet	14	5.83	100	14.22	102	14.51

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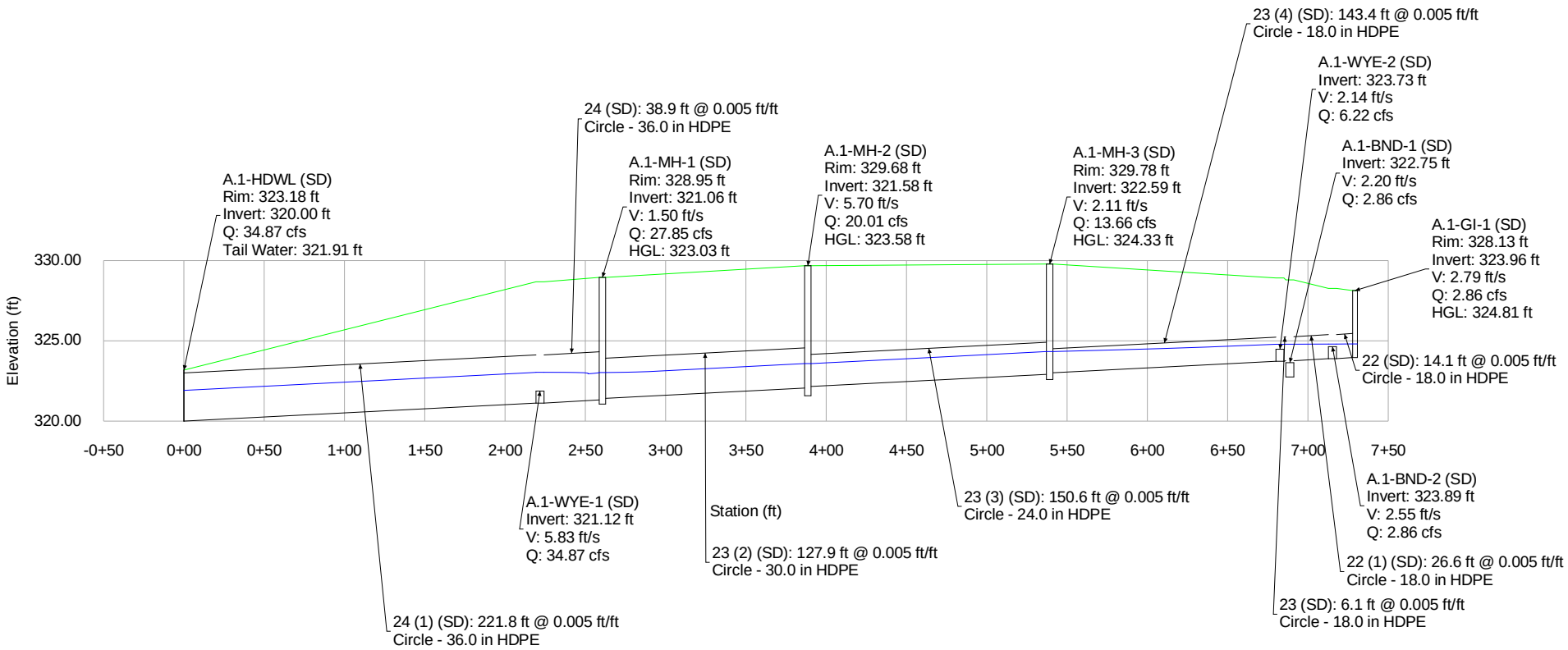
Profile Report
Engineering Profile - Profile - A.1 (BLF3 KERN COUNTY.stsw)



Profile Report

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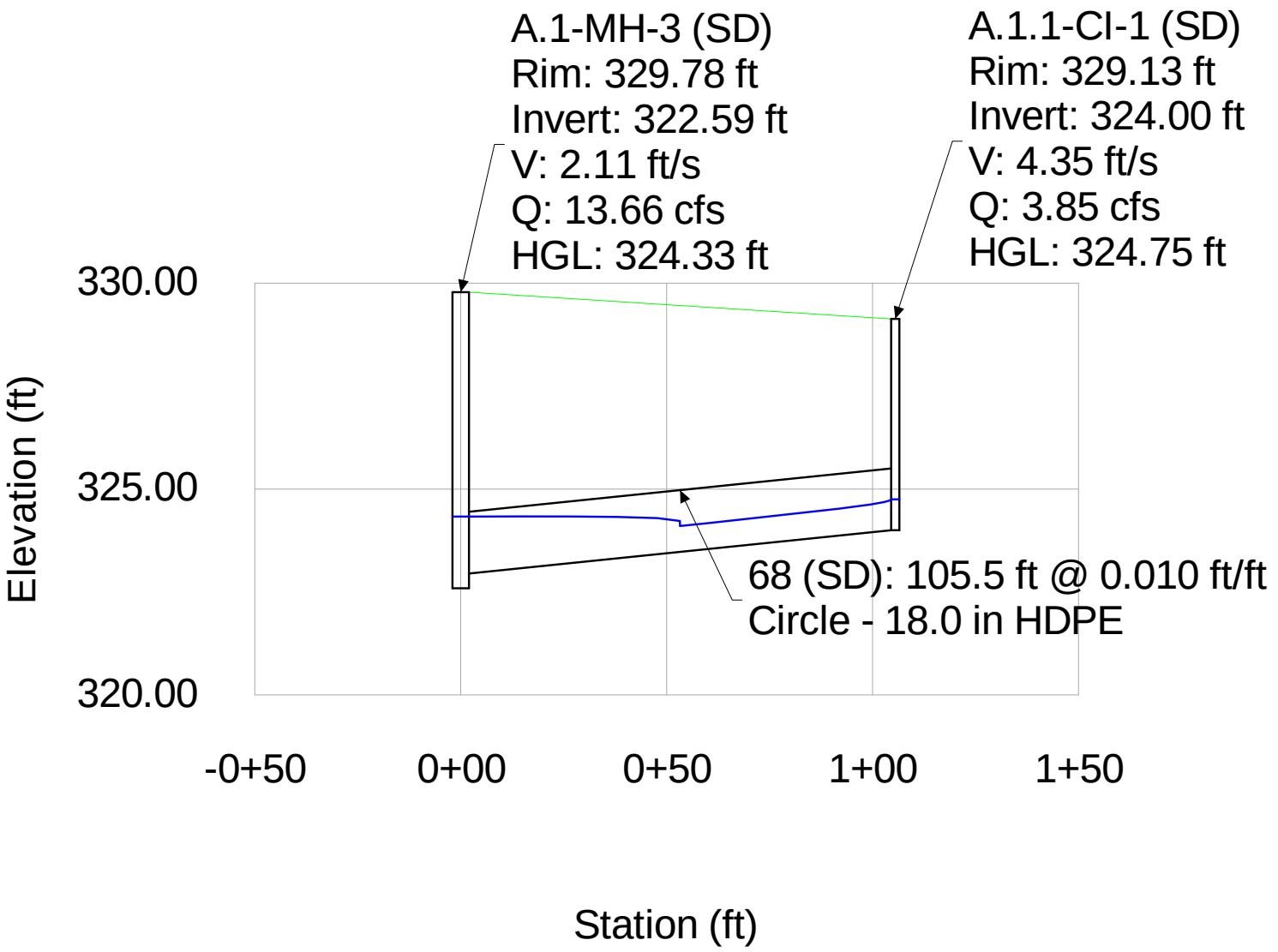

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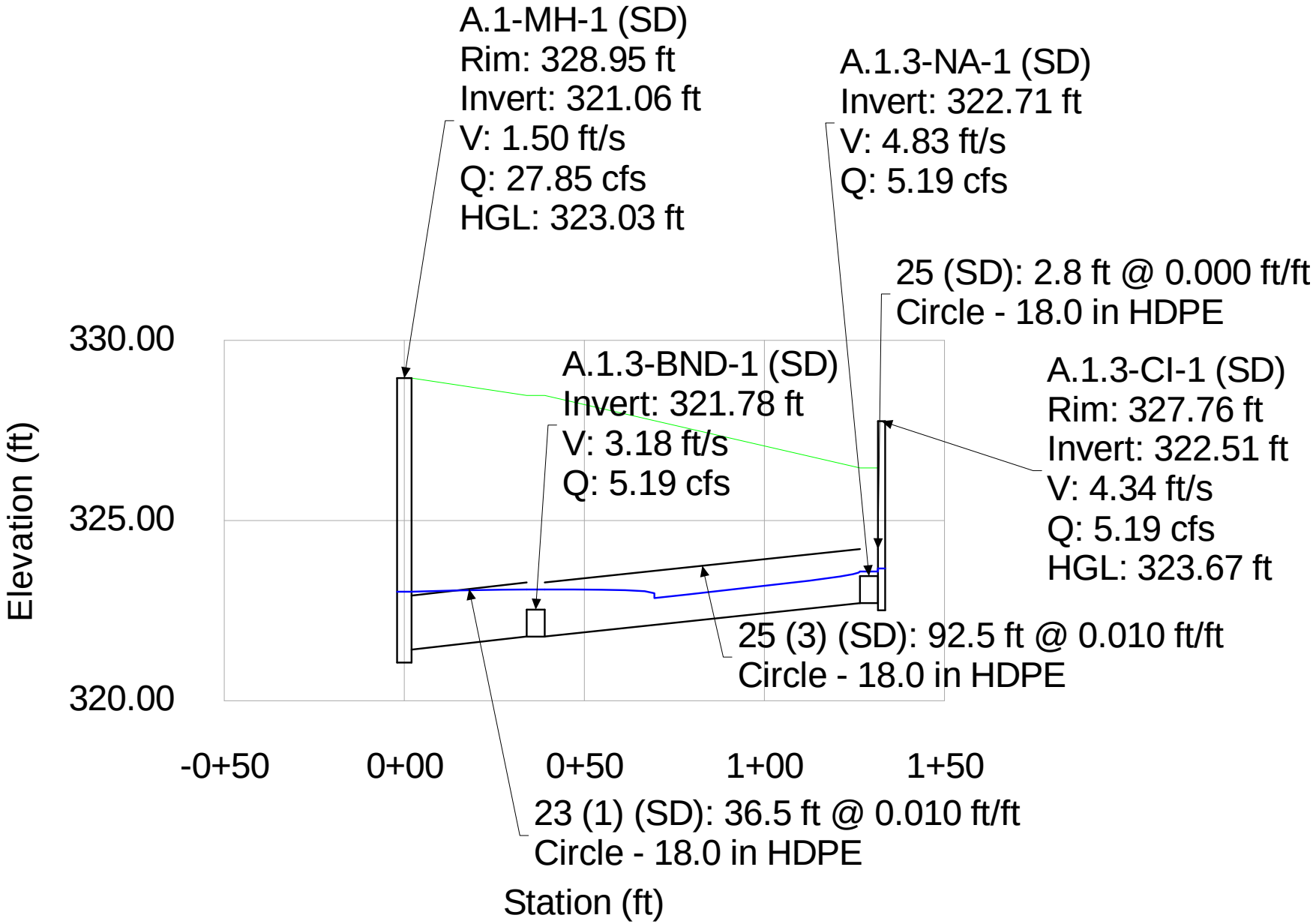

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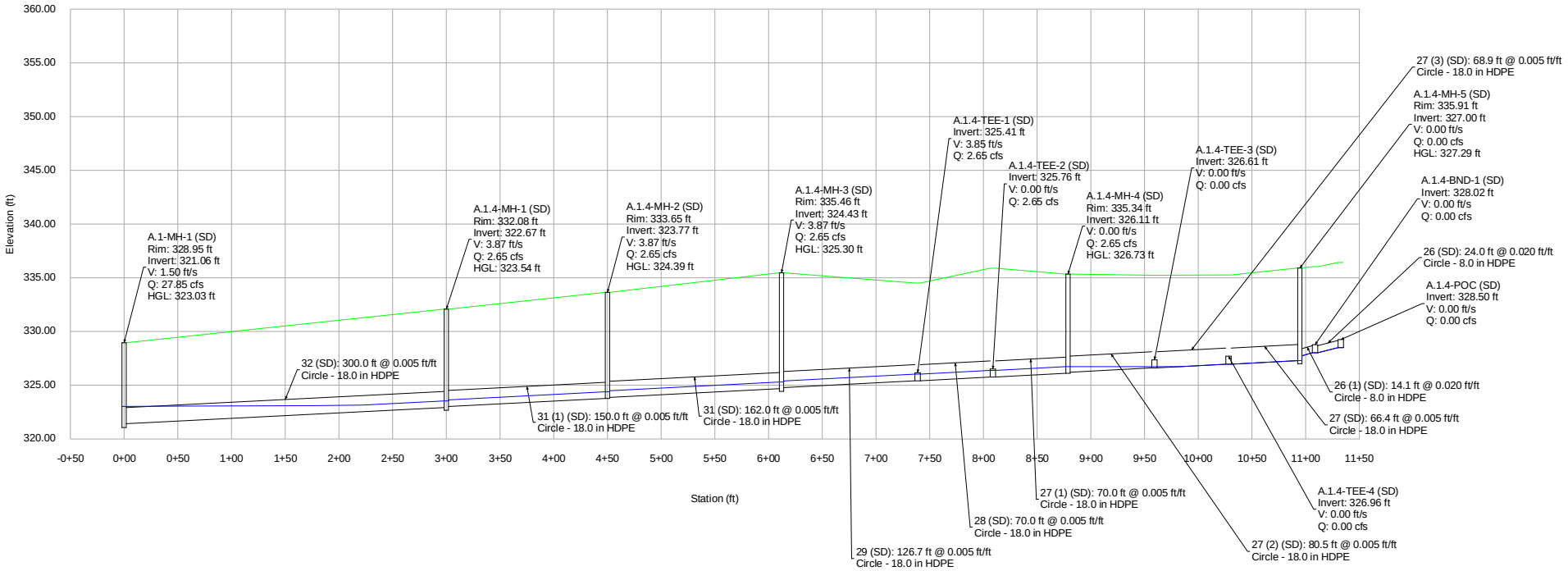

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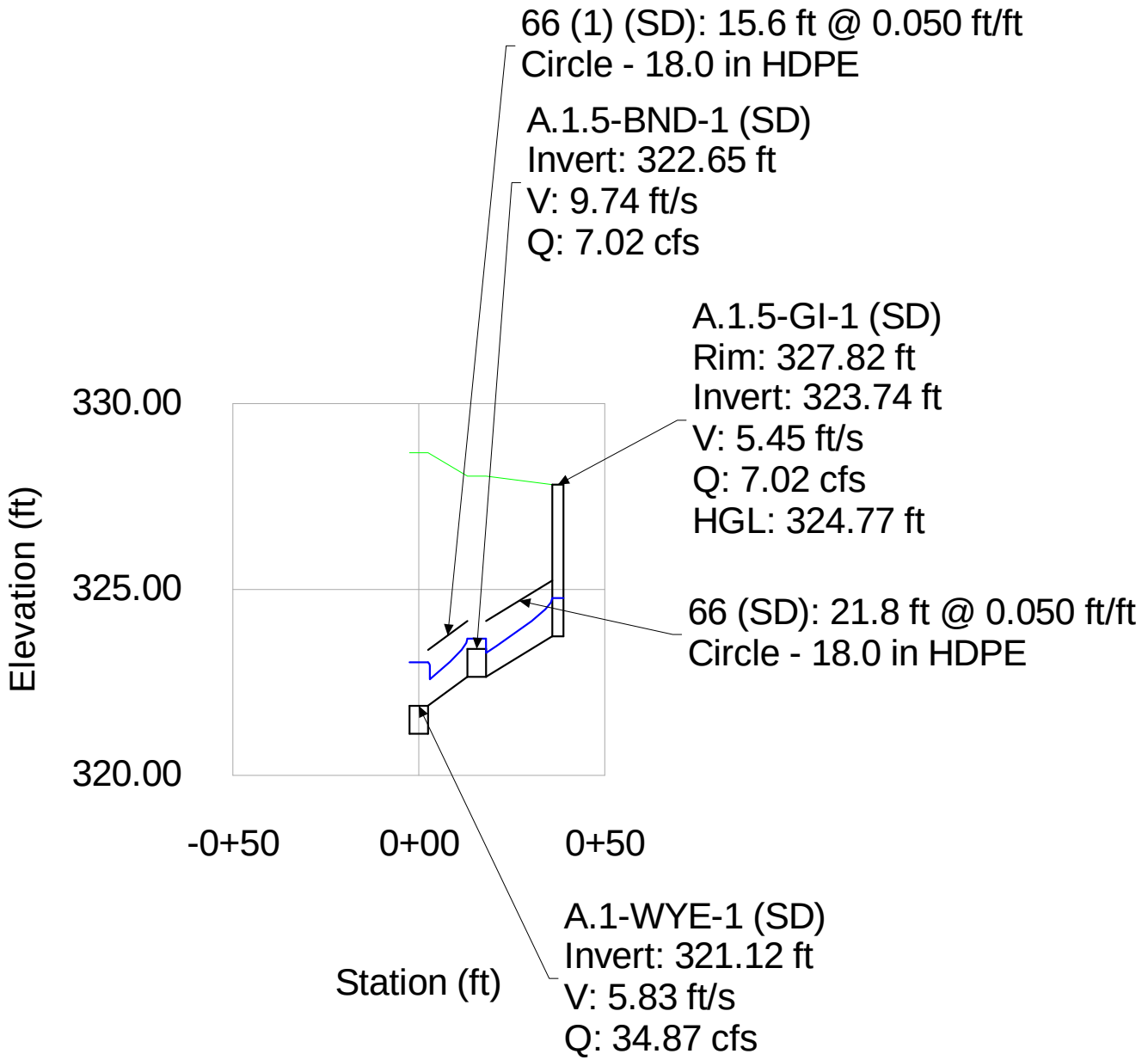

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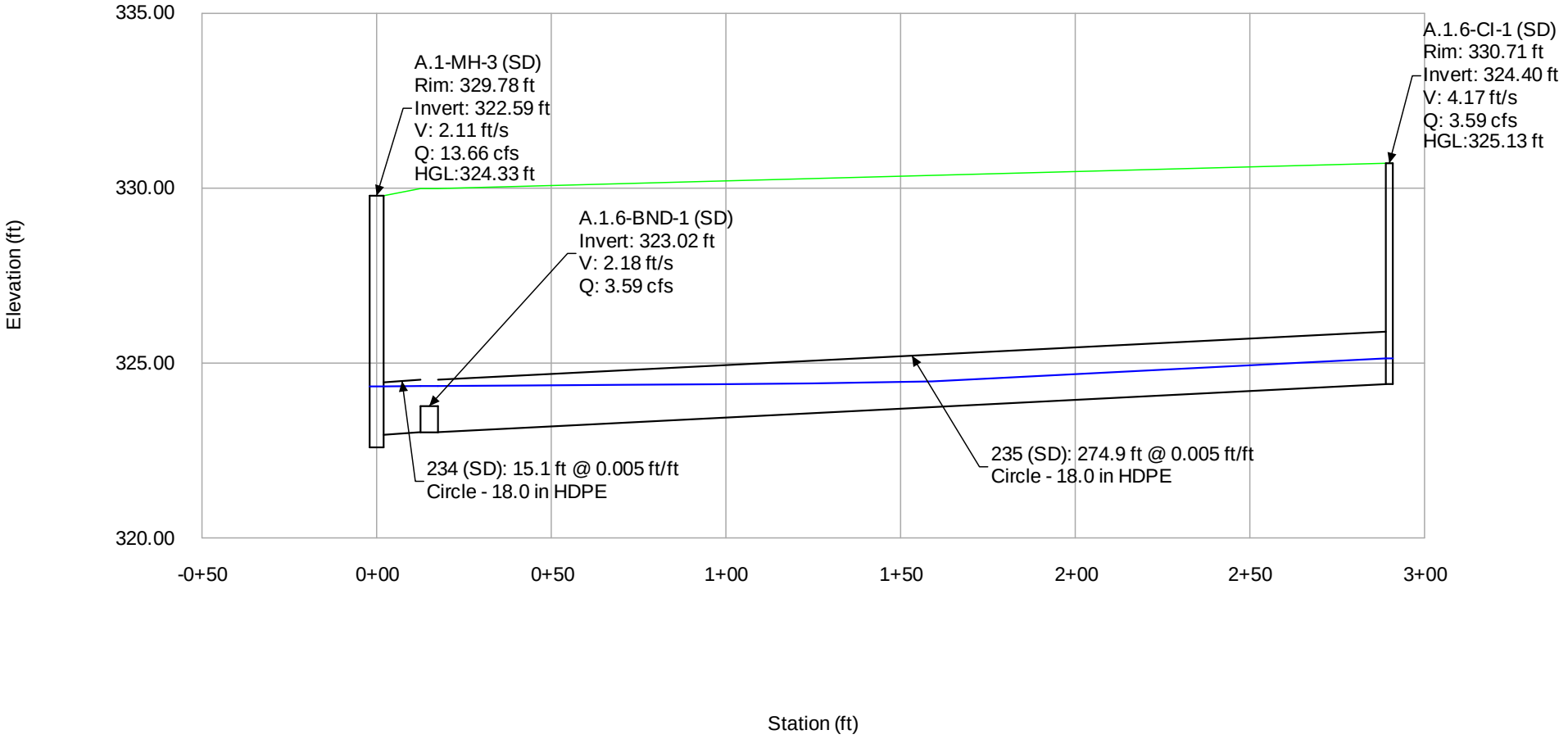

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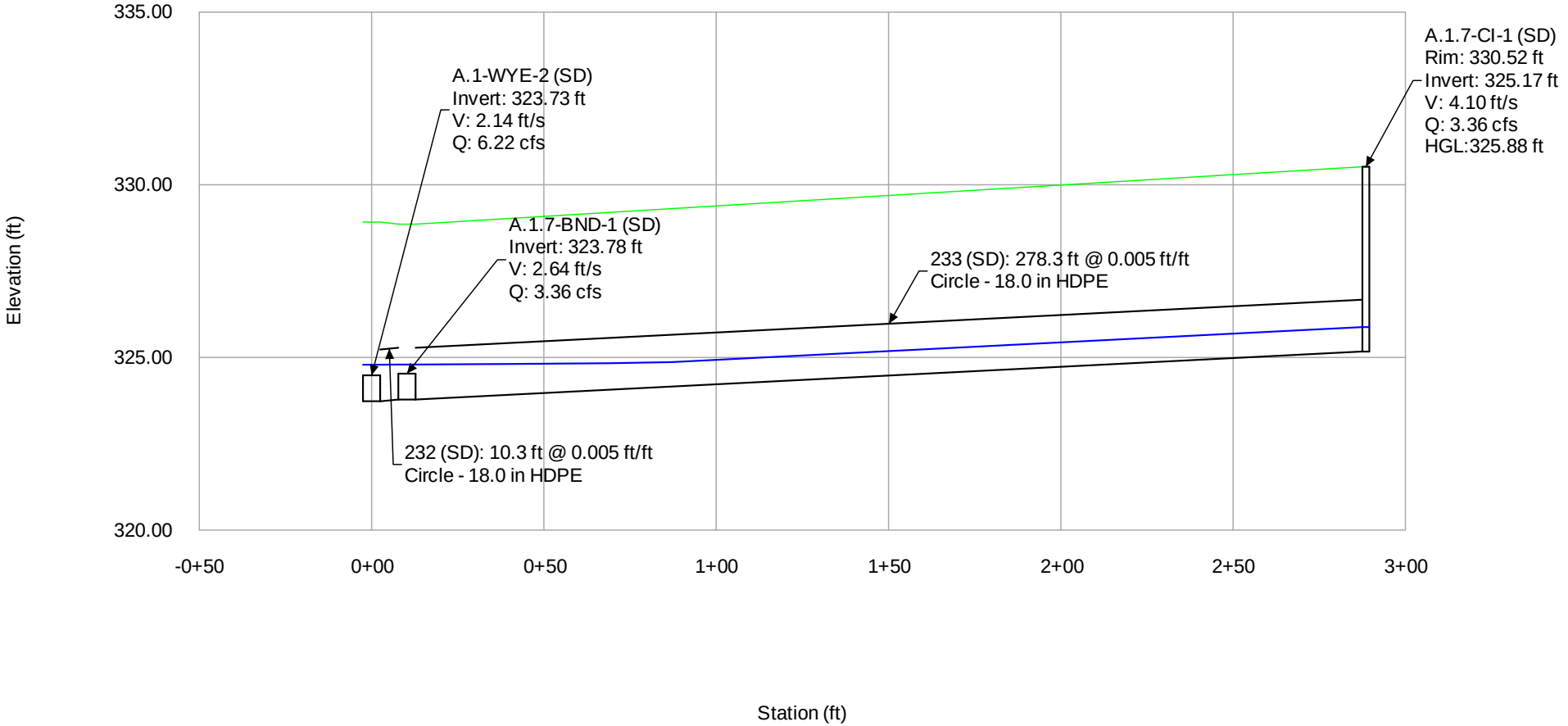

Profile Report

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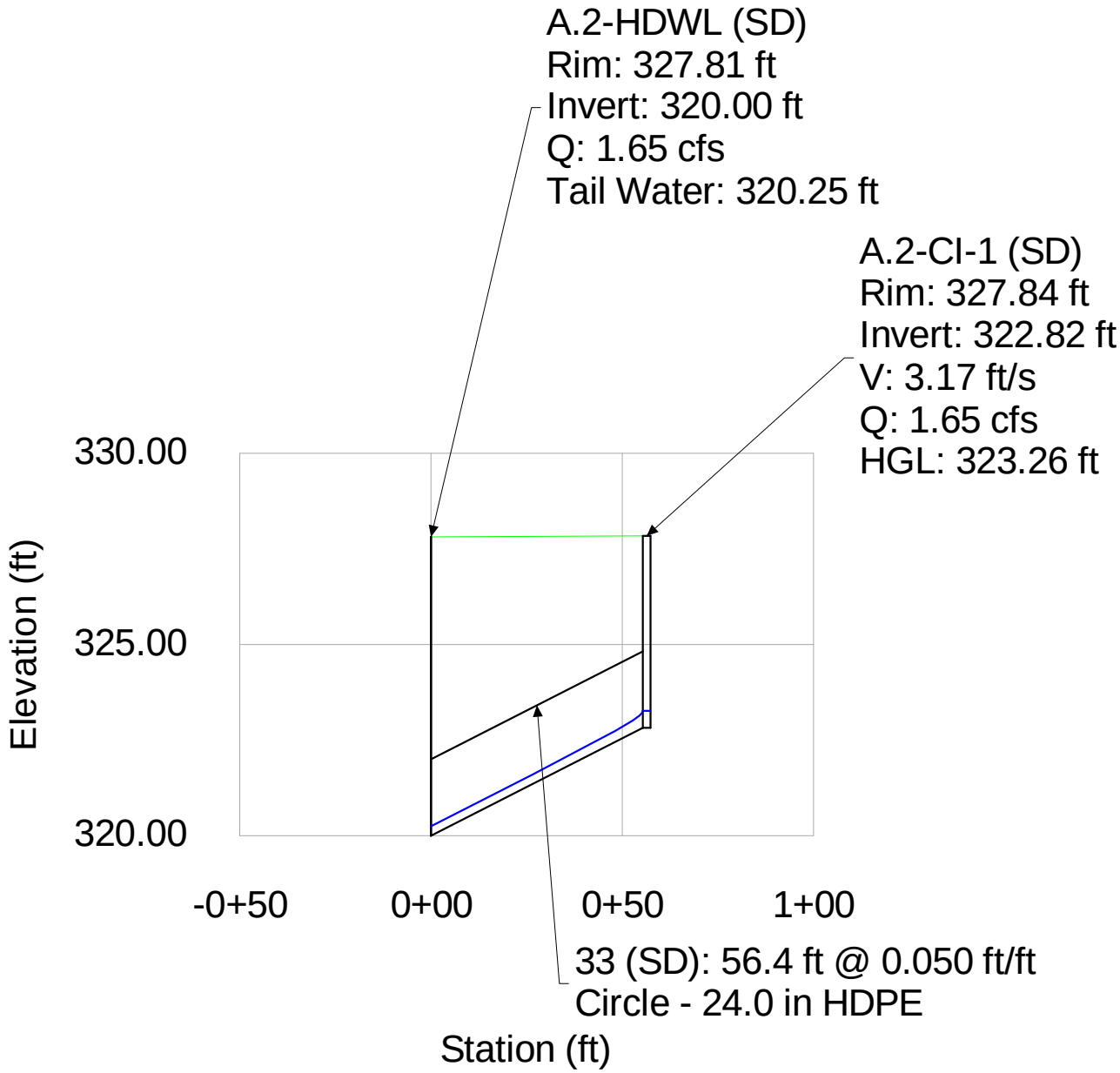

Profile Report

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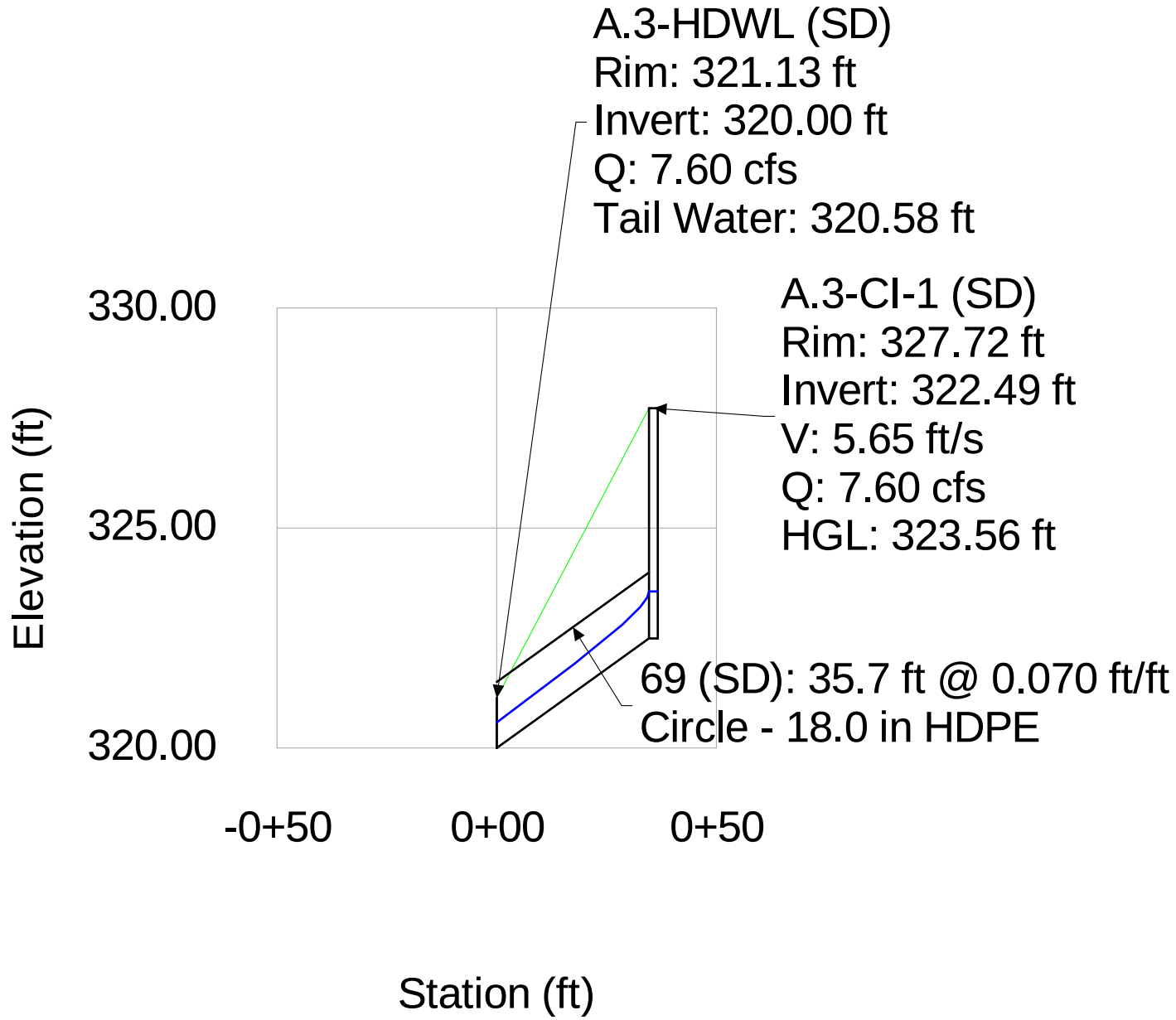

Profile Report

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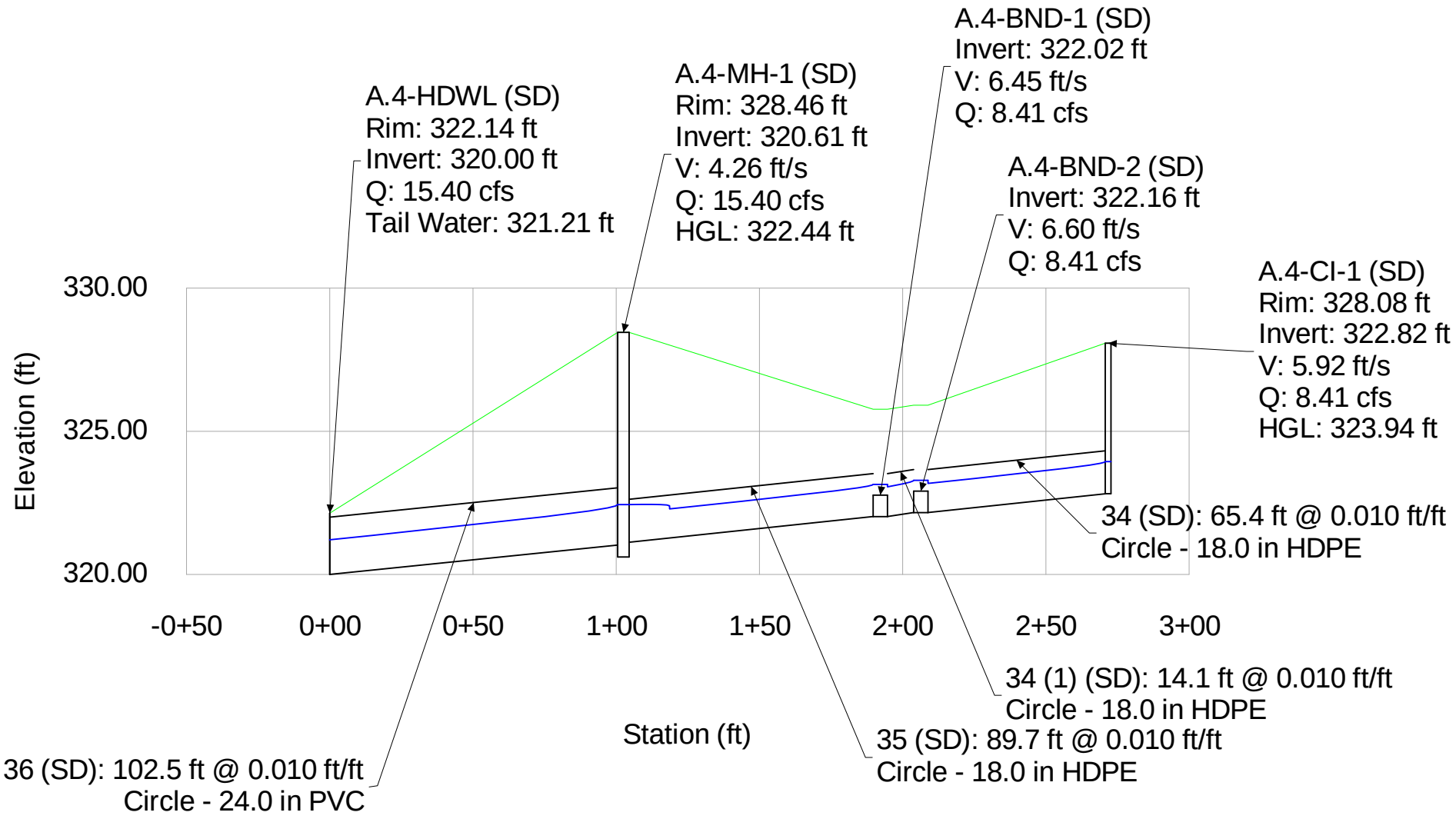

Profile Report

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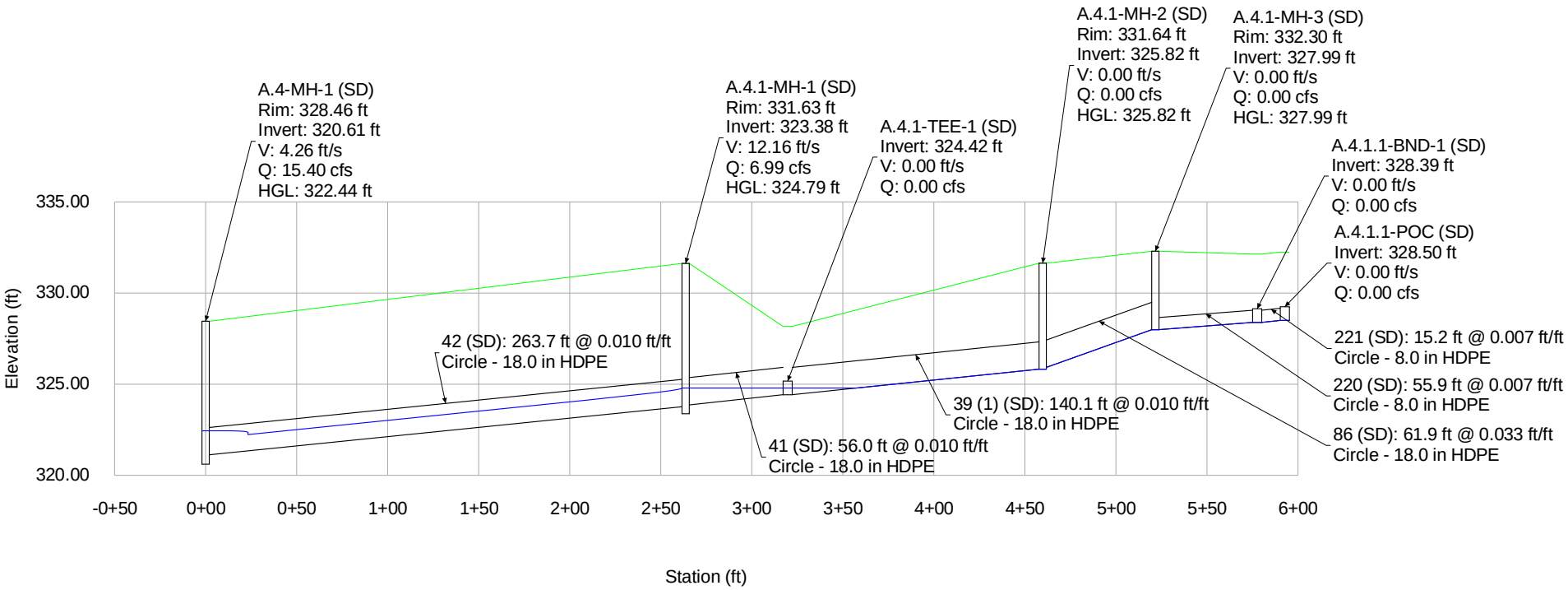

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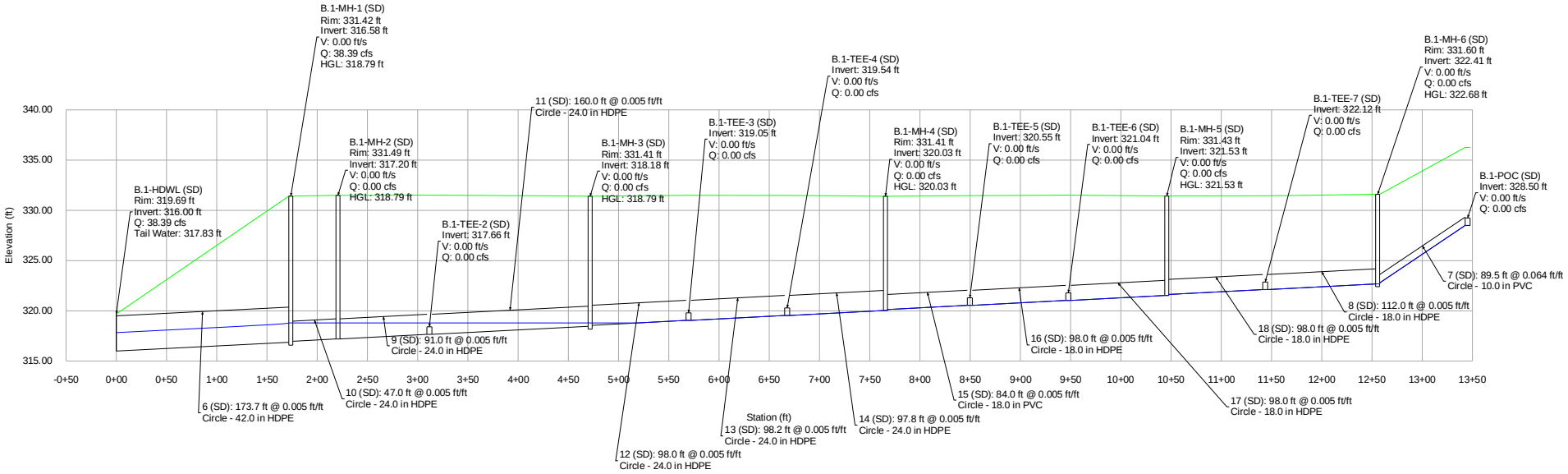

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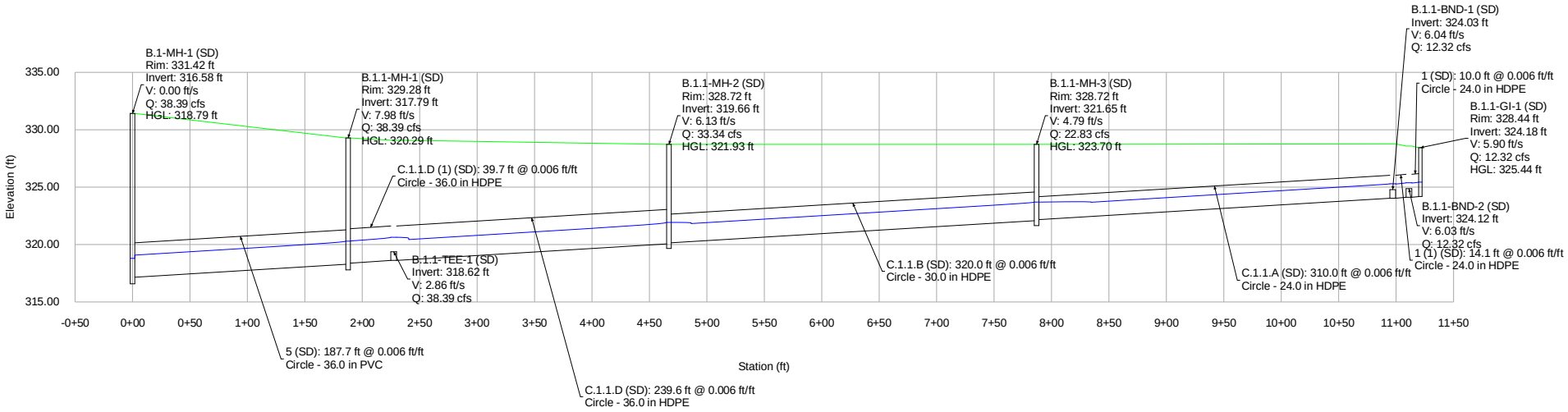

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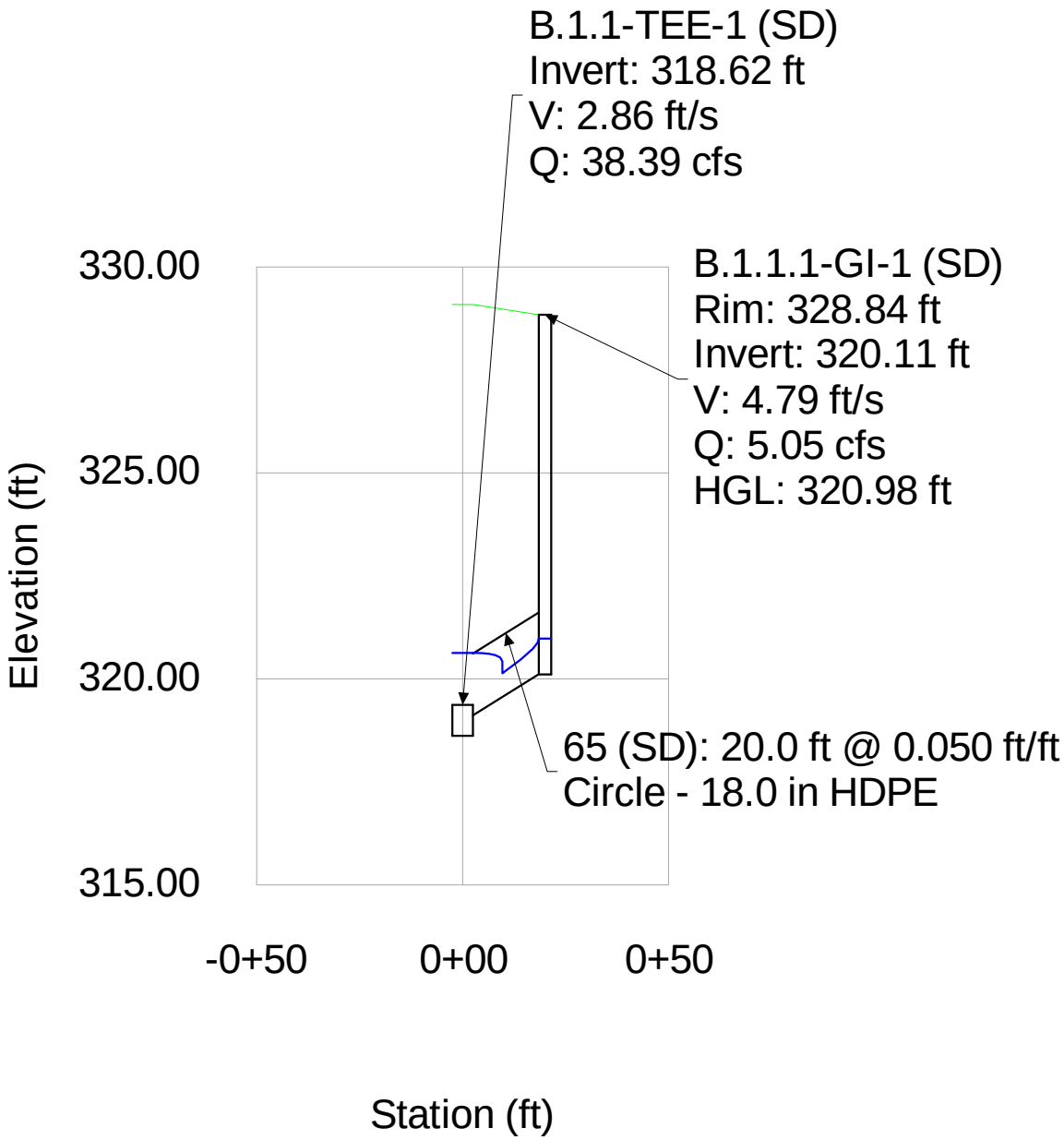

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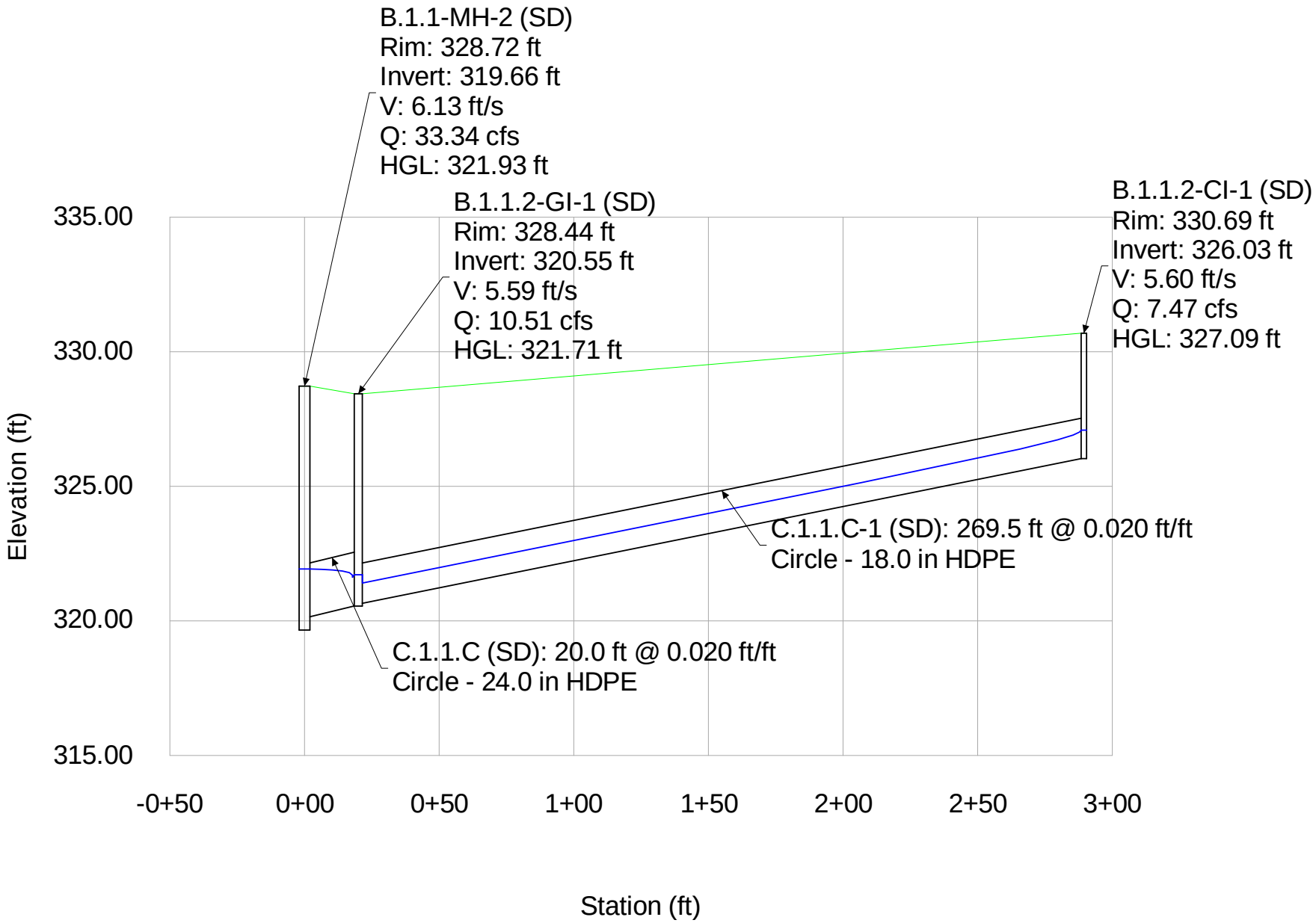

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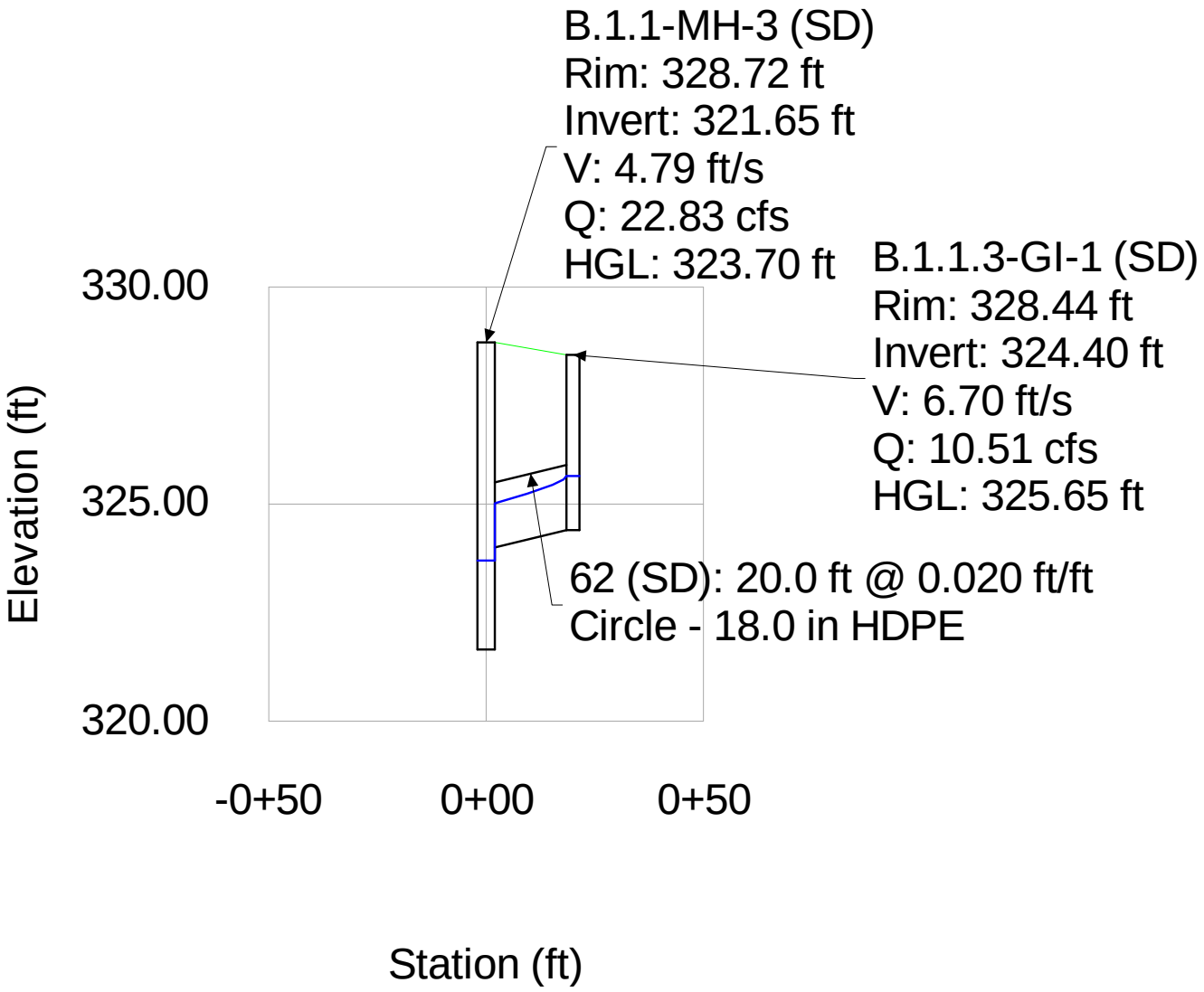

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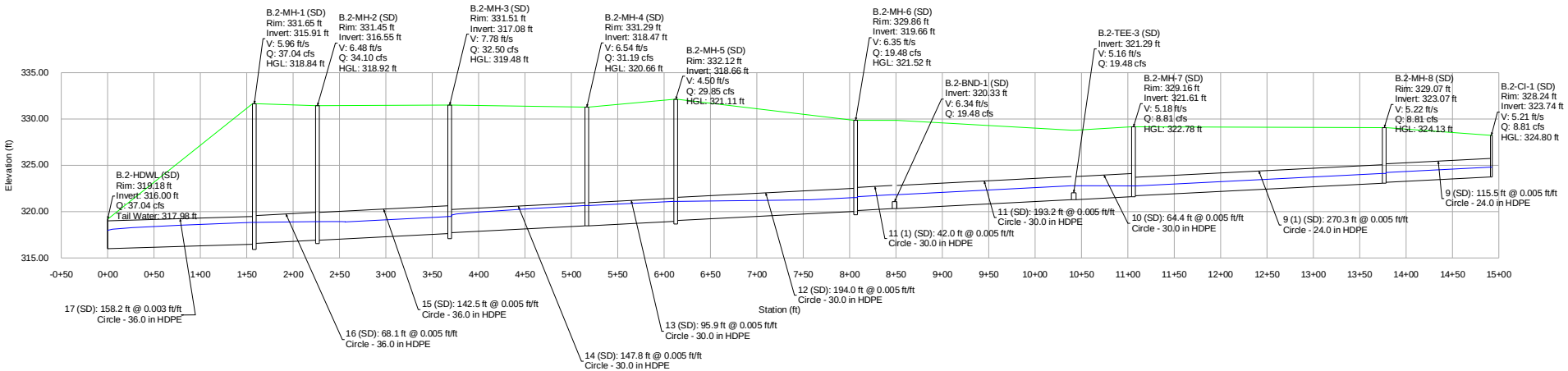

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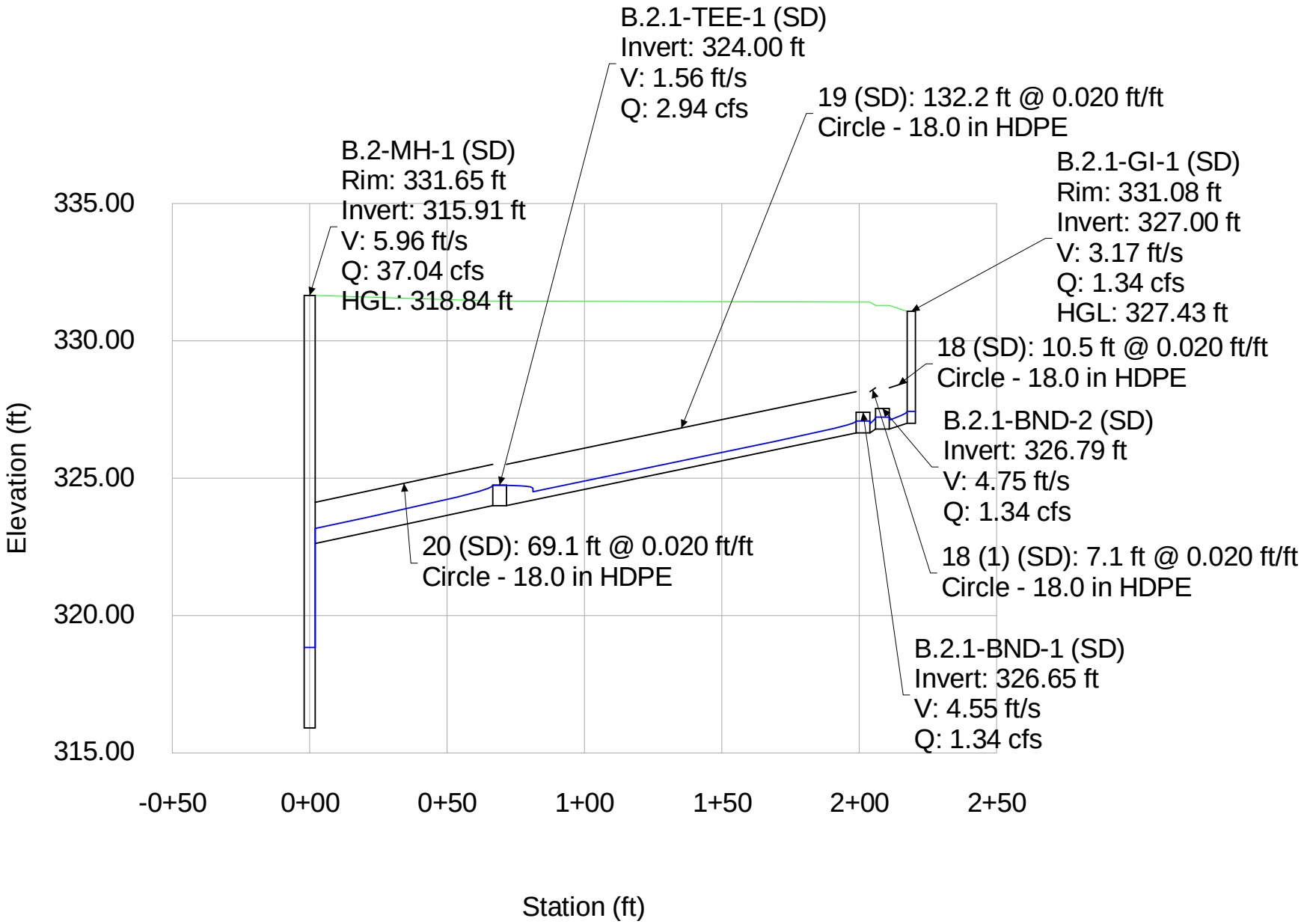

Profile Report

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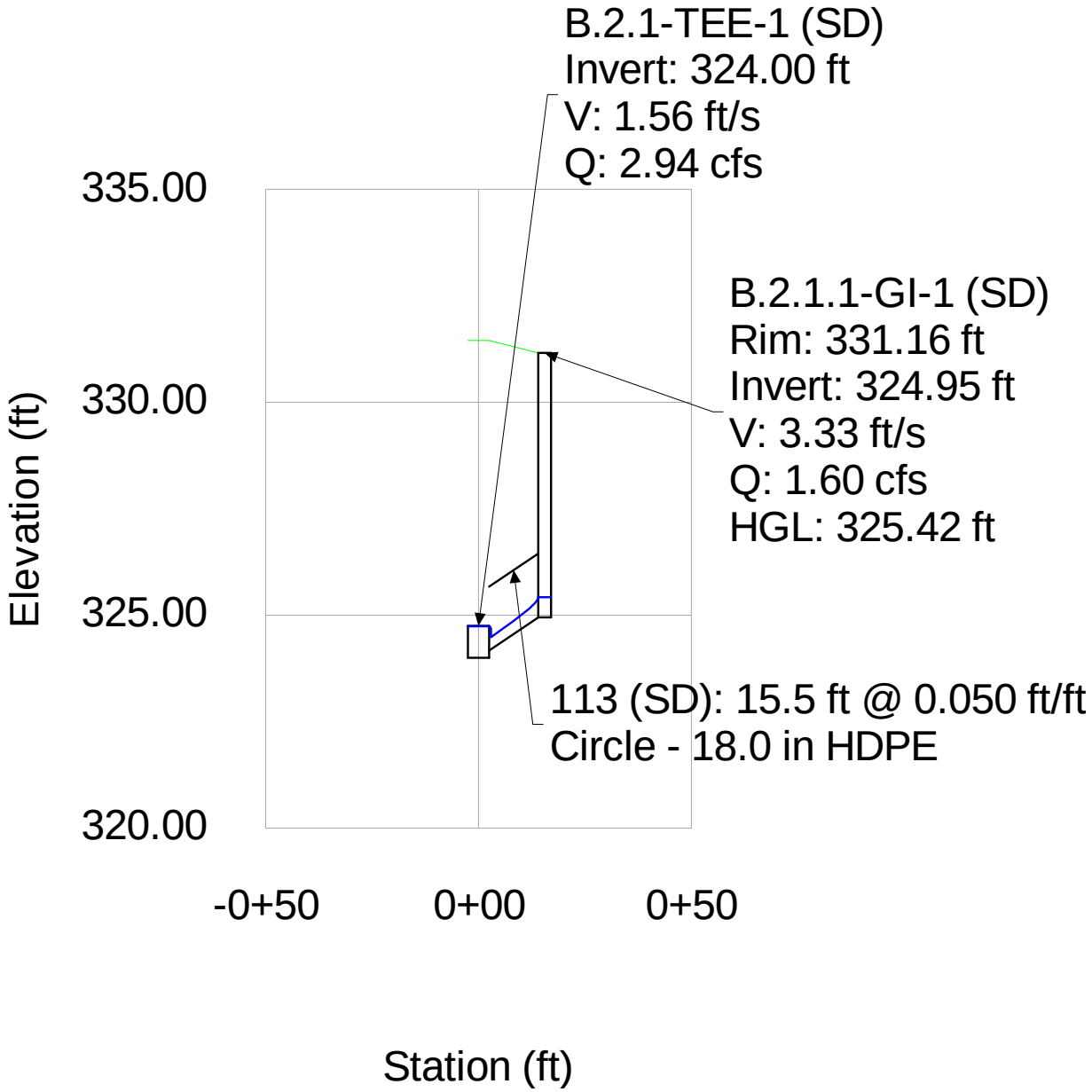

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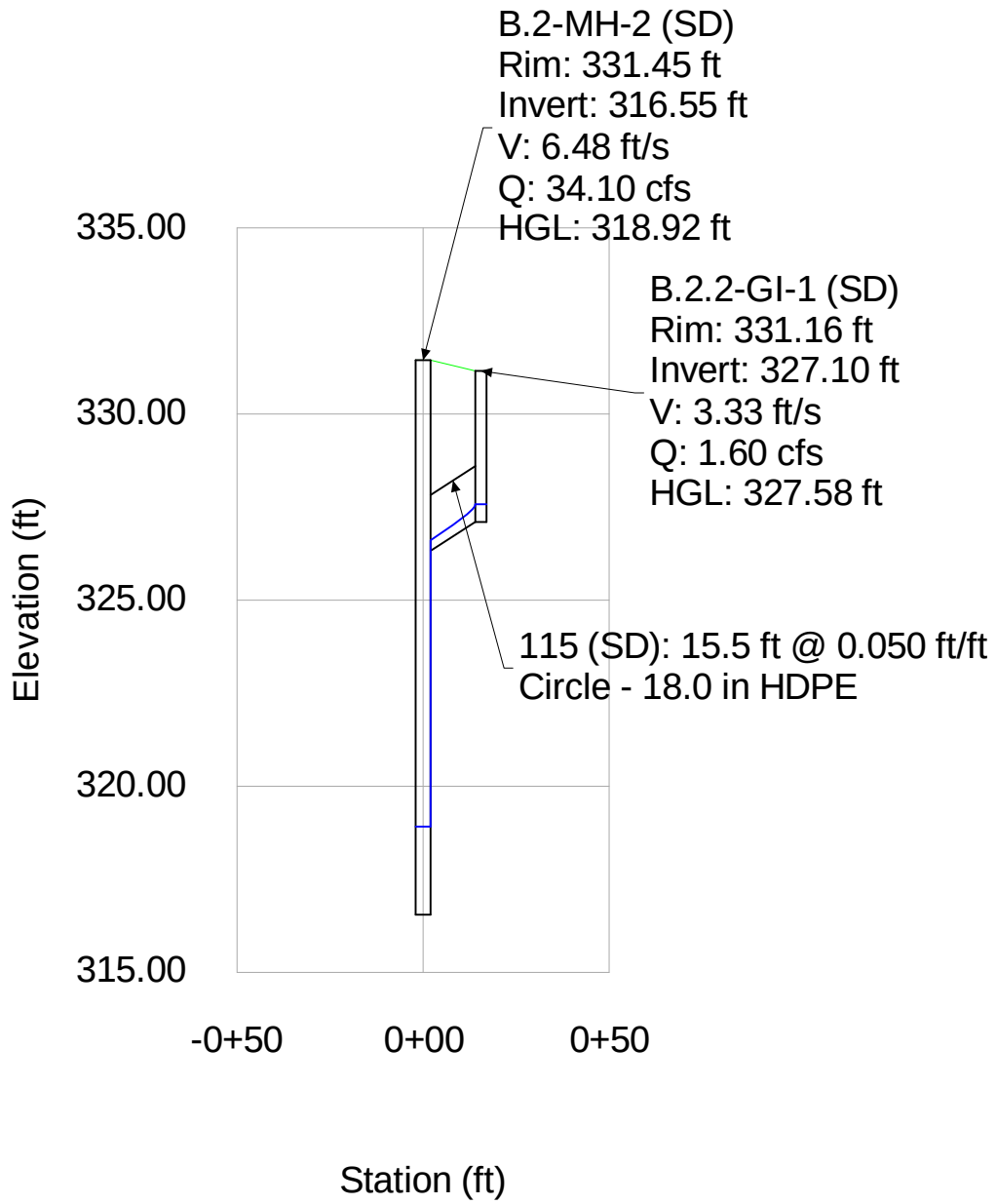

Profile Report

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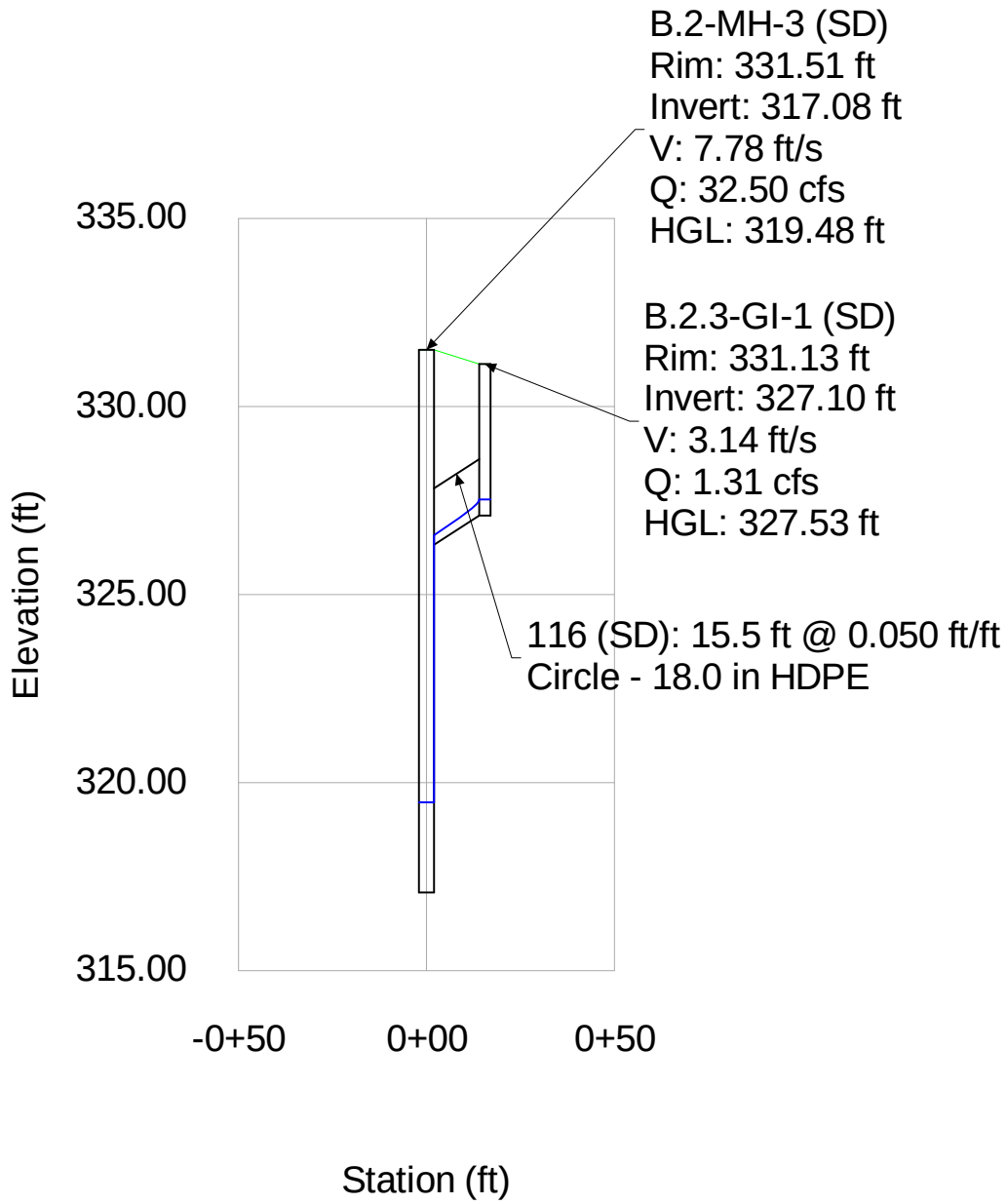

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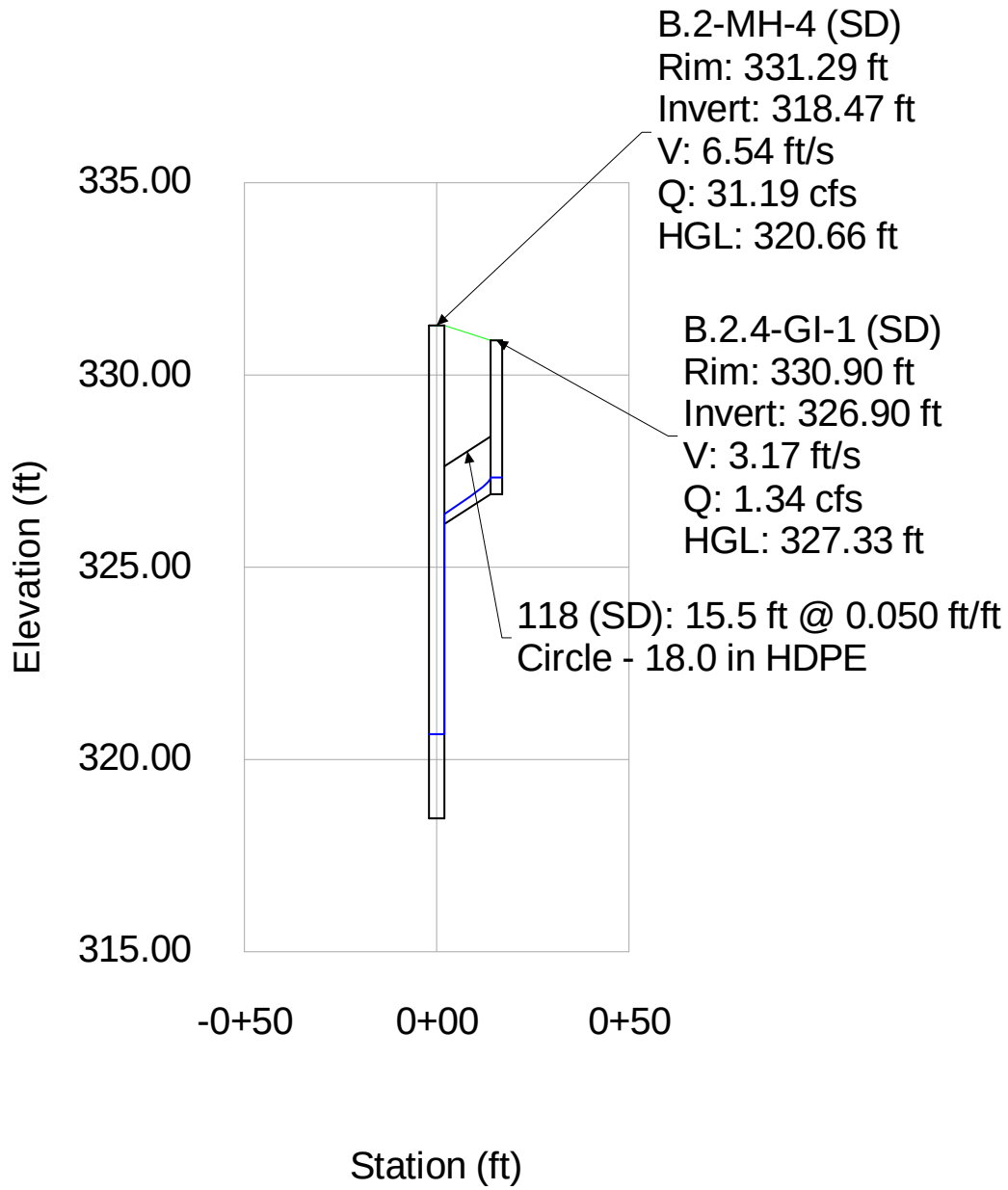

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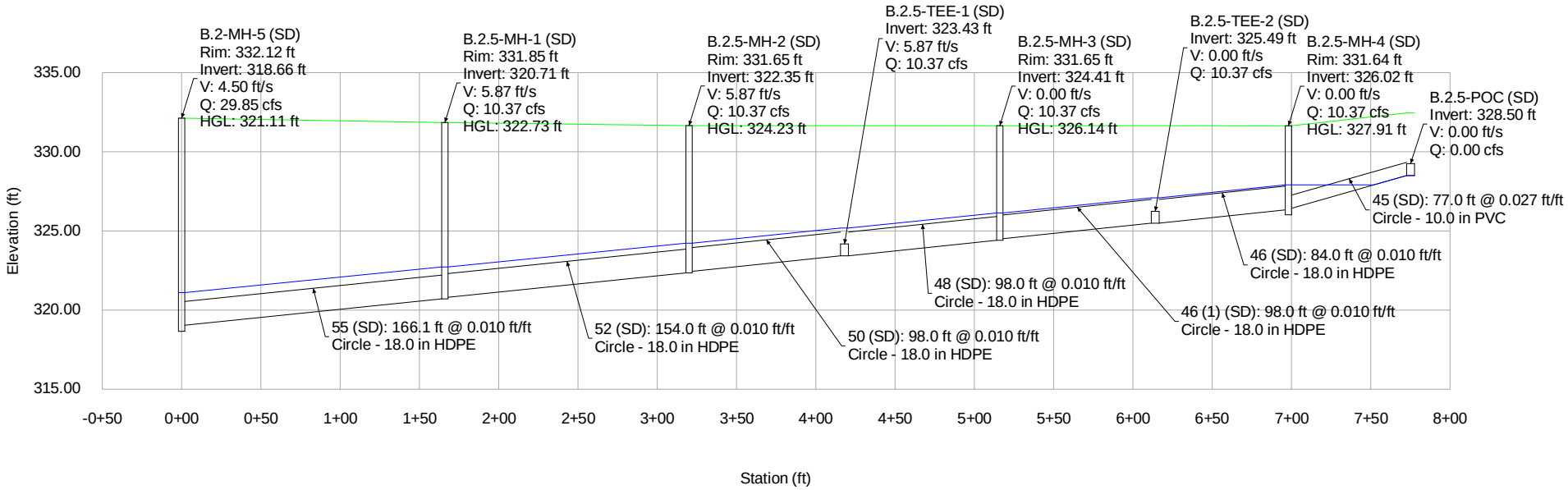

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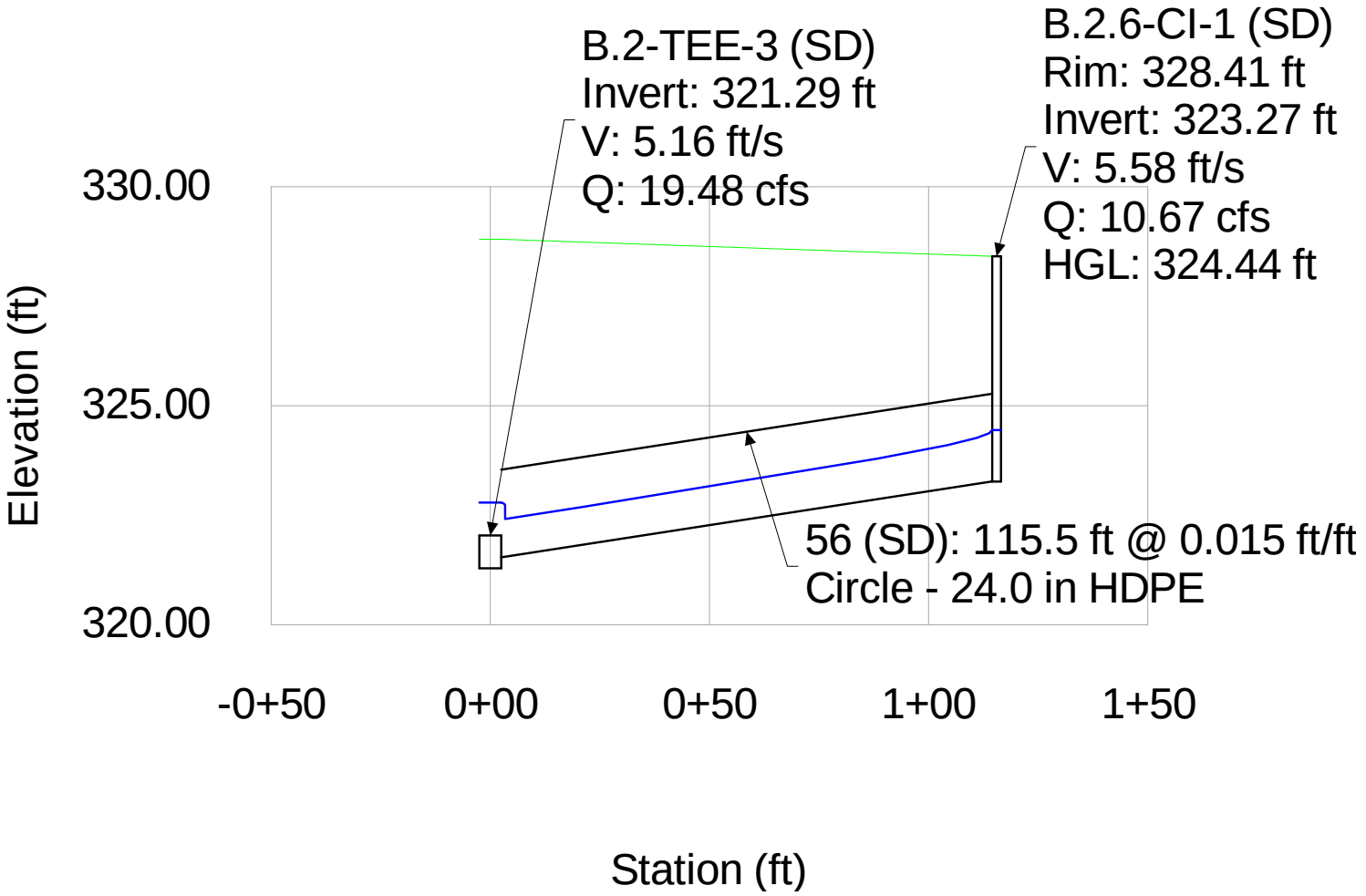

Profile Report

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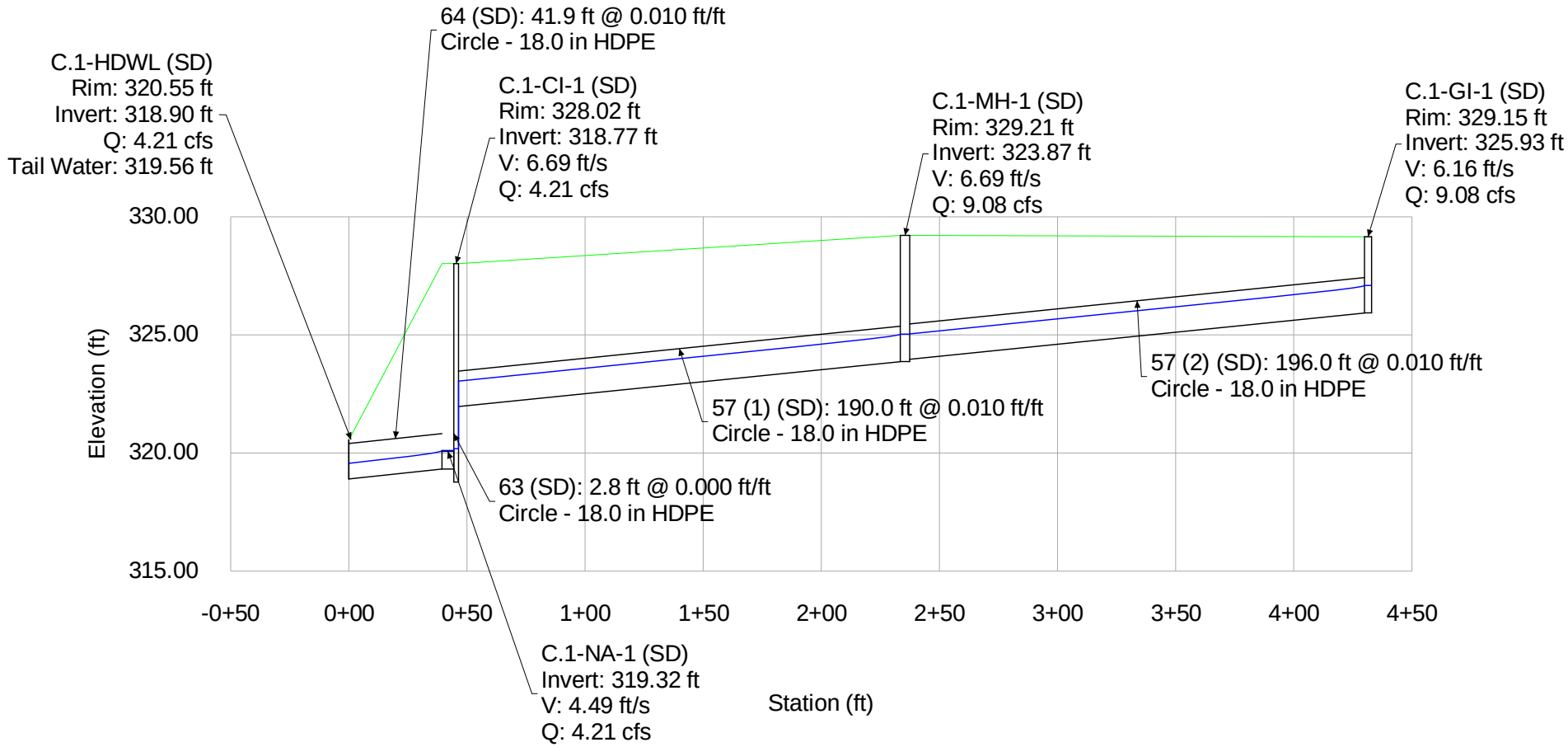

Profile Report

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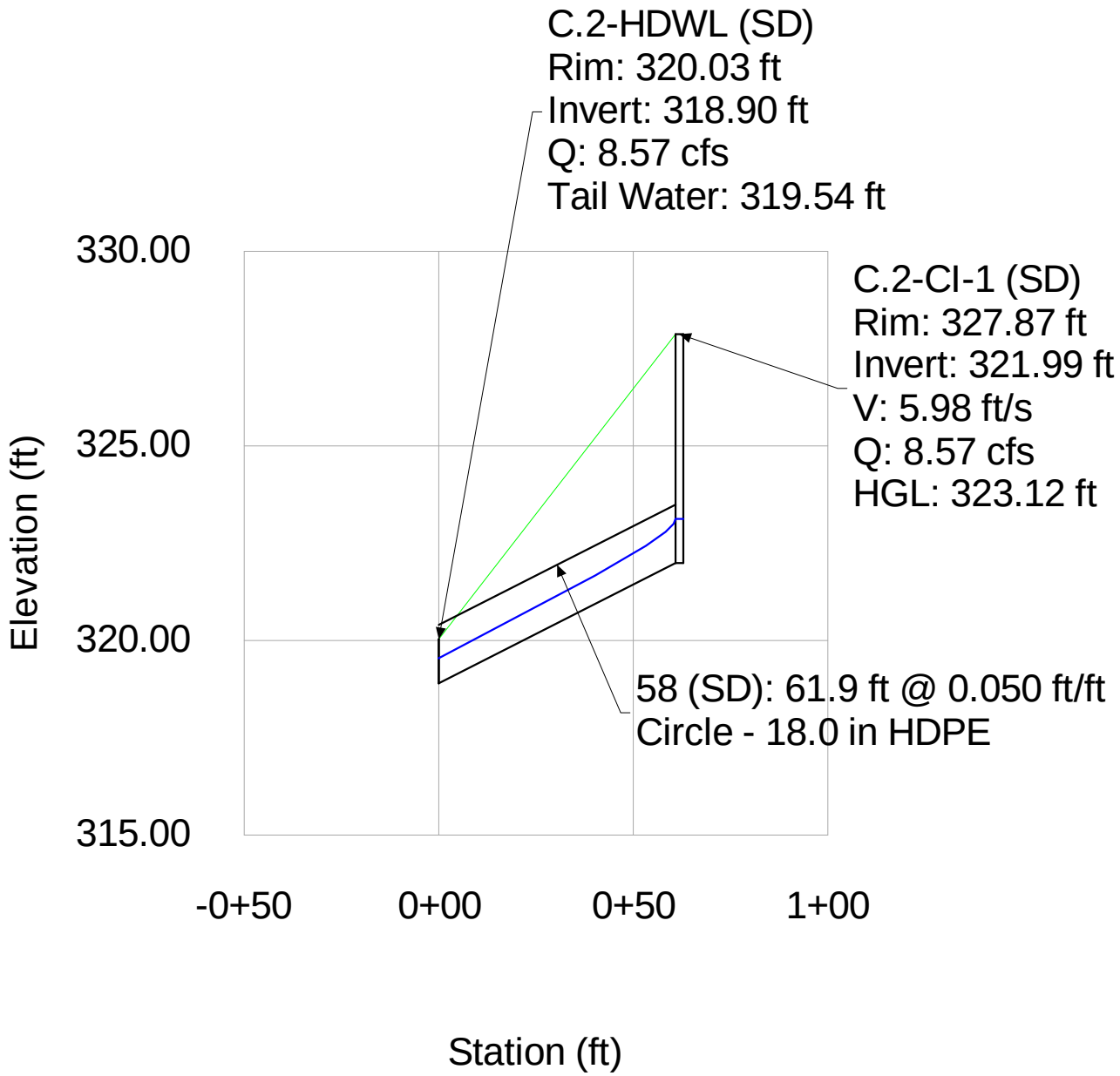

Profile Report

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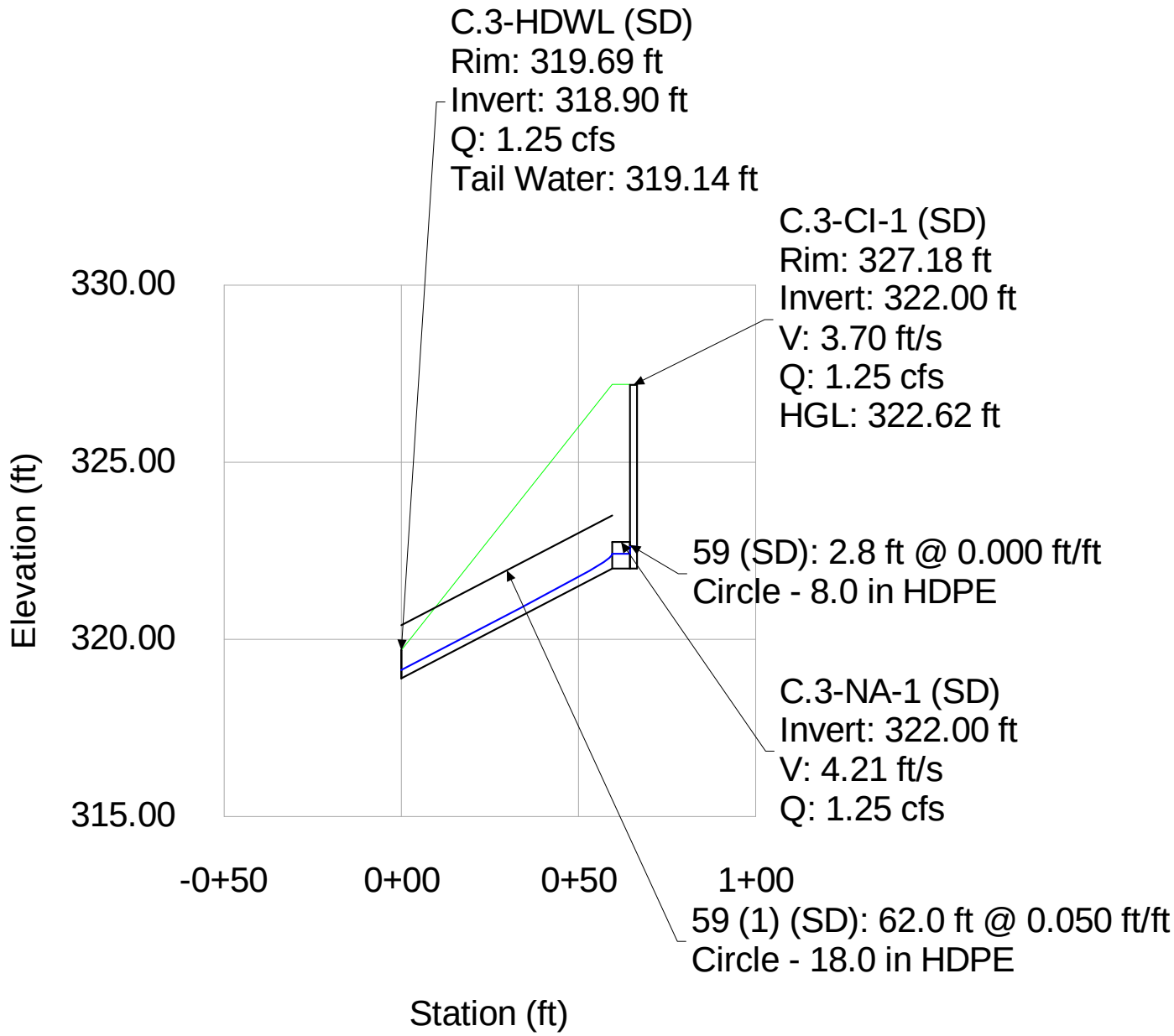

Profile Report

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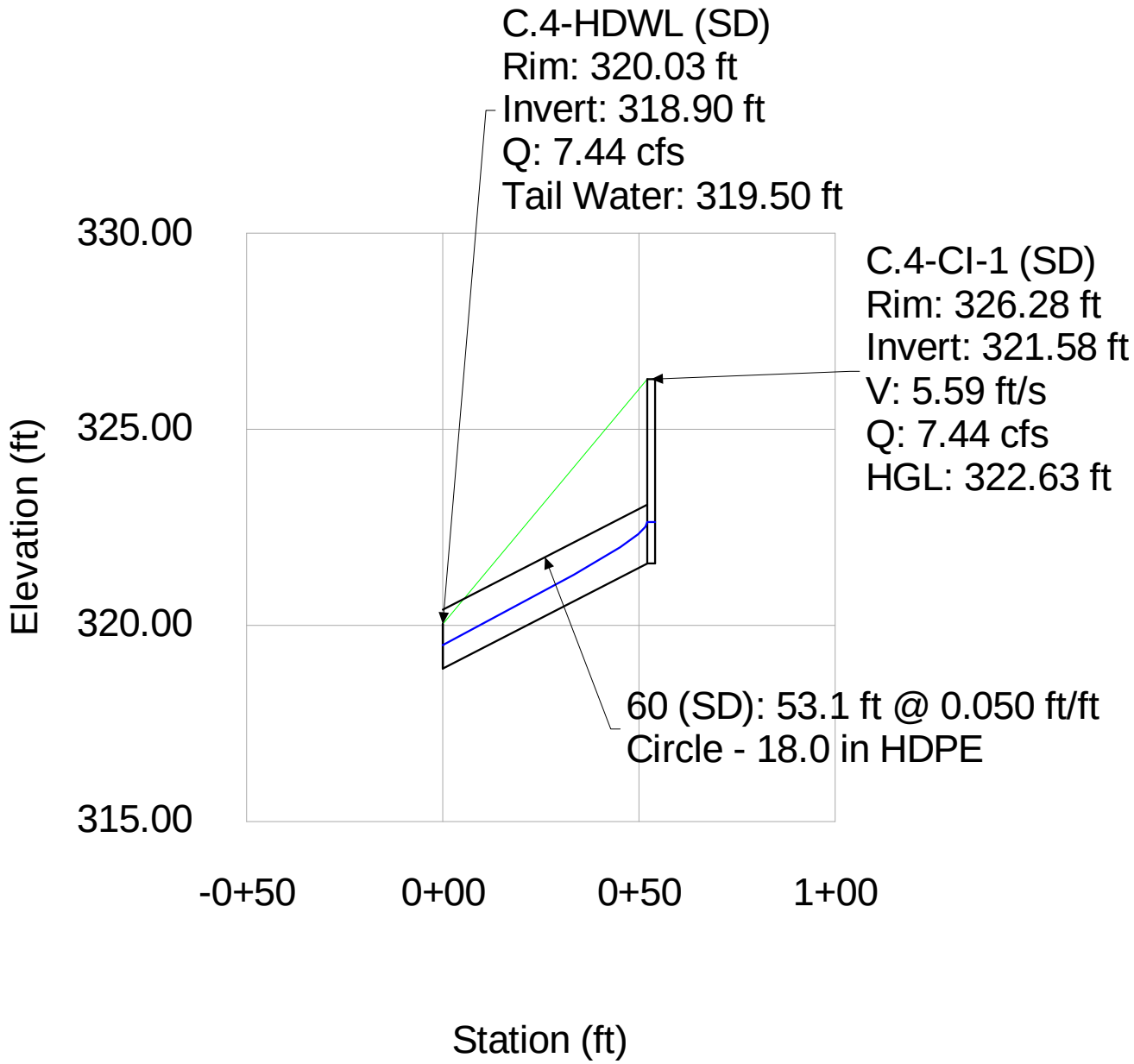

Profile Report

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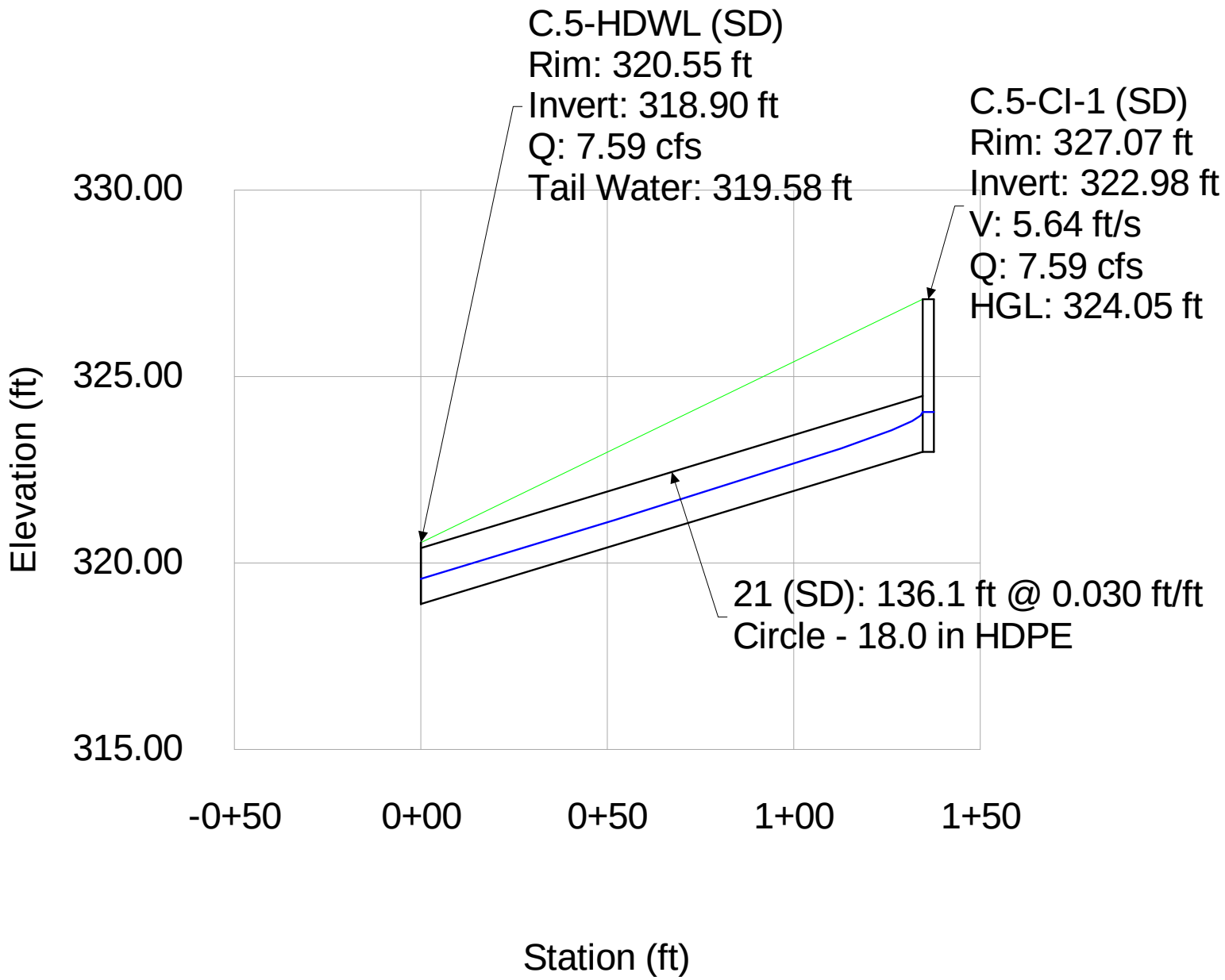

APPENDIX H

RETENTION BASIN SIZING

Project: Seefried IXD
Basin Description: BASIN A

Contour Elevation	Contour Area (sq. ft)	Depth (ft)	Incremental Volume Avg. End (cu. ft)	Cumulative Volume Avg. End (cu. ft)	Incremental Volume Conic (cu. ft)	Cumulative Volume Conic (cu. ft)
320	86,576.96	N/A	N/A	0	N/A	0
320.5	89,526.30	0.5	44,026	44,026	44,024	44,024
321	92,489.70	0.5	45,504	89,530	45,502	89,526
321.5	95,467.14	0.5	46,989	136,519	46,987	136,513
322	98,458.63	0.5	48,481	185,000	48,480	184,993
322.5	101,464.16	0.5	49,981	234,981	49,979	234,971
323	104,483.74	0.5	51,487	286,468	51,485	286,456
323.5	107,517.37	0.5	53,000	339,468	52,998	339,455
324	110,565.05	0.5	54,521	393,989	54,519	393,974
324.5	113,626.77	0.5	56,048	450,037	56,046	450,020
325	116,702.53	0.5	57,582	507,619	57,581	507,601
325.5	119,792.35	0.5	59,124	566,743	59,122	566,723
326	122,896.21	0.5	60,672	627,415	60,670	627,393
326.5	126,014.12	0.5	62,228	689,643	62,226	689,619
327	129,146.07	0.5	63,790	753,433	63,788	753,408
327.5	132,292.07	0.5	65,360	818,792	65,358	818,765

Project: Seefried IXD
Basin Description: BASIN B

Contour Elevation	Contour Area (sq. ft)	Depth (ft)	Incremental Volume Avg. End (cu. ft)	Cumulative Volume Avg. End (cu. ft)	Incremental Volume Conic (cu. ft)	Cumulative Volume Conic (cu. ft)
316	126,744.55	N/A	N/A	0	N/A	0
316.5	129,057.32	1	63,950	63,950	63,950	63,950
317	131,384.20	1	65,110	129,061	65,110	129,059
317.5	133,725.19	1	66,277	195,338	66,276	195,336
318	136,080.30	1	67,451	262,790	67,451	262,786
318.5	138,449.51	1	68,632	331,422	68,632	331,418
319	140,832.84	1	69,821	401,243	69,820	401,237
319.5	143,230.30	1	71,016	472,258	71,015	472,252
320	145,641.87	1	72,218	544,476	72,217	544,470
320.5	148,067.55	1	73,427	617,904	73,427	617,896
321	150,507.34	1	74,644	692,548	74,643	692,539
321.5	152,960.27	1	75,867	768,414	75,866	768,405
322	155,427.30	1	77,097	845,511	77,096	845,501
322.5	157,908.43	1	78,334	923,845	78,333	923,834
323	160,403.66	1	79,578	1,003,423	79,577	1,003,411
323.5	162,912.98	1	80,829	1,084,252	80,828	1,084,240
324	165,436.40	0.5	82087.34	1,166,340	82,087	1,166,326
324.5	167,973.91	0.5	83352.58	1,249,692	83,352	1,249,678
325	170,525.52	0.5	84624.86	1,334,317	84,624	1,334,302
325.5	173,091.23	0.5	85904.19	1,420,221	85,903	1,420,206
326	175,671.04	0.5	87190.57	1,507,412	87,190	1,507,395
326.5	178,264.94	0.5	88483.99	1,595,896	88,483	1,595,879
327	180,872.94	0.5	89784.47	1,685,680	89,784	1,685,662
327.5	183,495.03	0.5	91091.99	1,776,772	91,091	1,776,753
328	186,131.22	0.5	92406.56	1,869,179	92,406	1,869,159
328.5	188,781.51	0.5	93728.18	1,962,907	93,727	1,962,887
329	191,445.89	0.5	95056.85	2,057,964	95,056	2,057,943
329.5	194,124.38	0.5	96392.57	2,154,357	96,392	2,154,334
330	196,816.95	0.5	97735.33	2,252,092	97,735	2,252,069
330.5	199,523.63	0.5	99085.14	2,351,177	99,084	2,351,153
331	202,244.40	0.5	100442.01	2,451,619	100,441	2,451,595
331.5	204,979.26	0.5	101805.92	2,553,425	101,805	2,553,400
332	207,728.50	0.5	103176.94	2,656,602	103,176	2,656,576

Project: Seefried IXD

Basin Description: BASIN C

Contour Elevation	Contour Area (sq. ft)	Depth (ft)	Incremental Volume Avg. End (cu. ft)	Cumulative Volume Avg. End (cu. ft)	Incremental Volume Conic (cu. ft)	Cumulative Volume Conic (cu. ft)
319	76,123.94	N/A	N/A	0	N/A	0
319.5	77,917.90	1	38,510	38,510	38,510	38,510
320	79,725.93	1	39,411	77,921	39,410	77,920
320.5	81,548.03	1	40,318	118,240	40,318	118,237
321	83,384.20	1	41,233	159,473	41,232	159,470
321.5	85,234.44	1	42,155	201,628	42,154	201,623
322	87,098.75	1	43,083	244,711	43,082	244,706
322.5	88,977.17	1	44,019	288,730	44,018	288,724
323	90,869.76	1	44,962	333,692	44,961	333,685
323.5	92,776.50	1	45,912	379,603	45,911	379,596
324	94,697.41	1	46,868	426,472	46,868	426,463
324.5	96,632.47	1	47,832	474,304	47,832	474,295
325	98,581.70	1	48,804	523,108	48,803	523,098
325.5	100,545.23	1	49,782	572,889	49,781	572,879
326	102,523.22	1	50,767	623,657	50,766	623,645
326.5	104,515.66	1	51,760	675,416	51,759	675,404

	Tributary Area		Required Storage [V_{REQ} =0.12*D10*ai*Area(sf)]		
	SF	AC	**CF**	**AC-FT**	**1.15 of CF**
Basin A	1,166,277	26.77	383,472	8.80	440,993
Basin B	2,141,530	49.16	704,135	16.16	809,755
Basin C	775,431	17.80	254,962	5.85	293,206
	4,083,238		1,342,569		1,543,954

D_{100}	2.74
a_i	1.0

G-2: Stormwater Quality Assessment Memorandum

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Kimley»Horn

Project Ware Malcomb - Storm Water Quality Assessment Memorandum

To: Kern County - Reviewing Agency

From: Kimley-Horn and Associates, Inc.

Date: May 2023

Subject: Storm Water Quality Assessment Memorandum

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INTRODUCTION

Project Description

Kimley-Horn has been retained to prepare a storm water quality assessment for the proposed Project Ware Malcomb ("Project"). The report was prepared for the proposed ±629,186 square-foot warehouse and distribution facility, comprised of loading docks, truck courtyard, associate parking, landscape and stormwater Best Management Practices (BMPs) over the ±93.74-acre onsite project site area (overall project is 99.28 acres which consists of 5.54 acres of right-of-way dedication) .

Project Location

The Project site is located southeast of the intersection of Houghton Road and Wible Road in an unincorporated area of Kern County, California (APN 184-391-08). The site is currently agricultural farmland and is bordered on the northwest by a neighboring agricultural property, on the north by Houghton Road, on the east and south by private unpaved roads, and on the west by Wible Road.

See the vicinity map in the figure below.

Figure 1: Vicinity Map

BMP SUMMARY

Source Control BMPs

Source control BMPs are required to be incorporated in all new development and redevelopment projects unless not applicable. The table below indicates all BMPs to be incorporated in the project. For those designated as not applicable (N/A), a brief explanation why is provided.

The specific source control BMPs for the tenant improvement project include:

Table 1: Source Control BMPs

INCORPORATED SOURCE CONTROL BMP:	YES	N/A	DESCRIPTION
Peak Stormwater Runoff Discharge Rates	☐	☒	The proposed retention basin retains the peak 100-year flow, therefore there is no discharge less than the 100-year peak flow.
Conserve Natural Areas	☒	☐	Existing landscaping will be preserved as much as possible.
Minimize Stormwater Pollutants of Concern	☒	☐	The retention basins will provide treatment of stormwater runoff through infiltration. Additional source control BMPs will further minimize pollutants of concern.
Protect Slopes & Channels	☐	☒	The existing site does not currently have slopes or on-site channels, therefore no damage by surface runoff will occur.
Provide Storm Drain System Stenciling & Signage	☒	☐	The phrase “No Dumping – Drains to Ocean” or equally effective phrase will be stenciled on catch basins and/or area drains to alert the public as to the destination of pollutants discharged into the stormwater.
Properly Design Outdoor Material Storage Areas	☐	☒	There are no outdoor storage areas proposed for the project site.
Properly Design Trash Storage Areas	☐	☒	There are no proposed trash storage areas on this project site.
Provide Proof of Ongoing BMP Maintenance	☒	☐	The property owner will be responsible for the maintenance of the BMPs onsite and ensure that they are in good working order.
Properly Design Loading/Unloading Dock Areas	☒	☐	Proposed loading docks will be properly maintained.

INCORPORATED SOURCE CONTROL BMP:	YES	N/A	DESCRIPTION
Properly Design Repair/Maintenance Bays	☐	☒	There are no repair/maintenance bays proposed for the project site.
Properly Design Vehicle/ Equipment/ Accessory Wash Areas	☐	☒	There are no vehicle or equipment wash areas proposed for the project site.
Design Standards for Treatment Control BMPs	☒	☐	Post-construction structural BMP design will accommodate the 85th percentile rainfall requirement by retaining the entire peak 100 year storm event.

The following source control BMP fact sheets taken from the 2019 California BMP Handbook and shall be used as a reference to the design plans and/or specifications for new commercial improvements:

- SC-41 Building & Grounds Maintenance
- SC-43 Parking/Storage Area Maintenance
- SC-44 Drainage System Maintenance
- SD-13 Storm Drainage Signage

INSPECTION/MAINTENANCE RESPONSIBILITY

It has been determined that the property owner shall assume all BMP inspection and maintenance responsibilities for the new tenant improvements. The Owner will be responsible for maintenance of all storm drain inlets, collectors, v-ditches, basins, or any other related flood control or stormwater control devices. Furthermore, all interior streets and/or roadways, landscape, recreation areas, facilities and/or open space within the project limits will be maintained by the Owner.

Long-term Funding for BMP Maintenance

Long-term funding for BMP maintenance shall be funded by Owner.

Responsible Party Contact Information

Seefried Industrial Properties, Inc.
2201 E. Camelback Road, Suite 225B
Phoenix, AZ 85016

OPERATION & MAINTENANCE PLAN

Proper O&M is an important element of a stormwater mitigation plan to ensure BMPs remove pollution effectively. Routine maintenance or service also contributes to the efficiency and continuous operation of a system. The post development BMP maintenance responsibility and frequency matrix provided in this section detail the specific party to perform the inspection and maintenance of each BMP for the tenant Improvements and details the maintenance and inspection activities to be performed, and the frequency with which each shall be performed.

Table 2: Structural BMP Maintenance Responsibility / Frequency Matrix

BMP		RESPONSIBILITY	MAINTENANCE FREQUENCY
SD-13	Storm Drainage Signage	Seefried Properties	Storm drain stencils shall be inspected for legibility, at minimum, once prior to the storm season, no later than October 1st each year. Those determined to be illegible should be re-stenciled as soon as possible. Frequency: ANNUALLY
SD-32	Trash Storage Areas	Seefried Properties	Sweep trash area at least once per week and before October 1st each year. Maintain area clean of trash and debris at all times. Frequency: WEEKLY
SC-34	Waste Handling & Disposal	Seefried Properties	Train employees to clean regularly to remove potential sources of pollutants. Sweep area to be performed at least once per month and before October 1st of each year. Frequency: MONTHLY
SD-41	Building and Grounds Maintenance	Seefried Properties	Sweep paved areas regularly to collect loose particles, and wipe up spills with rags and other absorbent material immediately, DO NOT hose down the area to a storm drain. Frequency: WEEKLY

BMP		RESPONSIBILITY	MAINTENANCE FREQUENCY
SC-43	Parking/Storage Area Maintenance	Seefried Properties	Parking lots must be swept at least quarterly (every 3 months), including prior to the start of the rainy season (October 1st). Frequency: QUARTERLY
Retention Basin		Seefried Properties	Identify and remediate clogging issues at inlets. Trim and weed regularly. Inspect and remove litter and debris. Every 6 to 12 months Every 12 to 25 months Frequency: TWICE MONTHLY AND AFTER STORM EVENTS

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Appendix H:
Noise Impact Analysis

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Noise Impact Analysis Report
Westside Industrial Project
Kern County, California

Project Applicant:
Seefried Industrial Properties, Inc.
232 Rosecrans Avenue, Suite 2220
El Segundo, CA 90245

Contact: Sean Sheppard, Vice President, West Region

Lead Agency:
Kern County Planning and Natural Resources Department
2700 M Street 100
Bakersfield, CA 93301-2370
661.862.5041

Contact: Mark Tolentino, Supervising Planner

Prepared by:
FirstCarbon Solutions
7726 N. First Street, #413
Fresno, CA 93720
888.826.5814

Contact: Mary Bean, Project Director
Philip Ault, Director of Noise and Air Quality

Date: November 3, 2023

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ACRONYMS AND ABBREVIATIONS

ADA	Americans with Disabilities Act
ADT	Average Daily Traffic
ANSI	American National Standards Institute
Caltrans	California Department of Transportation
CBC	California Building Standards Code
CEQA	California Environmental Quality Act
CNEL	Community Noise Equivalent Level
dB	decibel
dBA	A-weighted decibel
DNL	Day-Night Level
EPA	United States Environmental Protection Agency
FCS	FirstCarbon Solutions
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
GPA	General Plan Amendment
in/sec	inch per second
L_{dn}	day-night average sound level
L_{eq}	equivalent continuous sound level
L_{max}	maximum noise/sound level
OSHA	Occupational Safety and Health Administration
PPV	peak particle velocity
rms	root mean square
RSP	Robotic Storage Platform
SEL	Single Event Level
VdB	vibration in decibels

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SECTION 1: INTRODUCTION

1.1 - Purpose of Analysis and Study Objectives

This Noise Impact Analysis Report has been prepared by FirstCarbon Solutions (FCS) to determine and document the off-site and on-site noise impacts associated with the proposed Westside Industrial Project (proposed project). The following is provided in this report:

- A description of the study area, project site, and proposed project.
- Information regarding the fundamentals of noise and vibration.
- A description of the local noise guidelines and standards.
- A description of the existing noise environment.
- An analysis of the potential short-term, construction-related noise and vibration impacts from the proposed project.
- An analysis of long-term, operations-related noise and vibration impacts from the proposed project.

1.2 - Project Summary

1.2.1 - Site Location

The approximately 93.74-acre project site is located in the southern San Joaquin Valley in unincorporated Kern County, California (Exhibit 1). The site is bounded by Wible Road (west), Houghton Road (north), and agricultural land (south and east) (Exhibit 2).

1.2.2 - Project Description

The project applicant, Seefried Industrial Properties, Inc., proposes to develop an approximately 653,442-square-foot single-story warehouse and distribution facility and related improvements. The proposed facility would have a footprint of approximately 629,186 square feet (including approximately 44, 424 square feet of office space) that would primarily facilitate material handling equipment and warehouse uses (Exhibit 3). The remaining square footage is made up of a 24,256 square foot mezzanine, which would contain only material handling equipment conveyors with occasional maintenance and no storage. Additionally, the proposed project would include two guardhouses and one pumphouse.

1.2.3 - Phasing and Construction

For the purposes of this environmental analysis, the following construction schedule was assumed. Grading of the proposed project would start in July 2024 and would last approximately 20 days. Construction would be completed in one phase, beginning in September 2024, and concluding in September 2025. The proposed project is expected to be operational in 2025.

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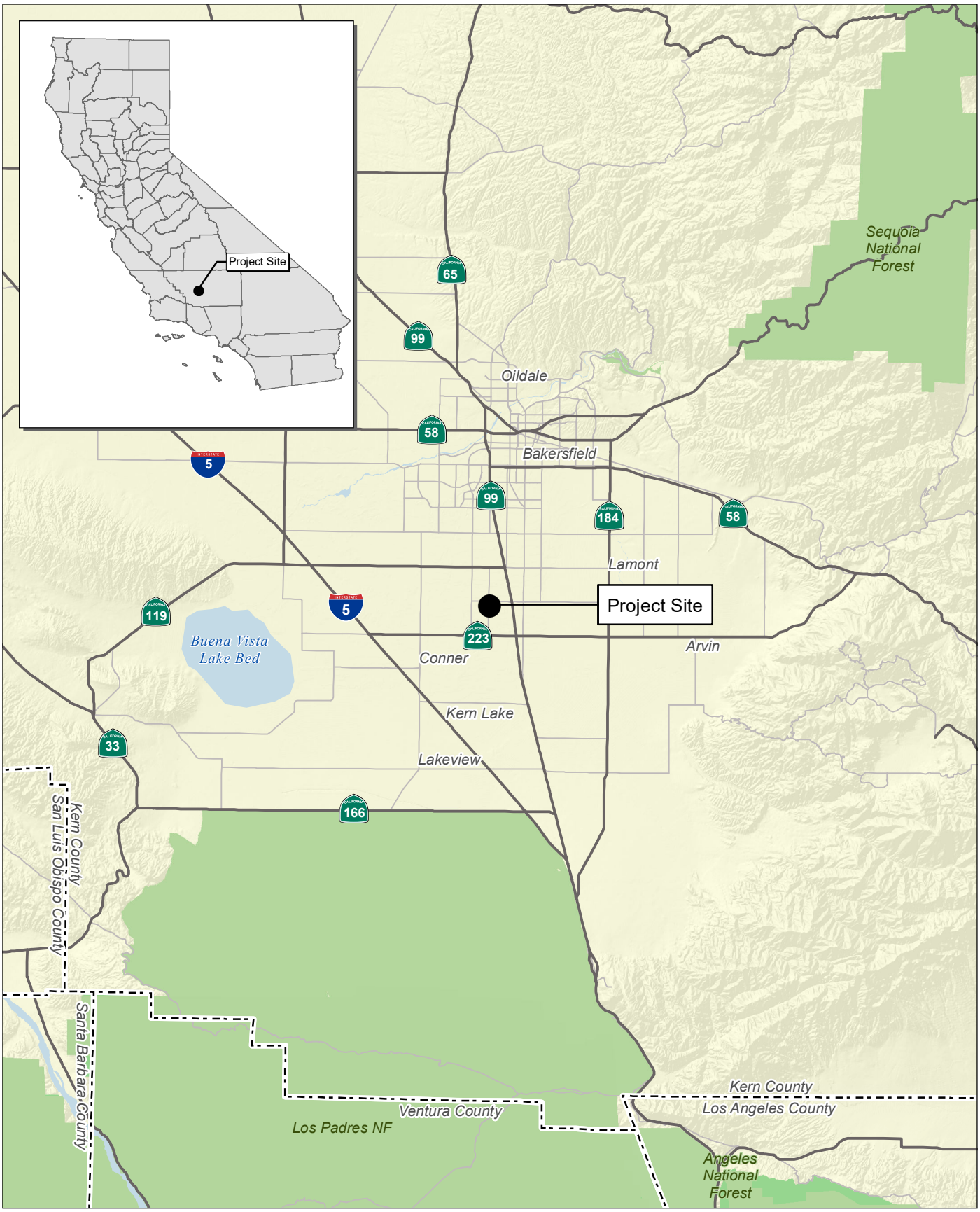

Source: Census 2000 Data, The California Spatial Information Library (CaSIL).

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8.5 4.25 0 8.5 Miles

Exhibit 1
Regional Location Map

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KERN COUNTY
WESTSIDE INDUSTRIAL PROJECT
NOISE IMPACT ANALYSIS REPORT

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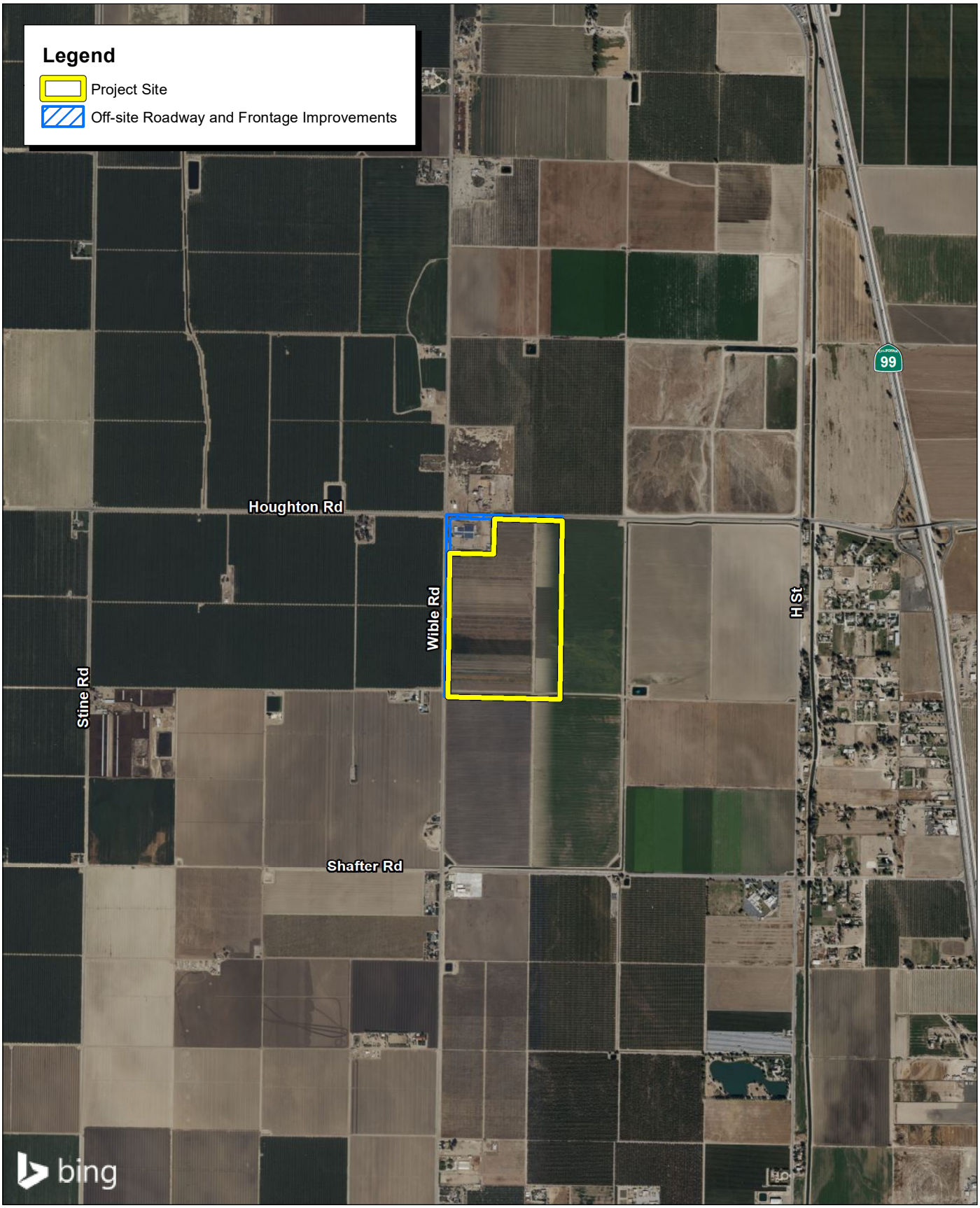

Source: Bing Aerial Imagery.

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2,000 1,000 0 2,000
Feet

Exhibit 2
Local Vicinity Map

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KERN COUNTY
WESTSIDE INDUSTRIAL PROJECT
NOISE IMPACT ANALYSIS REPORT

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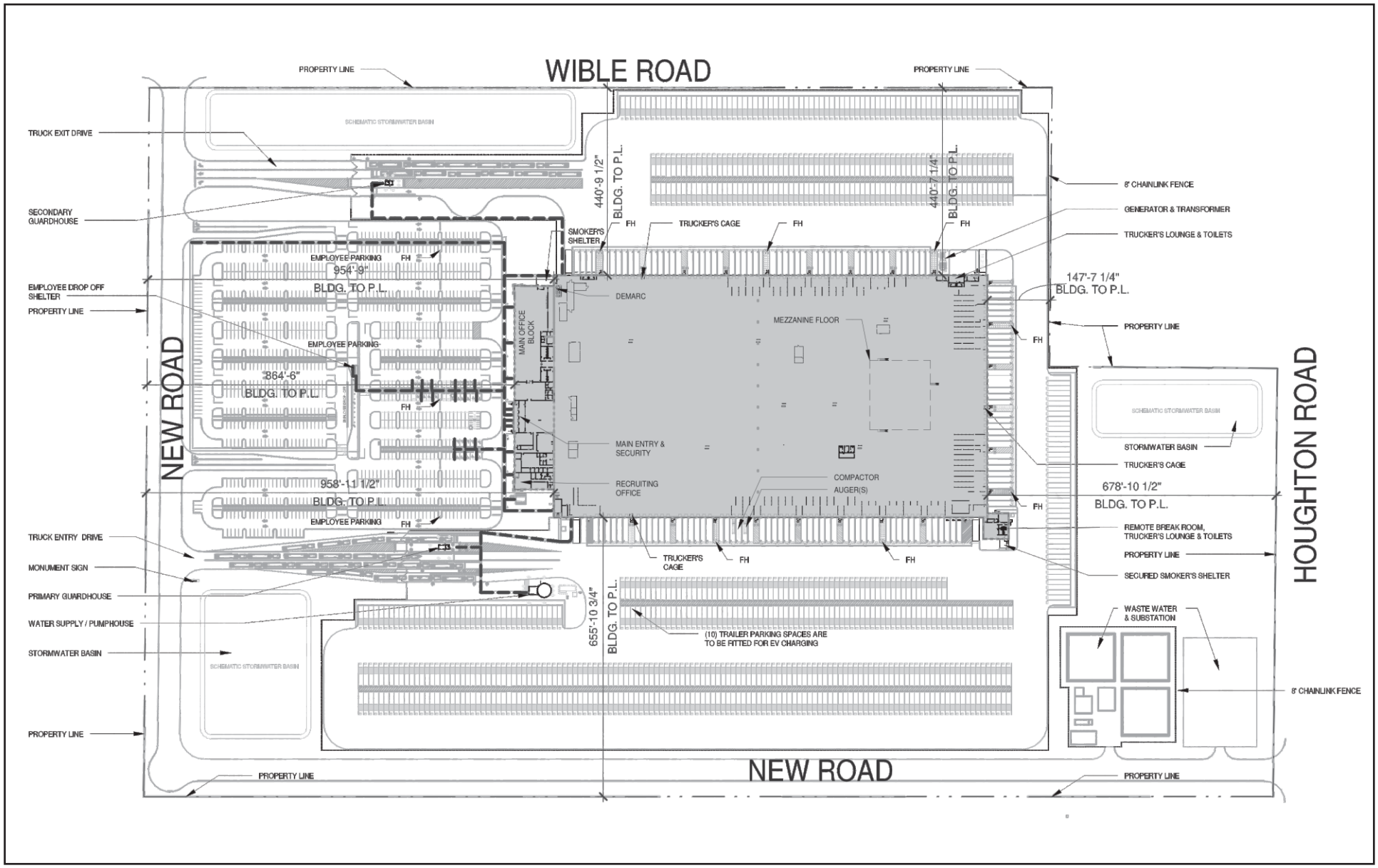

Source: Kimley-Horn, Ware Malcomb, 03/30/2023.

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Exhibit 3
Site Plan

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SECTION 2: NOISE AND VIBRATION FUNDAMENTALS

2.1 - Characteristics of Noise

Noise is generally defined as unwanted or objectionable sound. Sound becomes unwanted when it interferes with normal activities, when it causes actual physical harm, or when it has adverse effects on health. The effects of noise on people can include general annoyance, interference with speech communication, sleep disturbance, and in the extreme, hearing impairment. Noise effects can be caused by pitch or loudness. *Pitch* is the number of complete vibrations or cycles per second of a wave that result in the range of tone from high to low; higher-pitched sounds are louder to humans than lower-pitched sounds. *Loudness* is the intensity or amplitude of sound.

Sound is produced by the vibration of sound pressure waves in the air. Sound pressure levels are used to measure the intensity of sound and are described in terms of decibels. The decibel (dB) is a logarithmic unit, which expresses the ratio of the sound pressure level being measured to a standard reference level. The 0 point on the dB scale is based on the lowest sound level that the healthy, unimpaired human ear can detect. Changes of 3 dB or less are only perceptible in laboratory environments. Audible increases in noise levels generally refer to a change of 3 dB or more, as this level has been found to be barely perceptible to the human ear in outdoor environments. Only audible changes in existing ambient or background noise levels are considered potentially significant.

The human ear is not equally sensitive to all frequencies within the audible sound spectrum, so sound pressure level measurements can be weighted to better represent frequency-based sensitivity of average healthy human hearing. One such specific “filtering” of sound is called “A-weighting.” A-weighted decibels (dBA) approximate the subjective response of the human ear to a broad frequency noise source by discriminating against very low and very high frequencies of the audible spectrum. They are adjusted to reflect only those frequencies that are audible to the human ear. Because decibels are logarithmic units, they cannot be added or subtracted by ordinary arithmetic means. For example, if one noise source produces a noise level of 70 dB, the addition of another noise source with the same noise level would not produce 140 dB; rather, they would combine to produce a noise level of 73 dB.

As noise spreads from a source, it loses energy so that the farther away the noise receiver is from the noise source, the lower the perceived noise level. Noise levels diminish or attenuate as distance from the source increases based on an inverse square rule, depending on how the noise source is physically configured. Noise levels from a single-point source, such as a single piece of construction equipment at ground level, attenuate at a rate of 6 dB for each doubling of distance (between the single-point source of noise and the noise-sensitive receptor of concern). Heavily traveled roads with few gaps in traffic behave as continuous line sources and attenuate roughly at a rate of 3 dB per doubling of distance.

2.1.1 - Noise Descriptors

There are many ways to rate noise for various time periods, but an appropriate rating of ambient noise affecting humans also accounts for the annoying effects of sound. Equivalent continuous sound level (L_{eq}) is the total sound energy of time-varying noise over a sample period. However, the predominant rating scales for human communities in the State of California are the L_{eq} and Community Noise Equivalent Level (CNEL) or the day-night average level (L_{dn}) based on dBA. CNEL is the time-varying noise over a 24-hour period, with a 5 dBA weighting factor applied to the hourly L_{eq} for noises occurring from 7:00 p.m. to 10:00 p.m. (defined as relaxation hours) and a 10 dBA weighting factor applied to noise occurring from 10:00 p.m. to 7:00 a.m. (defined as sleeping hours). L_{dn} is similar to the CNEL scale but without the adjustment for events occurring during the evening hours. CNEL and L_{dn} are within 1 dBA of each other and are normally exchangeable. The noise adjustments are added to the noise events occurring during the more sensitive hours.

Other noise rating scales of importance when assessing the annoyance factor include the maximum noise level (L_{max}), which is the highest exponential time-averaged sound level that occurs during a stated time period. The noise environments discussed in this analysis are specified in terms of maximum levels denoted by L_{max} for short-term noise impacts. L_{max} reflects peak operating conditions and addresses the annoying aspects of intermittent noise.

2.1.2 - Noise Propagation

From the noise source to the receiver, noise changes both in level and frequency spectrum. The most obvious is the decrease in noise as the distance from the source increases. The manner in which noise reduces with distance depends on whether the source is a point or line source, as well as ground absorption, atmospheric conditions (wind, temperature gradients, and humidity) and refraction, and shielding by natural and manmade features. Sound from point sources, such as an air conditioning condenser, a piece of construction equipment, or an idling truck, radiates uniformly outward as it travels away from the source in a spherical pattern.

The attenuation or sound drop-off rate is dependent on the conditions of the land between the noise source and receiver. To account for this ground-effect attenuation (absorption), two types of site conditions are commonly used in noise models: soft-site and hard-site conditions. Soft-site conditions account for the sound propagation loss over natural surfaces such as normal earth and ground vegetation. For point sources, a drop-off rate of 7.5 dBA per each doubling of the distance (dBA/DD) is typically observed over soft ground with landscaping, as compared with a 6 dBA/DD drop-off rate over hard ground such as asphalt, concrete, stone, and very hard packed earth. For line sources, such as traffic noise on a roadway, a 4.5 dBA/DD is typically observed for soft-site conditions compared to the 3 dBA/DD drop-off rate for hard-site conditions. Table 1 briefly defines these measurement descriptors and other sound terminology used in this section.

Table 1: Sound Terminology

Term	Definition
Sound	A vibratory disturbance created by a vibrating object which, when transmitted by pressure waves through a medium such as air, can be detected by a receiving mechanism such as the human ear or a microphone.
Noise	Sound that is loud, unpleasant, unexpected, or otherwise undesirable.
Ambient Noise	The composite of noise from all sources near and far in a given environment.
Decibel (dB)	A unitless measure of sound on a logarithmic scale, which represents the squared ratio of sound pressure amplitude to a reference sound pressure. The reference pressure is 20 micropascals, representing the threshold of human hearing (0 dB).
A-Weighted Decibel (dBA)	An overall frequency-weighted sound level that approximates the frequency response of the human ear.
Equivalent Noise Level (L_{eq})	The average sound energy occurring over a specified time period. In effect, L_{eq} is the steady-state sound level that in a stated period would contain the same acoustical energy as the time-varying sound that actually occurs during the same period.
Maximum and Minimum Noise Levels (L_{max} and L_{min})	The maximum or minimum instantaneous sound level measured during a measurement period.
Day-Night Level (DNL or L_{dn})	The energy average of the A-weighted sound levels occurring during a 24-hour period, with 10 dB added to the A-weighted sound levels occurring between 10:00 p.m. and 7:00 a.m. (nighttime).
Community Noise Equivalent Level (CNEL)	The energy average of the A-weighted sound levels occurring during a 24-hour period, with 5 dB added to the A-weighted sound levels occurring between 7:00 p.m. and 10:00 p.m. and 10 dB added to the A-weighted sound levels occurring between 10:00 p.m. and 7:00 a.m.
Source: Data compiled by FirstCarbon Solutions (FCS) 2021.	

2.1.3 - Traffic Noise

The level of traffic noise depends on the three primary factors: (1) the volume of the traffic, (2) the speed of the traffic, and (3) the number of trucks in the flow of traffic. Generally, the loudness of traffic noise is increased by heavier traffic volumes, higher speeds, and greater number of trucks. Vehicle noise is a combination of the noise produced by the engine, exhaust, and tires. Because of the logarithmic nature of noise levels, a doubling of the traffic volume (assuming that the speed and truck mix do not change) results in a noise level increase of 3 dBA. Based on the Federal Highway

Administration (FHWA) community noise assessment criteria, this change is "barely perceptible." For reference, a doubling of perceived noise levels would require an increase of approximately 10 dBA. The truck mix on a given roadway also has an effect on community noise levels. As the number of heavy trucks increases and becomes a larger percentage of the vehicle mix, adjacent noise levels increase.

2.1.4 - Stationary Noise

A stationary noise producer is any entity in a fixed location that emits noise. Examples of stationary noise sources include machinery, engines, energy production, and other mechanical or powered equipment and activities such as loading and unloading or public assembly that may occur at commercial, industrial, manufacturing, or institutional facilities. Furthermore, while noise generated by the use of motor vehicles over public roads is preempted from local regulation, the use of these vehicles is considered a stationary noise source when operated on private property such as at a construction-site, a truck terminal, or warehousing facility.

The effects of stationary noise depend on factors such as characteristics of the equipment and operations, distance and pathway between the generator and receptor, and weather. Stationary noise sources may be regulated at the point of manufacture (e.g., equipment or engines), with limitations on the hours of operation, or with provision of intervening structures, barriers, or topography.

Construction activities are a common source of stationary noise. Construction-period noise levels are higher than background ambient noise levels but eventually cease once construction is complete. Construction is performed in discrete steps, each of which has its own mix of equipment and, consequently, its own noise characteristics. These various sequential phases would change the character of the noise generated on each construction-site and, therefore, would change the noise levels as construction progresses. Despite the variety in the type and size of construction equipment, similarities in the dominant noise sources and patterns of operation allow construction-related noise ranges to be categorized by work phase. Table 2 shows typical noise levels of construction equipment as measured at a distance of 50 feet from the operating equipment.

Table 2: Typical Construction Equipment Maximum Noise Levels, L_{max}

Type of Equipment	Impact Device? (Yes/No)	Specification Maximum Sound Levels for Analysis (dBA at 50 feet)
Impact Pile Driver	Yes	95
Auger Drill Rig	No	85
Vibratory Pile Driver	No	95
Jackhammers	Yes	85
Pneumatic Tools	No	85
Pumps	No	77
Scrapers	No	85
Cranes	No	85
Portable Generators	No	82

Type of Equipment	Impact Device? (Yes/No)	Specification Maximum Sound Levels for Analysis (dBA at 50 feet)
Rollers	No	85
Bulldozers	No	85
Tractors	No	84
Front-End Loaders	No	80
Backhoe	No	80
Excavators	No	85
Graders	No	85
Air Compressors	No	80
Dump Truck	No	84
Concrete Mixer Truck	No	85
Pickup Truck	No	55

Notes:
dBA = A-weighted decibel
Source: Federal Highway Administration (FHWA). 2006. Highway Construction Noise Handbook. August.

2.1.5 - Noise from Multiple Sources

Because sound pressure levels in decibels are based on a logarithmic scale, they cannot be added or subtracted in the usual arithmetical way. Therefore, sound pressure levels in decibels are logarithmically added on an energy summation basis. In other words, adding a new noise source to an existing noise source, both producing noise at the same level, will not double the noise level. Instead, if the difference between two noise sources is 10 dBA or more, the louder noise source will dominate, and the resultant noise level will be equal to the noise level of the louder source. In general, if the difference between two noise sources is 0–1 dBA, the resultant noise level will be 3 dBA higher than the louder noise source, or both sources if they are equal. If the difference between two noise sources is 2–3 dBA, the resultant noise level will be 2 dBA above the louder noise source. If the difference between two noise sources is 4–10 dBA, the resultant noise level will be 1 dBA higher than the louder noise source.

2.2 - Characteristics of Groundborne Vibration and Noise

Groundborne vibration consists of rapidly fluctuating motion through a solid medium, specifically the ground, that has an average motion of zero and in which the motion's amplitude can be described in terms of displacement, velocity, or acceleration. The effects of groundborne vibration typically only causes a nuisance to people, but in extreme cases, excessive groundborne vibration has the potential to cause structural damage to buildings. Although groundborne vibration can be felt outdoors, it is typically only an annoyance to people indoors where the associated effects of the shaking of a building can be notable. Groundborne noise is an effect of groundborne vibration and only exists indoors, since it is produced from noise radiated from the motion of the walls and floors of a room and may also consist of the rattling of windows or dishes on shelves.

Several different methods are used to quantify vibration amplitude such as the maximum instantaneous peak in the vibrations velocity, which is known as the peak particle velocity (PPV) or the root mean square (rms) amplitude of the vibration velocity. Because of the typically small amplitudes of vibrations, vibration velocity is often expressed in decibels–denoted as LV–and is based on the reference quantity of 1 microinch per second. To distinguish these vibration levels referenced in decibels from noise levels referenced in decibels, the unit is written as "VdB."

Although groundborne vibration can be felt outdoors, it is typically only an annoyance to people indoors where the associated effects of the shaking of a building can be notable. When assessing annoyance from groundborne vibration, vibration is typically expressed as rms velocity in units of decibels of 1 microinch per second, with the unit written in VdB. Typically, developed areas are continuously affected by vibration velocities of 50 VdB or lower. Human perception to vibration starts at levels as low as 67 VdB. Annoyance due to vibration in residential settings starts at approximately 70 VdB.

Off-site sources that may produce perceptible vibrations are usually caused by construction equipment, steel-wheeled trains, and traffic on rough roads, while smooth roads rarely produce perceptible groundborne noise or vibration. Construction activities, such as blasting, pile driving and operating heavy earthmoving equipment, are common sources of groundborne vibration. Construction vibration impacts on building structures are generally assessed in terms of PPV. Typical vibration source levels from construction equipment are shown in Table 3.

Table 3: Vibration Levels of Construction Equipment

Construction Equipment	PPV at 25 Feet (inches/second)	rms VdB at 25 Feet
Water Trucks	0.001	57
Scraper	0.002	58
Bulldozer—Small	0.003	58
Jackhammer	0.035	79
Concrete Mixer	0.046	81
Concrete Pump	0.046	81
Paver	0.046	81
Pickup Truck	0.046	81
Auger Drill Rig	0.051	82
Backhoe	0.051	82
Crane (Mobile)	0.051	82
Excavator	0.051	82
Grader	0.051	82
Loader	0.051	82
Loaded Trucks	0.076	86

Construction Equipment	PPV at 25 Feet (inches/second)	rms VdB at 25 Feet
Bulldozer—Large	0.089	87
Caisson drilling	0.089	87
Vibratory Roller—Small	0.101	88
Compactor	0.138	90
Clam shovel drop	0.202	94
Vibratory Roller—Large	0.210	94
Pile Driver (impact-typical)	0.644	104
Pile Driver (impact-upper range)	1.518	112

Notes:
PPV = peak particle velocity
rms = root mean square
VdB = vibration in decibels
Source: Compilation of scientific and academic literature, generated by the Federal Transit Administration (FTA) and Federal Highway Administration (FHWA).

The propagation of groundborne vibration is not as simple to model as airborne noise. This is because noise in the air travels through a relatively uniform medium, while groundborne vibrations travel through the earth, which may contain significant geological differences. Factors that influence groundborne vibration include:

- **Vibration source:** Type of activity or equipment, such as impact or mobile, and depth of vibration source.
- **Vibration path:** Soil type, rock layers, soil layering, depth to water table, and frost depth.
- **Vibration receiver:** Foundation type, building construction, and acoustical absorption.

Among these factors that influence groundborne vibration, there are significant differences in the vibration characteristics when the source is underground compared to at the ground surface. In addition, soil conditions are known to have a strong influence on the levels of groundborne vibration. Among the most important factors are the stiffness and internal damping of the soil and the depth to bedrock. Vibration propagation is more efficient in stiff clay soils than in loose sandy soils, and shallow rock seems to concentrate the vibration energy close to the surface and can result in groundborne vibration problems at large distance from the source. Factors such as layering of the soil and depth to the water table can have significant effects on the propagation of groundborne vibration. Soft, loose, sandy soils tend to attenuate more vibration energy than hard, rocky materials. Vibration propagation through groundwater is more efficient than through sandy soils. There are three main types of vibration propagation: surface, compression, and shear waves. Surface waves, or Rayleigh waves, travel along the ground's surface. These waves carry most of their energy along an expanding circular wave front, similar to ripples produced by throwing a rock into a pool of water. P-waves, or compression waves, are body waves that carry their energy along an expanding spherical wave front. The particle motion in these waves is longitudinal (i.e., in a "push-pull" fashion). P-waves

are analogous to airborne sound waves. S-waves, or shear waves, are also body waves that carry energy along an expanding spherical wave front. However, unlike P-waves, the particle motion is transverse, or side-to-side and perpendicular to the direction of propagation.

As vibration waves propagate from a source, the vibration energy decreases in a logarithmic nature and the vibration levels typically decrease by 6 VdB per doubling of the distance from the vibration source. As stated above, this drop-off rate can vary greatly depending on the soil type, but it has been shown to be effective enough for screening purposes, in order to identify potential vibration impacts that may need to be studied through actual field tests. The vibration level (calculated below as PPV) at a distance from a point source can generally be calculated using the vibration reference equation:

$$PPV = PPV_{ref} * (25/D)^n \text{ (in/sec)}$$

Where:

PPV_{ref} = reference measurement at 25 feet from vibration source
D = distance from equipment to property line
n = vibration attenuation rate through ground

According to Section 7 of the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual, an "n" value of 1.5 is recommended to calculate vibration propagation through typical soil conditions.[1]

[1] Federal Transit Administration (FTA). 2018. Transit Noise and Vibration Impact Assessment Manual. September.

SECTION 3: REGULATORY SETTING

3.1 - Federal Regulations

Currently, no federal noise standards regulate environmental noise associated with temporary construction activities or the long-term operations of development projects. As such, both temporary and long-term noise impacts resulting from the proposed project would be largely regulated or otherwise evaluated by State and local agency standards designed to protect public well-being and health.

3.1.1 - Federal Transit Administration

Though not regulatory in nature, vibration impact criteria for buildings and other structures have been established by the FTA, as building and structural damages are generally the foremost concern when evaluating the impacts of construction-related vibrations. For the evaluation of the proposed project's construction-related vibration impacts, the following FTA vibration impact criteria, shown in Table 4 are used given the absence of applicable federal, State, and City standards specific to temporary construction activities and their potential to result in building and structural damages.

Table 4: Federal Transit Administration Construction Vibration Impact Criteria

Building Category	PPV (in/sec)	Approximate VdB
I. Reinforced—Concrete, Steel or Timber (no plaster)	0.5	102
II. Engineered Concrete and Masonry (no plaster)	0.3	98
III. Non-engineered Timber and Masonry Buildings	0.2	94
IV. Buildings Extremely Susceptible to Vibration Damage	0.12	90

Notes:
VdB = velocity in decibels
PPV = peak particle velocity
in/sec = inch per second
Source: Federal Transit Administration (FTA). 2018. Transit Noise and Vibration Impact Assessment Manual. September.

3.2 - State Regulations

The State of California's General Plan Guidelines propose county and city standards for acceptable exterior noise levels based on land use. These standards are incorporated into land use planning processes to prevent or reduce noise and land use incompatibilities. The State's suggested compatibility considerations between various land uses and exterior noise levels are not regulatory in nature but are recommendations intended to aid communities in determining their own noise-acceptability standards.

3.3 - Local Regulations

The project site is located within unincorporated Kern County. Kern County and City of Bakersfield have separately adopted a coordinated general plan for the unincorporated metropolitan area the

Metropolitan Bakersfield General Plan, in 2002. Therefore, this analysis evaluates noise impacts compared to the policies and standards of the Metropolitan Bakersfield General Plan and in the County Municipal Code.

The applicable regulations are summarized below.

Metropolitan Bakersfield General Plan

Chapter VII: Noise Element

Policies

Policy 1 Identify noise impact areas exposed to existing or projected noise levels exceeding 65 dB CNEL (exterior) or the performance standards described in Table VII-2 [of the General Plan]. The noise exposure contour maps on file at the City of Bakersfield and County of Kern indicate areas where existing and projected noise exposures exceed 65 dB CNEL (exterior) for the major noise sources identified.

Policy 3 Review discretionary industrial, commercial or other noise-generating land use projects for compatibility with nearby noise-sensitive land uses.

Additionally, the development of new noise-generating land uses which are not preempted from local noise regulation will be reviewed if resulting noise levels will exceed the performance standards contained within Table VII-2 [of the General Plan] in areas containing residential or other noise-sensitive land uses.

Implementation Measures

Measure 4 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 CNEL and interior noise levels in excess of 45 dB CNEL and so that impacts on noise-sensitive uses shall not exceed the performance standards in Table VII-2 [of the General Plan].

At time of any discretionary approval, such as a request for 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) Include representative noise level measurements with sufficient sampling periods and locations to adequately describe local conditions.
d) Include estimated noise levels in terms of CNEL and the standards of Table VII-2 (if applicable) for existing and projected future (10-20 years hence) conditions, with a comparison made to the adopted policies of the Noise Element.
e) Include recommendations for appropriate mitigation to achieve compliance with the adopted policies and standards of the Noise Element.

f) 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.

Measure 5 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.

Measure 10 The following standards shall be used to determine the existence of significant cumulative noise impacts expected to result from proposed construction or development projects. The projected occurrence of such significant cumulative impacts shall require the adoption of practical and feasible mitigation measures to be identified in an Environmental Impact Report or Negative Declaration, whichever is applicable.

Standards for Cumulative Noise Impacts
A significant increase in ambient noise level affective existing noise-sensitive land uses (receptors), requiring the adoption of practical and feasible mitigation measures, is deemed to occur where a project will cause:

- An increase in ambient noise level of 1dB or more over 65dB CNEL, where the existing ambient level is 65dB CNEL or less;
- The ambient noise level is less than 60 dB CNEL and the project increases noise levels by 5 dB or more;
- The ambient noise level is 60 to 65 dB CNEL and the project increases noise levels by 3 dB or more; or
- The ambient noise level is greater than 65 dB CNEL and the project increases noise levels by 1.5 dB or more.

Kern County Municipal Code

The County Municipal Code[2] has established limits on permissible hours of construction. Permissible construction hours are from 6:00 a.m. to 9:00 p.m. on weekdays and from 8:00 a.m. and 9:00 p.m. on weekends. Any exemption to these hours must be granted by a County approved permit. The purpose is to limit loud construction noise which disturbs the peace and quiet of any neighborhood or which causes discomfort or annoyance to any reasonable person of normal sensitiveness sleeping or residing in the area. Therefore, the County has established that these standards do not apply to any construction performed 1,000 feet or more from the nearest residential dwelling.

[2] County of Kern. 2021. Kern County Municipal Code, Chapter 8.36 Noise Control. Website: http://kerncounty-ca.elaws.us/code/coor_title8_ch8.36_sec8.36.020. Accessed October 8, 2021.

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SECTION 4: EXISTING NOISE CONDITIONS

The proposed project site is located within unincorporated Kern County. Surrounding the project site are agricultural land to the south and east, an agricultural processing facility and Houghton Road to the north, and Wible Road and the same agricultural processing facility to the west. The dominant noise source in the project vicinity is noise from traffic on local roadways adjacent to the project site.

Existing traffic noise levels along selected roadway segments in the project vicinity were modeled using the FHWA Traffic Noise Prediction Model (FHWA-RD-77-108). The average daily traffic volumes were obtained from the traffic analysis prepared for the proposed project by Kimley-Horn.[3] The traffic volumes described here correspond to the existing without project conditions traffic scenario as described in the transportation analysis. The model inputs and outputs—including the 60 dBA, 65 dBA, and 70 dBA CNEL noise contour distances—are provided in Appendix A of this document. A summary of the modeling results is shown in Table 5.

Table 5: Existing Traffic Noise Levels

Roadway Segment	Approximate ADT	Centerline to 70 CNEL (feet)	Centerline to 65 CNEL (feet)	Centerline to 60 CNEL (feet)	CNEL (dBA) 50 feet from Centerline of Outermost Lane
Houghton Road–Highway 99 ramps to H Street	2,900	< 50	< 50	84	62.7
Houghton Road–H Street to Wible Road	2,200	< 50	< 50	70	61.5
Wible Road–Houghton Road to Project South Road	860	< 50	< 50	< 50	57.4

Notes:
ADT = Average Daily Traffic
CNEL = Community Noise Equivalent Level
dBA = A-weighted decibel
[1] Modeling results do not take into account mitigating features such as topography, vegetative screening, fencing, building design, or structure screening. Rather, they assume a worst-case scenario of having a direct line of site on flat terrain.
Source: FirstCarbon Solutions (FCS) 2023.

[3] Kimley-Horn. 2023. Traffic Study Westside Industrial Project. October.

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SECTION 5: THRESHOLDS OF SIGNIFICANCE AND IMPACT ANALYSIS

5.1 - Thresholds of Significance

According to the California Environmental Quality Act (CEQA) Guidelines Appendix G, to determine whether impacts related to noise and vibration are significant environmental effects, the following questions are analyzed and evaluated.

Would the proposed plan:

a) Generate 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?

b) Generate excessive groundborne vibration or groundborne noise levels?

c) 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 area to excessive noise levels?

5.2 - Substantial Noise Increase in Excess of Standards

5.2.1 - Construction Noise Impacts

For purposes of this analysis, a significant impact would occur if construction activities would result in a substantial temporary increase in ambient noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies. The County Municipal Code has established limits on permissible hours of construction from 6:00 a.m. to 9:00 p.m. on weekdays and from 8:00 a.m. and 9:00 p.m. on weekends. The purpose is to limit loud construction noise which disturbs the peace and quiet of any neighborhood or which causes discomfort or annoyance to any reasonable person of normal sensitiveness sleeping or residing in the area.

Construction-related Traffic Noise

Noise impacts from construction activities associated with the project would be a function of the noise generated by construction equipment, equipment location, sensitivity of nearby land uses, and the timing and duration of the construction activities. One type of short-term noise impact that could occur during project construction would result from the increase in traffic flow on local streets, associated with the transport of workers, equipment, and materials to and from the project site. The transport of workers and construction equipment and materials to the project site would incrementally increase noise levels on access roads leading to the site. Because workers and construction equipment would use existing routes, noise from passing trucks would be similar to existing vehicle-generated noise on these local roadways. Typically, a doubling of the Average Daily Traffic (ADT) hourly volumes on a roadway segment is required in order to result in an increase of 3

dBA in traffic noise levels, which as discussed in the characteristics of nose discussion above, is the lowest change that can be perceptible to the human ear in outdoor environments. Project-related construction trips would not be expected to double the hourly or daily traffic volumes along any roadway segment in the project vicinity. For this reason, short-term intermittent noise from construction trips would not be expected to result in a perceptible increase in hourly or daily average traffic noise levels in the project vicinity. Therefore, short-term construction-related noise impacts associated with the transportation of workers and equipment to the project site would be less than significant.

Construction Equipment Operational Noise

The second type of short-term noise impact is related to noise generated during construction on the project site. Construction is completed in discrete steps, each of which has its own mix of equipment and, consequently, its own noise characteristics. These various sequential phases would change the character of the noise generated on the site and, therefore, the noise levels surrounding the site as construction progresses. Despite the variety in the type and size of construction equipment, similarities in the dominant noise sources and patterns of operation allow construction-related noise ranges to be categorized by work phase. Table 1 lists typical construction equipment noise levels, based on a distance of 50 feet between the equipment and a noise receptor. Typical operating cycles for these types of construction equipment may involve 1 or 2 minutes of full power operation followed by 3 or 4 minutes at lower power settings. Impact equipment such as pile drivers are not expected to be used during construction of this project.

The site preparation phase, which includes excavation and grading of the site, tends to generate the highest noise levels because the noisiest construction equipment is earthmoving equipment. Earthmoving equipment includes excavating machinery and compacting equipment, such as bulldozers, draglines, backhoes, front loaders, roller compactors, scrapers, and graders. Typical operating cycles for these types of construction equipment may involve 1 or 2 minutes of full power operation followed by 3 or 4 minutes at lower power settings.

Construction of the project is expected to require the use of scrapers, bulldozers, water trucks, haul trucks, and pickup trucks. Based on the information provided in Table 2, the maximum noise level generated by each scraper is assumed to be 85 dBA L_{max} at 50 feet from this equipment. Each bulldozer would also generate 85 dBA L_{max} at 50 feet. The maximum noise level generated by graders is approximately 85 dBA L_{max} at 50 feet. A characteristic of sound is that each doubling of sound sources with equal strength increases a sound level by 3 dBA. Assuming that each piece of construction equipment operates at some distance from the other equipment, a reasonable worst-case combined noise level during this phase of construction would be 90 dBA L_{max} at a distance of 50 feet from the acoustic center of a construction area. This would result in a reasonable worst-case hourly average of 86 dBA L_{eq}. The acoustic center reference is used, because construction equipment must operate at some distance from one another on a project site, and the combined noise level as measured at a point equidistant from the sources would (acoustic center) be the worst-case maximum noise level. The effect on sensitive receptors is evaluated below.

The closest noise-sensitive receptor to the project site is the single-family residential dwelling located approximately 400 feet southwest of the project site, west of Wible Road. The next closest receptors are a neighborhood along Billie Way located approximately 3,685 feet east of the project site, and General Shafter School located approximately 4,120 feet southeast of the project site. Because of distance attenuation, project noise levels at these other sensitive land uses would attenuate by more than 19 dBA compared to the noise levels that would be experienced at the nearest sensitive receptor. Therefore, the following analysis focuses on potential noise impacts to the closest sensitive receptor land use.

The nearest sensitive receptor, the residence southwest of the project site, would be located approximately 400 feet from the acoustic center of construction activity where multiple pieces of heavy construction equipment would operate simultaneously during construction of the off-site roadway improvements along Wible Road. At this distance, relative worst-case maximum construction noise levels would attenuate to below 67 dBA L_{max}, and relative worst-case hourly average construction noise levels would attenuate to below 59 L_{eq}. Assuming these activities occurred every hour during the County's permissible hours for construction activities, the resulting 24-hour noise measurement would be 57 dBA CNEL, as measured at this nearest sensitive receptor.

Noise levels in the vicinity of this sensitive receptor are documented in Table 6, to be 57.4 dBA CNEL. Therefore, these reasonable worst-case construction noise levels would exceed existing ambient noise levels by less than 3 dBA. Such a change would not be considered a perceptible change. In addition, based on the EPA's Protective Noise Levels,[4] standard construction for residential structures built in Northern California built in accordance with California Building Standard Code (CBC) requirements, would provide a minimum of 25 dBA in exterior-to-interior noise reduction with windows closed. Therefore, these reasonable worst-case construction noise levels would attenuate to below 32 dBA CNEL as measured at the interior of the nearest residential receptor. These noise levels are well below the applicable interior noise performance standard of 45 dB CNEL. Therefore, project construction noise levels would not result in a substantial temporary increase in ambient noise levels in excess of established standards, and the impact would be less than significant.

5.2.2 - Mobile Source Operational Noise Impacts

A significant impact would occur if implementation of the proposed project would result in a substantial increase in traffic noise levels in excess of normally acceptable noise levels for adjoining land uses. According to the applicable General Plan standards, operational noise levels should not exceed 65 dBA CNEL as measured at any residential land use adjacent to roadway segments used for project access. However, the County does not define what would be a significant increase for mobile source operational noise levels. According to Caltrans Traffic Noise Protocol,[5] in California a substantial noise increase is considered to occur when the project's predicted design-year noise level exceeds the existing noise level by 12 dBA or more. Therefore, for the purposes of this analysis, an increase of 12 dBA or greater above existing noise levels would be a substantial permanent increase in traffic noise levels.

[4] United States Environmental Protection Agency (EPA). Protective Noise Levels. EPA 550/9-79-100, November 1978. Website: https://www.nonoise.org/library/levels/levels.htm.
[5] California Department of Transportation (Caltrans). 2020. Traffic Noise Analysis Protocol. April.

Traffic noise levels along selected roadway segments in the project vicinity were modeled using the FHWA Traffic Noise Prediction Model (FHWA-RD-77-108). Site-specific information is entered, such as roadway traffic volumes, roadway active width, source-to-receiver distances, travel speed, noise source and receiver heights, and the percentages of automobiles, medium trucks, and heavy trucks that the traffic is made up of throughout the day, among other variables. The ADT volumes were obtained from the traffic analysis prepared for the project by Kimley-Horn.[6] The traffic volumes described here, which correspond to the traffic scenarios analyzed in the traffic study. The model inputs and outputs—including the 60 dBA, 65 dBA, and 70 dBA CNEL noise contour distances—are provided in the Appendix A of this document. Table 6, shows the traffic noise levels as measured at 50 feet from the centerline of the outermost travel lane.

Table 6: Traffic Noise Increase Summary

Roadway Segment	Existing (2023) No Project (dBA) CNEL	Opening Year (2026) Plus Project (dBA) CNEL	Increase over Existing (dBA)	Horizon Year (2046) Plus Project (dBA) CNEL	Increase over Existing (dBA)
Houghton Road–Highway 99 ramps to H Street	62.7	66.1	3.4	66.4	3.7
Houghton Road–H Street to Wible Road	61.5	63.6	2.1	64.2	2.7
Wible Road–Houghton Road to Project South Road	57.4	63.2	5.8	63.8	6.4

Notes:
CNEL = Community Noise Equivalent Level
dBA = A-weighted decibel
Source: FirstCarbon Solutions (FCS) 2021.

As shown in Table 6, the highest traffic noise level increase with implementation of the project would be 66.4 dBA compared to existing traffic noise levels. This is well below the 12 dBA increase that would be considered a substantial increase in traffic noise.

In addition, due to distance attenuation, the resulting traffic noise levels would not exceed 65 dBA CNEL as measured at any residential land use adjacent to these roadway segments. For example, the closest residence adjacent to the modeled segments of Houghton Road is located over 140 feet from the roadway centerline. At this distance, traffic noise levels even under horizon year (2046) plus project conditions would attenuate to below 63 dBA CNEL. The closest residence adjacent to the modeled segments of Wible Road is located over 230 feet from the roadway centerline. At this distance, traffic noise levels even under horizon year (2046) plus project conditions would attenuate to below 58 dBA CNEL.

This analysis demonstrates that project-related traffic would not result in a substantial permanent increase of 12 dBA or greater above existing traffic noise levels and would not exceed the County's operational noise standard of 65 dBA CNEL as measured at any residential land use adjacent to

[6] Kimley-Horn. 2023. Traffic Study Westside Industrial Project. October.

roadway segments used for project access. Therefore, impacts from project-related traffic noise levels would be less than significant.

5.2.3 - Stationary Source Operational Noise Impacts

A significant impact would occur if operational noise levels generated by stationary noise sources at the proposed project site would result in a substantial permanent increase in ambient noise levels in excess of the applicable noise performance thresholds. The Metropolitan Bakersfield General Plan Noise Element establishes an exterior noise threshold of 65 dBA CNEL, and an interior noise limit of 45 dBA CNEL for stationary noise sources as measured at receiving noise-sensitive land uses.

Existing noise levels adjacent to the project site in the vicinity of the nearest sensitive receptor are documented in Table 6, to be 57.4 dBA CNEL. Therefore, according to the Noise Element, the applicable significance criteria for a substantial noise increase would be a 5 dB or greater increase in ambient noise levels as a result of project operations as measured at the nearest noise-sensitive receptor land use.

The proposed project would generate noise from truck delivery, loading and unloading activities at commercial loading areas; parking lot activities, which includes people conversing, doors shutting, engine startup, and slow-moving vehicles; and from new exterior mechanical equipment sources, such as rooftop ventilation systems on proposed commercial uses. Potential impacts from these noise sources are discussed below.

Truck Loading Activities

Noise would be also generated by truck loading and unloading activities at the loading docks along the southern, western, and northern sides of the proposed building. Typical noise levels from truck loading and unloading activity range from 70 dBA to 80 dBA L_{max} as measured at 50 feet. These maximum noise level range includes noise from associated truck loading/unloading activity, including trucks maneuvering, truck trailer loading, truck trailer unloading, backup alarms or beepers, and truck docking noise.

The nearest noise-sensitive receptor is the single-family residential land use located southwest of the project site on Wible Road, approximately 1,360 feet from the nearest proposed loading dock. Because of distance attenuation, reasonable worst-case maximum noise levels from truck loading and unloading activities would attenuate to below 51 dBA L_{max} and 28 dBA L_{eq} at the receiving residential property line. Assuming these hourly average noise levels occurred every hour for a 24-hour period, they would result in a reasonable worst-case noise level of 35dBA CNEL as measured at the property line of this nearest receptor. The calculation spreadsheet with the detailed modeling assumptions is included in Appendix A. These noise levels would not exceed the exterior noise limit of 65 dBA CNEL and would not exceed the interior noise limit of 45 dBA CNEL for stationary noise sources as measured at the nearest receiving noise-sensitive land use. In addition, these noise levels would not exceed existing ambient noise levels of 57 dBA CNEL.

Therefore, noise levels from truck loading and unloading activities would not generate a substantial temporary or permanent increase in ambient noise levels in the project vicinity in excess of

standards established in the local general plan or noise ordinance, and the impact would be less than significant.

Parking Lot Activities

Typical parking lot activities include people conversing, doors shutting, and vehicles idling which generate noise levels ranging from approximately 60 dBA to 70 dBA L_{max} at 50 feet. These activities are expected to occur sporadically throughout the day, as visitors and staff arrive and leave parking lot areas at the project site.

The nearest noise-sensitive receptor to proposed parking areas is the single-family residential dwelling located southwest of the project site, west of Wible Road. Proposed parking areas could be located approximately 750 feet from this closest sensitive receptor. At this distance, noise generated by typical parking lot activity would attenuate to below 46 dBA L_{max} and 28 dBA L_{eq}. Assuming these hourly average noise levels occurred every hour for a 24-hour period, they would result in a reasonable worst-case noise level of 34 dBA CNEL as measured at the property line of this nearest receptor. The calculation spreadsheet with the detailed modeling assumptions is included in Appendix A. These noise levels would not exceed the exterior noise limit of 65 dBA CNEL and would not exceed the interior noise limit of 45 dBA CNEL for stationary noise sources as measured at the nearest receiving noise-sensitive land use. In addition, these noise levels would not exceed existing ambient noise levels of 57 dBA CNEL.

Therefore, noise levels from parking lot activity would not generate a substantial temporary or permanent increase in ambient noise levels in the project vicinity in excess of standards established in the local general plan or noise ordinance, and the impact would be less than significant.

Mechanical Equipment Operations

At the time of preparation of this analysis, details were not available pertaining to the proposed rooftop mechanical ventilation systems for the project; therefore, a reference noise level for typical rooftop mechanical ventilation systems was used. Noise levels from commercially available rooftop mechanical ventilation equipment range from 50 dBA to 60 dBA L_{eq} at a distance of 25 feet.

The nearest noise-sensitive receptor to proposed rooftop mechanical ventilation equipment is the single-family residential dwelling located southwest of the project site, west of Wible Road. Rooftop mechanical ventilation equipment could be located approximately 1,285 feet from this closest sensitive receptor. At this distance, noise generated by typical rooftop mechanical ventilation equipment would attenuate to below 23 dBA L_{max} and 23 dBA L_{eq}. Assuming these hourly average noise levels occurred every hour for a 24-hour period, they would result in a reasonable worst-case noise level of 29 dBA CNEL as measured at the property line of this nearest receptor. The calculation spreadsheet with the detailed modeling assumptions is included in Appendix A. These noise levels would not exceed the exterior noise limit of 65 dBA CNEL and would not exceed the interior noise limit of 45 dBA CNEL for stationary noise sources as measured at the nearest receiving noise-sensitive land use. In addition, these noise levels would not exceed existing ambient noise levels of 57 dBA CNEL.

The proposed project would also include an emergency backup generator to power the sewer lift station pumps. The pumps would be submerged in the holding basin and therefore would not produce

noise levels that would be audible at the project property line. However, the type of generator that would be used for this project are documented to produce noise levels of 55 dBA to 60 dBA as measured at a distance of 25 feet from the equipment skid. The generator would be located in the northeast corner of the project site, near the water supply pumphouse. The nearest noise-sensitive receptor is the single-family residential dwelling located southwest of the project site, west of Wible Road. The generator would be located more than 1,275 feet from this receptor. Therefore, at this distance, operational noise levels from the emergency backup generator would attenuate to below 17 dBA as measured at the nearest residential receptor. These noise levels would not exceed the exterior noise limit of 65 dBA CNEL and would not exceed the interior noise limit of 45 dBA CNEL for stationary noise sources as measured at the nearest receiving noise-sensitive land use. In addition, these noise levels would not exceed existing ambient noise levels of 57 dBA CNEL.

Therefore, noise levels from on-site mechanical equipment operations would not generate a substantial temporary or permanent increase in ambient noise levels in the project vicinity in excess of standards established in the local general plan or noise ordinance, and the impact would be less than significant.

5.3 - Groundborne Vibration/Noise Levels

This section analyzes both construction and operational groundborne vibration and noise impacts. Groundborne vibrations consist of rapidly fluctuating motions within the ground that have an average motion of zero. Vibrating objects in contact with the ground radiate vibration waves through various soil and rock strata to the foundations of nearby buildings. Groundborne noise is generated when vibrating building components radiate sound, or noise generated by groundborne vibration. In general, if groundborne vibration levels do not exceed levels considered to be perceptible, then groundborne noise levels would not be perceptible in most interior environments. Therefore, this analysis focuses on determining exceedances of groundborne vibration levels.

A significant impact would occur if the project would generate groundborne vibration or groundborne noise levels in excess of established standards. Kern County has not adopted criteria for groundborne vibration impacts. Therefore, for the purposes of this analysis, the FTA's vibration impact criteria are utilized. The FTA has established industry accepted standards for vibration impact criteria and impact assessment. These guidelines are published in its Transit Noise and Vibration Impact Assessment Manual.[7] These guidelines are summarized in Table 4.

5.3.1 - Short-term Construction Vibration Impacts

A significant impact would occur if existing structures at the project site or in the project vicinity would be exposed to groundborne vibration levels in excess of levels established by the FTA's Construction Vibration Impact Criteria for the listed type of structure, as shown in Table 4.

Of the variety of equipment used during construction, the large vibratory rollers that could be used in the site preparation and roadway improvement phases of construction would produce the

[7] Federal Transit Administration (FTA). 2018. Transit Noise and Vibration Impact Assessment Manual. September.

greatest groundborne vibration levels. Large vibratory rollers produce groundborne vibration levels ranging up to 0.210 inch per second (in/sec) PPV at 25 feet from the operating equipment.

The nearest off-site structure to the project construction footprint where the heaviest construction equipment would operate is the agricultural shed for Martin Feed Inc., located north of the project site on Houghton Road. The façade of this structure would be located approximately 235 feet from the nearest point on the project site where the heaviest construction equipment would potentially operate. At this distance, groundborne vibration levels would attenuate to below 0.002 in/sec PPV from operation of the types of equipment that would produce the highest vibration levels. This is well below the FTA's Construction Vibration Impact Criteria of 0.2 in/sec PPV for commercial structures of normal construction. Therefore, the impact of short-term groundborne vibration associated with construction to off-site receptors would be less than significant.

5.3.2 - Operational Vibration Impacts

Operation of the proposed project would involve operational traffic, including regular trips by delivery trucks (generating approximately 0.076 in/sec PPV as measured at 25-feet). The closest residential receptor adjacent to the access roadways in the project vicinity are located over 160 feet from the nearest travel lane. At this distance vibration levels would attenuate to below .005 in/sec PPV. This is well below levels that would be perceptible without instruments. Additionally, there are no active sources of groundborne vibration in the project vicinity that would produce vibration levels that would be perceptible without instruments within the project site. Therefore, the proposed project would not generate groundborne vibration or groundborne noise levels in excess of established standards and there would be no impact related to operational groundborne vibration.

5.4 - Excessive Noise Levels from Airport Activity

A significant impact would occur if the proposed project would expose people residing or working in the project area to excessive noise levels for a project located in 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.

The nearest public airport to the project site is the Bakersfield Municipal Airport, located approximately 6 miles northeast of the project site. At this distance, the project site is located outside of the 60 dBA CNEL airport noise contours. While aircraft noise is occasionally audible on the project site from aircraft flyovers, aircraft noise associated with nearby airport activity would not expose people residing or working near the project site to excessive noise levels. Therefore, implementation of the project would not expose persons residing or working in the project vicinity to noise levels from airport activity that would be in excess of normally acceptable standards for the proposed land use development, and no impact would occur.

Appendix A:
Noise Modeling Data

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TABLE Existing (Year 2023)-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/24/2023
ROADWAY SEGMENT: Houghton Road - Highway 99 ramps to H Street
NOTES: Westside Industrial Warehouse Project - Existing (Year 2023)

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 2900 SPEED (MPH): 50 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 62.66

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	83.9	180.4

TABLE Existing (Year 2023)-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/24/2023
ROADWAY SEGMENT: Houghton Road - H Street to Wible Road
NOTES: Westside Industrial Warehouse Project - Existing (Year 2023)

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 2200 SPEED (MPH): 50 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 61.46

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	69.9	150.1

TABLE Existing (Year 2023)-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/24/2023
ROADWAY SEGMENT: Wible Road - Houghton Road to Project South Road
NOTES: Westside Industrial Warehouse Project - Existing (Year 2023)

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 860 SPEED (MPH): 50 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 57.38

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	0.0	80.4

TABLE Opening Year (2026)-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/24/2023
ROADWAY SEGMENT: Houghton Road - Highway 99 ramps to H Street
NOTES: Westside Industrial Warehouse Project - Opening Year (2026)

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 3000 SPEED (MPH): 50 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES		
DAY	EVENING	NIGHT
AUTOS		
75.51	12.57	9.34
M-TRUCKS		
1.56	0.09	0.19
H-TRUCKS		
0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 62.81

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	85.8	184.5

TABLE Opening Year (2026)-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/24/2023
ROADWAY SEGMENT: Houghton Road - H Street to Wible Road
NOTES: Westside Industrial Warehouse Project - Opening Year (2026)

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 2300 SPEED (MPH): 50 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 61.65

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	72.0	154.6

TABLE Opening Year (2026)-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/24/2023
ROADWAY SEGMENT: Wible Road - Houghton Road to Project South Road
NOTES: Westside Industrial Warehouse Project - Opening Year (2026)

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 1100 SPEED (MPH): 50 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT

AUTOS
75.51 12.57 9.34
M-TRUCKS
1.56 0.09 0.19
H-TRUCKS
0.64 0.02 0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 58.45

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	0.0	94.7

TABLE Opening Year (2026) with Project-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/24/2023
ROADWAY SEGMENT: Houghton Road - Highway 99 ramps to H Street
NOTES: Westside Industrial Warehouse Project - Opening Year (2026) with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 6400 SPEED (MPH): 50 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.10

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	66.1	142.0	305.7

TABLE Opening Year (2026) with Project-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/24/2023
ROADWAY SEGMENT: Houghton Road - H Street to Wible Road
NOTES: Westside Industrial Warehouse Project - Opening Year (2026) with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 3600 SPEED (MPH): 50 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 63.60

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	96.9	208.4

TABLE Opening Year (2026) with Project-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/24/2023
ROADWAY SEGMENT: Wible Road - Houghton Road to Project South Road
NOTES: Westside Industrial Warehouse Project - Opening Year (2026) with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 3300 SPEED (MPH): 50 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 63.22

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	91.4	196.6

TABLE Horizon Year (2046)-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/24/2023
ROADWAY SEGMENT: Houghton Road - Highway 99 ramps to H Street
NOTES: Westside Industrial Warehouse Project - Horizon Year (2046)

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 3400 SPEED (MPH): 50 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT

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AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 63.35

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	93.3	200.6

TABLE Horizon Year (2046)-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/24/2023
ROADWAY SEGMENT: Houghton Road - H Street to Wible Road
NOTES: Westside Industrial Warehouse Project - Horizon Year (2046)

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 2800 SPEED (MPH): 50 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 62.51

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	82.0	176.3

TABLE Horizon Year (2046)-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/24/2023
ROADWAY SEGMENT: Wible Road - Houghton Road to Project South Road
NOTES: Westside Industrial Warehouse Project - Horizon Year (2046)

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 1500 SPEED (MPH): 50 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 59.80

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	54.3	116.4

TABLE Horizon Year (2046) with Project-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/24/2023
ROADWAY SEGMENT: Houghton Road - Highway 99 ramps to H Street
NOTES: Westside Industrial Warehouse Project - Horizon Year (2046) with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 6800 SPEED (MPH): 50 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES		
DAY	EVENING	NIGHT
AUTOS		
75.51	12.57	9.34
M-TRUCKS		
1.56	0.09	0.19
H-TRUCKS		
0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.36

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	68.8	147.8	318.3

TABLE Horizon Year (2046) with Project-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/24/2023
ROADWAY SEGMENT: Houghton Road - H Street to Wible Road
NOTES: Westside Industrial Warehouse Project - Horizon Year (2046) with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 4100 SPEED (MPH): 50 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES		
DAY	EVENING	NIGHT

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AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.16

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	105.6	227.2

TABLE Horizon Year (2046) with Project-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/24/2023
ROADWAY SEGMENT: Wible Road - Houghton Road to Project South Road
NOTES: Westside Industrial Warehouse Project - Horizon Year (2046) with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 3800 SPEED (MPH): 50 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 63.83

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	100.4	216.0

Mobile Construction Activity Noise Calculation

Receptor:	Receiving residential property line	Noise Level Calculation Prior to Implementation of Noise Attenuation Requirements							
		Reference (dBA) 50 ft		Usage	Distance to	Ground	Shielding	Calculated (dBA)		
No.	Equipment Description	Lmax	Quantity	factor[1]	Receptor	Effect[2]	(dBA)[3]	Lmax	Leq	Energy
1	Grader	85	1	40	400	1	0	66.9	53.9	247052.9422
2	Excavator	85	1	40	425	1	0	66.4	53.1	205969.642
3	Dozer	85	1	40	425	1	0	66.4	53.1	205969.642
4	Front End Loader	80	1	40	450	1	0	60.9	47.4	54869.6845
5	Backhoe	80	1	40	450	1	0	60.9	47.4	54869.6845
6										
7										
8										
9										
10										
							Lmax[4]	67	Leq	59

Notes:
[1] Percentage of time activity occurs each hour
[2] Soft ground terrain between project site and receptor.
[3] Shielding due to terrain or structures
[4] Calculated Lmax is the Loudest value.

CNEL Calculations					
	Time	Hourly Leq	Leq'	0.1*Leq	antiLog
Night	12:00 AM	0.0	10.0	1	10
	1:00 AM	0.0	10.0	1	10
	2:00 AM	0.0	10.0	1	10
	3:00 AM	0.0	10.0	1	10
	4:00 AM	0.0	10.0	1	10
	5:00 AM	0.0	10.0	1	10
	6:00 AM	0.0	10.0	1	10
Day	7:00 AM	58.9	58.9	5.885774731	768731.5952
	8:00 AM	58.9	58.9	5.885774731	768731.5952
	9:00 AM	58.9	58.9	5.885774731	768731.5952
	10:00 AM	58.9	58.9	5.885774731	768731.5952
	11:00 AM	58.9	58.9	5.885774731	768731.5952
	12:00 PM	65.0	65.0	6.5	3162277.66
	1:00 PM	58.9	58.9	5.885774731	768731.5952
	2:00 PM	58.9	58.9	5.885774731	768731.5952
	3:00 PM	58.9	58.9	5.885774731	768731.5952
	4:00 PM	58.9	58.9	5.885774731	768731.5952
	5:00 PM	58.9	58.9	5.885774731	768731.5952
	6:00 PM	58.9	58.9	5.885774731	768731.5952
Evening	7:00 PM	0.0	5.0	0.5	3.16227766
	8:00 PM	0.0	5.0	0.5	3.16227766
	9:00 PM	0.0	5.0	0.5	3.16227766
Night	10:00 PM	0.0	10.0	1	10
	11:00 PM	0.0	10.0	1	10
			Sum		11618424.69
			Sum/24		484101.0289
			Log10(Sum/24)		5.684936006
			10*Log10(Sum/24)		56.84936006
			24 Hour CNEL		57

Loading/Unloading Noise Calculation

Receptor:	Receiving residential property line	Noise Level Calculation Prior to Implementation of Noise Attenuation Requirements								
		Reference (dBA) 50 ft		Usage	Distance to	Ground	Shielding	Calculated (dBA)		
No.	Equipment Description	Lmax	Quantity	factor[1]	Receptor	Effect[2]	(dBA)[3]	Lmax	Leq	Energy
1	Loading/Unloading Noise Calculation	80	3	1	1360	1	0	51.3	21.7	149.0783381
2	Loading/Unloading Noise Calculation	80	3	1	1420	1	0	50.9	21.2	130.9683134
3	Loading/Unloading Noise Calculation	80	3	1	1480	1	0	50.6	20.6	115.6767615
4	Loading/Unloading Noise Calculation	80	3	1	1540	1	0	50.2	20.1	102.6760388
5	Loading/Unloading Noise Calculation	80	3	1	1600	1	0	49.9	19.6	91.55273437
6	Loading/Unloading Noise Calculation	80	3	1	1660	1	0	49.6	19.1	81.97982815
7										
8										
9										
10										
							Lmax[4]	51	Leq	28

Notes:
[1] Percentage of time activity occurs each hour
[2] Soft ground terrain between project site and receptor.
[3] Shielding due to terrain or structures
[4] Calculated Lmax is the Loudest value.

CNEL Calculations					
	Time	Hourly Leq	Leq'	0.1*Leq	antiLog
Night	12:00 AM	28.3	38.3	3.827325334	6719.320142
	1:00 AM	28.3	38.3	3.827325334	6719.320142
	2:00 AM	28.3	38.3	3.827325334	6719.320142
	3:00 AM	28.3	38.3	3.827325334	6719.320142
	4:00 AM	28.3	38.3	3.827325334	6719.320142
	5:00 AM	28.3	38.3	3.827325334	6719.320142
	6:00 AM	28.3	38.3	3.827325334	6719.320142
Day	7:00 AM	28.3	28.3	2.827325334	671.9320142
	8:00 AM	28.3	28.3	2.827325334	671.9320142
	9:00 AM	28.3	28.3	2.827325334	671.9320142
	10:00 AM	28.3	28.3	2.827325334	671.9320142
	11:00 AM	28.3	28.3	2.827325334	671.9320142
	12:00 PM	28.3	28.3	2.827325334	671.9320142
	1:00 PM	28.3	28.3	2.827325334	671.9320142
	2:00 PM	28.3	28.3	2.827325334	671.9320142
	3:00 PM	28.3	28.3	2.827325334	671.9320142
	4:00 PM	28.3	28.3	2.827325334	671.9320142
	5:00 PM	28.3	28.3	2.827325334	671.9320142
	6:00 PM	28.3	28.3	2.827325334	671.9320142
Evening	7:00 PM	28.3	33.3	3.327325334	2124.835598
	8:00 PM	28.3	33.3	3.327325334	2124.835598
	9:00 PM	28.3	33.3	3.327325334	2124.835598
Night	10:00 PM	28.3	38.3	3.827325334	6719.320142
	11:00 PM	28.3	38.3	3.827325334	6719.320142
			Sum		74911.57224
			Sum/24		3121.31551
			Log10(Sum/24)		3.49433767
			10*Log10(Sum/24)		34.9433767
			24 Hour CNEL		35

Parking Lot Activity Noise Calculation

Receptor:	Receiving residential property line									
		Reference (dBA) 50 ft		Usage	Distance to	Ground	Shielding	Calculated (dBA)		
No.	Equipment Description	Lmax	Quantity	factor[1]	Receptor	Effect[2]	(dBA)[3]	Lmax	Leq	Energy
1	parking lot activity	70	5	1	750	1	0	46.5	21.7	148.1481481
2	parking lot activity	70	5	1	800	1	0	45.9	20.9	122.0703125
3	parking lot activity	70	5	1	850	1	0	45.4	20.1	101.7708121
4	parking lot activity	70	5	1	900	1	0	44.9	19.3	85.73388203
5	parking lot activity	70	5	1	950	1	0	44.4	18.6	72.89692375
6	parking lot activity	70	5	1	1000	1	0	44.0	18.0	62.5
7										
8										
9										
10										
							Lmax[4]	46	Leq	28

Notes:
[1] Percentage of time activity occurs each hour
[2] Soft ground terrain between project site and receptor.
[3] Shielding due to terrain or structures
[4] Calculated Lmax is the Loudest value.

CNEL Calculations					
	Time	Hourly Leq	Leq'	0.1*Leq	antiLog
Night	12:00 AM	27.7	37.7	3.773142626	5931.200786
	1:00 AM	27.7	37.7	3.773142626	5931.200786
	2:00 AM	27.7	37.7	3.773142626	5931.200786
	3:00 AM	27.7	37.7	3.773142626	5931.200786
	4:00 AM	27.7	37.7	3.773142626	5931.200786
	5:00 AM	27.7	37.7	3.773142626	5931.200786
	6:00 AM	27.7	37.7	3.773142626	5931.200786
Day	7:00 AM	27.7	27.7	2.773142626	593.1200786
	8:00 AM	27.7	27.7	2.773142626	593.1200786
	9:00 AM	27.7	27.7	2.773142626	593.1200786
	10:00 AM	27.7	27.7	2.773142626	593.1200786
	11:00 AM	27.7	27.7	2.773142626	593.1200786
	12:00 PM	27.7	27.7	2.77	588.8436554
	1:00 PM	27.7	27.7	2.773142626	593.1200786
	2:00 PM	27.7	27.7	2.773142626	593.1200786
	3:00 PM	27.7	27.7	2.773142626	593.1200786
	4:00 PM	27.7	27.7	2.773142626	593.1200786
	5:00 PM	27.7	27.7	2.773142626	593.1200786
	6:00 PM	27.7	27.7	2.773142626	593.1200786
Evening	7:00 PM	27.7	32.7	3.273142626	1875.610374
	8:00 PM	27.7	32.7	3.273142626	1875.610374
	9:00 PM	27.7	32.7	3.273142626	1875.610374
Night	10:00 PM	27.7	37.7	3.773142626	5931.200786
	11:00 PM	27.7	37.7	3.773142626	5931.200786
			Sum		66120.80271
			Sum/24		2755.033446
			Log10(Sum/24)		3.440126876
			10*Log10(Sum/24)		34.40126876
			24 Hour CNEL		34

Mechanical Equipment Noise Calculation

Receptor:	Receiving residential property line	Noise Level Calculation Prior to Implementation of Noise Attenuation Requirements							
		Reference (dBA) 25 ft		Usage	Distance to	Ground	Shielding	Calculated (dBA)	
No.	Equipment Description	Lmax	Quantity	factor[1]	Receptor	Effect[2]	(dBA)[3]	Lmax	Leq	Energy
1	Commercial grade mechanical ventilation equipment	60	1	100	1285	0.5	3	22.8	14.2	26.46014395
2	Commercial grade mechanical ventilation equipment	60	1	100	1335	0.5	3	22.4	13.8	24.05175977
3	Commercial grade mechanical ventilation equipment	60	1	100	1385	0.5	3	22.1	13.4	21.93944253
4	Commercial grade mechanical ventilation equipment	60	1	100	1435	0.5	3	21.8	13.0	20.07799164
5	Commercial grade mechanical ventilation equipment	60	1	100	1485	0.5	3	21.5	12.7	18.43036294
6	Commercial grade mechanical ventilation equipment	60	1	100	1535	0.5	3	21.2	12.3	16.96598474
7	Commercial grade mechanical ventilation equipment	60	1	100	1585	0.5	3	21.0	11.9	15.65946265
8	Commercial grade mechanical ventilation equipment	60	1	100	1635	0.5	3	20.7	11.6	14.4895744
9	Commercial grade mechanical ventilation equipment	60	1	100	1685	0.5	3	20.4	11.3	13.43848338
10	Commercial grade mechanical ventilation equipment	60	1	100	1735	0.5	3	20.2	11.0	12.49111837
Notes:							Lmax[4]	23	Leq	23

[1] Percentage of time activity occurs each hour
[2] Soft ground terrain between project site and receptor.
[3] Shielding due to rooftop parapet and soundwall shielding
[4] Calculated Lmax is the Loudest value.

CNEL Calculations					
	Time	Hourly Leq	Leq'	0.1*Leq	antiLog
Night	12:00 AM	22.6	32.6	3.26482803	1840.043244
	1:00 AM	22.6	32.6	3.26482803	1840.043244
	2:00 AM	22.6	32.6	3.26482803	1840.043244
	3:00 AM	22.6	32.6	3.26482803	1840.043244
	4:00 AM	22.6	32.6	3.26482803	1840.043244
	5:00 AM	22.6	32.6	3.26482803	1840.043244
	6:00 AM	22.6	32.6	3.26482803	1840.043244
Day	7:00 AM	22.6	22.6	2.26482803	184.0043244
	8:00 AM	22.6	22.6	2.26482803	184.0043244
	9:00 AM	22.6	22.6	2.26482803	184.0043244
	10:00 AM	22.6	22.6	2.26482803	184.0043244
	11:00 AM	22.6	22.6	2.26482803	184.0043244
	12:00 PM	22.6	22.6	2.26482803	184.0043244
	1:00 PM	22.6	22.6	2.26482803	184.0043244
	2:00 PM	22.6	22.6	2.26482803	184.0043244
	3:00 PM	22.6	22.6	2.26482803	184.0043244
	4:00 PM	22.6	22.6	2.26482803	184.0043244
	5:00 PM	22.6	22.6	2.26482803	184.0043244
	6:00 PM	22.6	22.6	2.26482803	184.0043244
Evening	7:00 PM	22.6	27.6	2.76482803	581.8727643
	8:00 PM	22.6	27.6	2.76482803	581.8727643
	9:00 PM	22.6	27.6	2.76482803	581.8727643
Night	10:00 PM	22.6	32.6	3.26482803	1840.043244
	11:00 PM	22.6	32.6	3.26482803	1840.043244
			Sum		20514.05938
			Sum/24		854.7524741
			Log10(Sum/24)		2.931840367
			10*Log10(Sum/24)		29.31840367
			24 Hour CNEL		29

Receptor:	Receiving residential property line	Noise Level Calculation Prior to Implementation of Noise Attenuation Requirements							
		Reference (dBA) 25 ft		Usage	Distance to	Ground	Shielding	Calculated (dBA)	
No.	Equipment Description	Lmax	Quantity	factor[1]	Receptor	Effect[2]	(dBA)[3]	Lmax	Leq	Energy
1	emergency backup generator	60	1	100	1275	0.5	0	25.8	17.3	53.83622007
2										
3										
4										
5										
6										
7										
8										
9										
10										
Notes:							Lmax[4]	26	Leq	17

Appendix I:
Public Services Supporting Information

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November 1, 2023

Kern County Parks Department
1115 Truxtun Ave, 3rd Floor
Bakersfield, CA 93301

Sent via email to:

Subject: Westside Industrial Project Environmental Impact Report: Parks and Recreation Services

To whom it may concern:

On behalf of Kern County, FirstCarbon Solutions (FCS) is preparing an Environmental Impact Report (EIR) for the proposed Westside Industrial Project. As part of the environmental review process, we are consulting with service providers to determine whether the project would impact their ability to deliver public services. We are contacting you to request information related to the provision of park and recreation services.

The proposed 93.74 acres project is located 1.3 miles south of the City of Bakersfield, in unincorporated Kern County, but within the City of Bakersfield's Sphere of Influence. The project site is bound by Houghton Road to the north and Wible Road to the west and is situated approximately 1 mile west of State Route 99 and 8.75 miles east of Interstate 5.

Regional access to the project site is available from SR-99 via the Houghton Road exit. Local access to the project site is available from Houghton Road and Wible Road. The proposed project would include the development of a 653,442 square foot single-story cubic warehouse distribution facility~~,~~ that would receive and consolidate products from vendors and then ship these products to other fulfillment centers within the network. This also includes 44,424 square feet of office space, a 24,256 square foot mezzanine, two guardhouses, and a pumphouse.

The project also includes the construction of a new private road along the eastern and southern perimeter of the project site to connect Houghton Road and Wible Road. The road would be two lanes to accommodate heavy trucks. Both the intersection of Houghton Road and the eastern perimeter road, as well as the intersection of Wible Road and Houghton Road, would be signalized. Existing roads would be improved with new pavement, raised median, curb and gutter, and sidewalk.

Potential impacts to park and recreation services are an important element of our study. Our analysis strongly relies on your assistance in identifying potentially significant impacts to park and recreation services that may occur as a result of the project, as well as any mitigation measure(s) that may reduce or eliminate these impacts. Any assistance that you can provide with addressing the following questions would be greatly appreciated.

Service Questions

1. Please identify the park(s) and recreation center(s) that would provide services to the project site. Please describe the existing conditions of these park(s) and center(s).

2. Please provide an estimate of the park acres/1,000 residents and the target ratio that the department would like to achieve.

3. Please provide information about the residential and nonresidential development fee schedule. What are the current rates? What is the estimate rate for the proposed project?

4. Please identify the ability of the park service provider to accommodate the demand of the proposed project as part of the existing facilities.

5. Please define any potential challenges that the proposed project may present to the department. Please describe any measures that you would recommend to reduce potential concerns/challenges

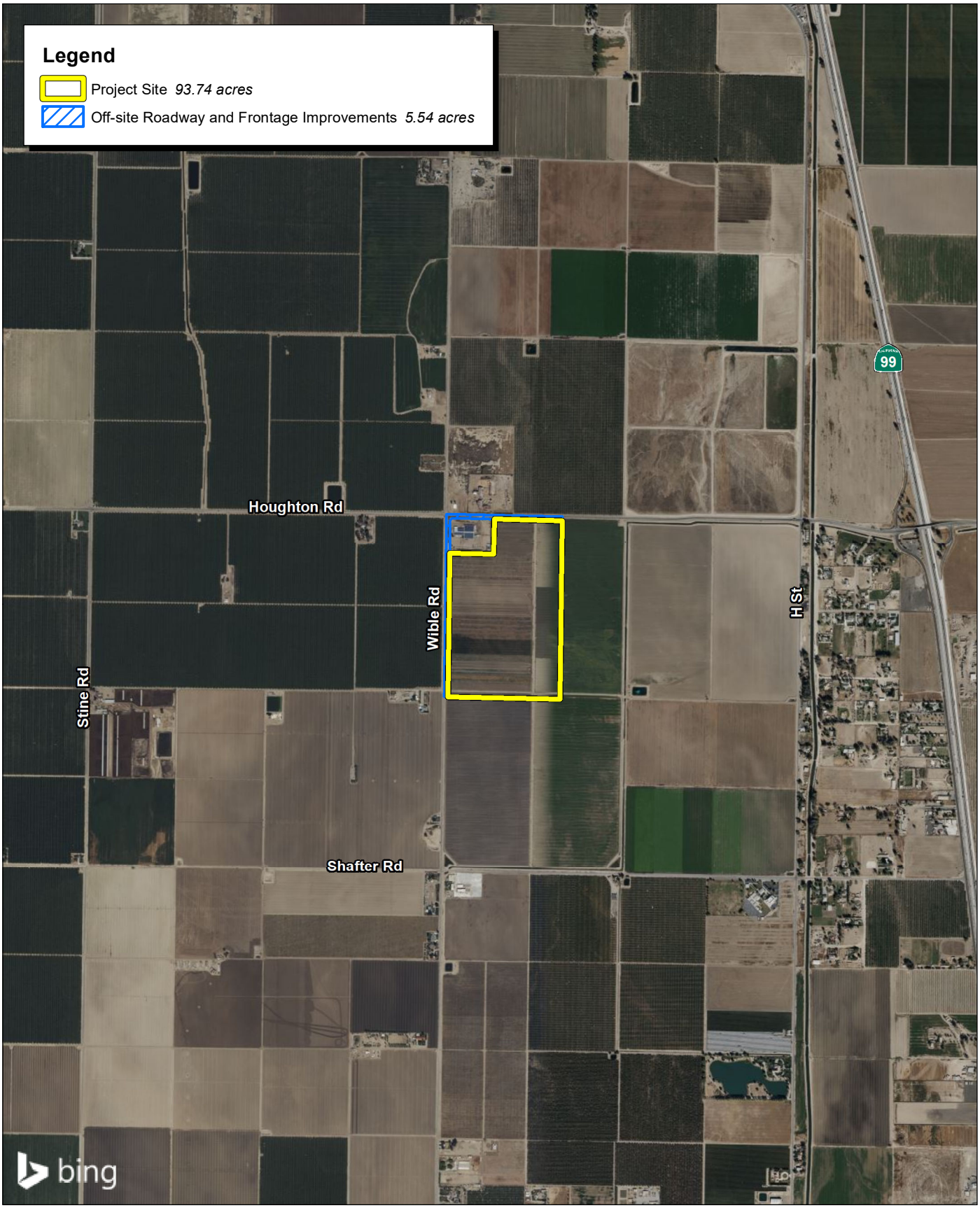
Thank you for your assistance in responding to these questions. Your responses will help us ensure that our analysis is accurate and complete. To ensure a timely completion of our analysis, please provide your response via e-mail no later than Friday, November 10, 2023. If you have any questions, please contact me by email at schurchill@fcs-intl.com.

Sincerely,

Spencer Churchill, Environmental Services Analyst
FirstCarbon Solutions
250 Commerce, Suite 250
Irvine, CA 92602

Enc: Attachment A: Regional Location Map
Attachment B: Site Plan Map

Attachment A:
Local Vicinity Map

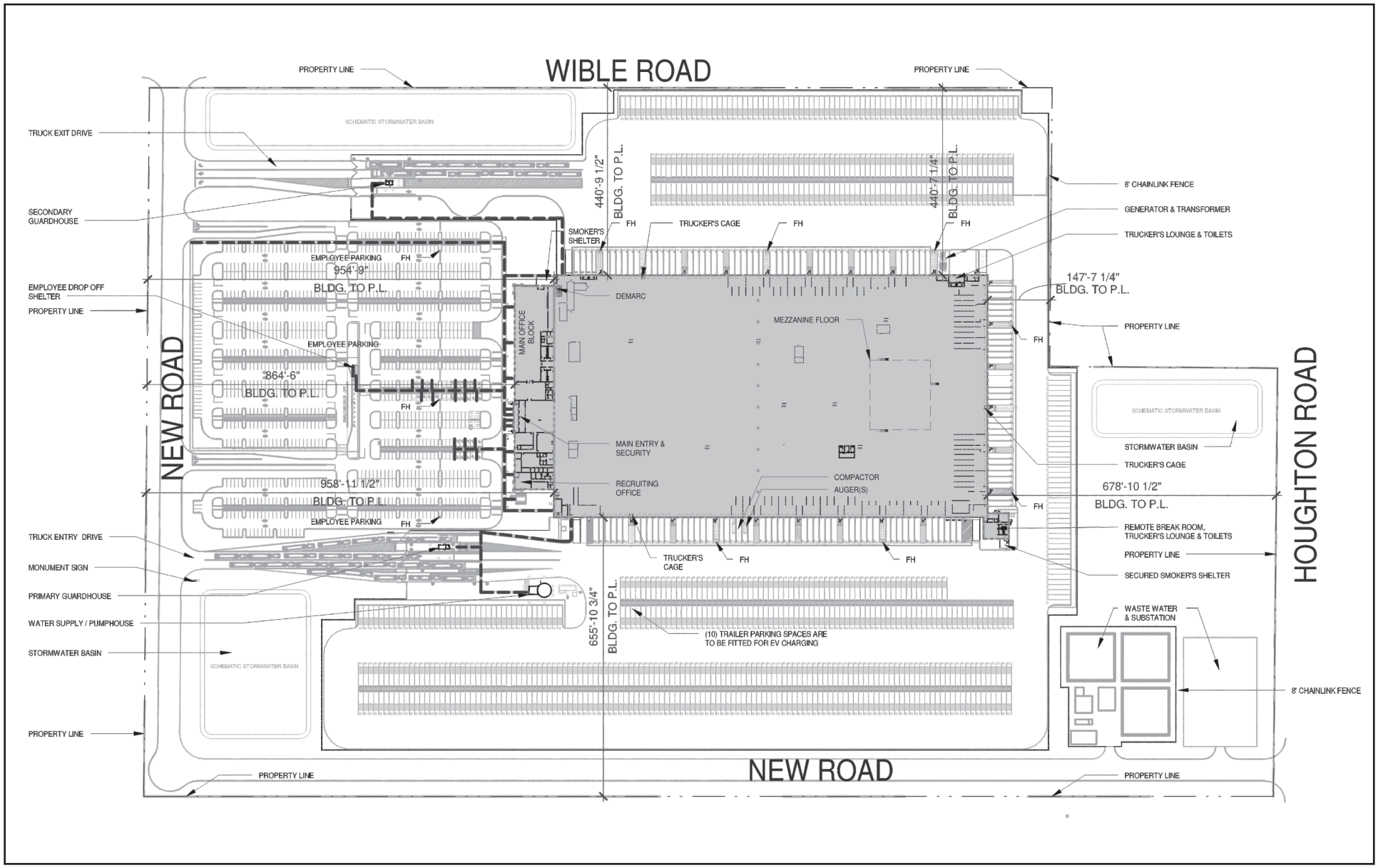


Source: Bing Aerial Imagery.

2,000 1,000 0 2,000 Feet

Figure 3-2
Local Vicinity Map

Attachment B:
Site Plan Map



Source: Kimley-Horn, Ware Malcomb, 03/30/2023.

Figure 3-3
Proposed Site Plan

November 1, 2023

Rick Anthony, Director
City of Bakersfield Recreation and Parks Department
1115 Truxtun Ave, 3rd Floor
Bakersfield, CA 93301

Sent via email to: ComPks@bakersfieldcity.us

Subject: Westside Industrial Project Environmental Impact Report: Parks and Recreation Services

Dear Director Anthony:

On behalf of Kern County, FirstCarbon Solutions (FCS) is preparing an Environmental Impact Report (EIR) for the proposed Westside Industrial Project. As part of the environmental review process, we are consulting with service providers to determine whether the project would impact their ability to deliver public services. We are contacting you to request information related to the provision of park and recreation services.

The proposed 93.74 acres project is located 1.3 miles south of the City of Bakersfield, in unincorporated Kern County, but within the City of Bakersfield's Sphere of Influence. The project site is bound by Houghton Road to the north and Wible Road to the west and is situated approximately 1 mile west of State Route 99 and 8.75 miles east of Interstate 5.

Regional access to the project site is available from SR-99 via the Houghton Road exit. Local access to the project site is available from Houghton Road and Wible Road. The proposed project would include the development of a 653,442 square foot single-story cubic warehouse distribution facility, that would receive and consolidate products from vendors and then ship these products to other fulfillment centers within the network. This also includes 44,424 square feet of office space, a 24,256 square foot mezzanine, two guardhouses, and a pumphouse.

The project also includes the construction of a new private road along the eastern and southern perimeter of the project site to connect Houghton Road and Wible Road. The road would be two lanes to accommodate heavy trucks. Both the intersection of Houghton Road and the eastern perimeter road, as well as the intersection of Wible Road and Houghton Road, would be signalized. Existing roads would be improved with new pavement, raised median, curb and gutter, and sidewalk.

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Service Questions

1. Please identify the park(s) and recreation center(s) that would provide services to the project site. Please describe the existing conditions of these park(s) and center(s).

2. Please provide an estimate of the park acres/1,000 residents and the target ratio that the department would like to achieve.

3. Please provide information about the residential and nonresidential development fee schedule. What are the current rates? What is the estimate rate for the proposed project?

4. Please identify the ability of the park service provider to accommodate the demand of the proposed project as part of the existing facilities.

5. Please define any potential challenges that the proposed project may present to the department. Please describe any measures that you would recommend to reduce potential concerns/challenges

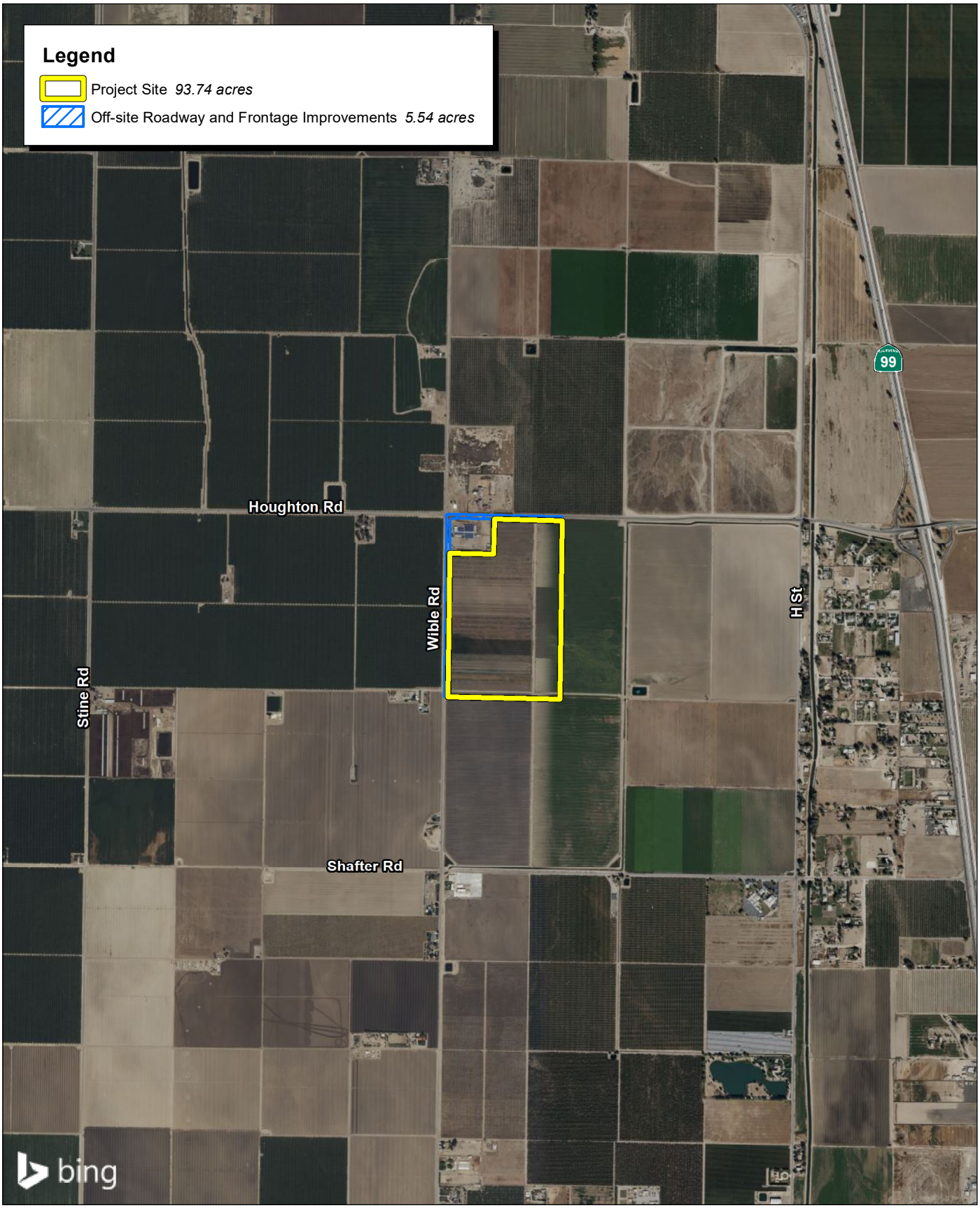
Thank you for your assistance in responding to these questions. Your responses will help us ensure that our analysis is accurate and complete. To ensure a timely completion of our analysis, please provide your response via e-mail no later than Friday, November 10, 2023. If you have any questions, please contact me by email at schurchill@fcs-intl.com.

Sincerely,

Spencer Churchill, Environmental Services Analyst
FirstCarbon Solutions
250 Commerce, Suite 250
Irvine, CA 92602

Enc: Attachment A: Regional Location Map
Attachment B: Site Plan Map

Attachment A:
Local Vicinity Map

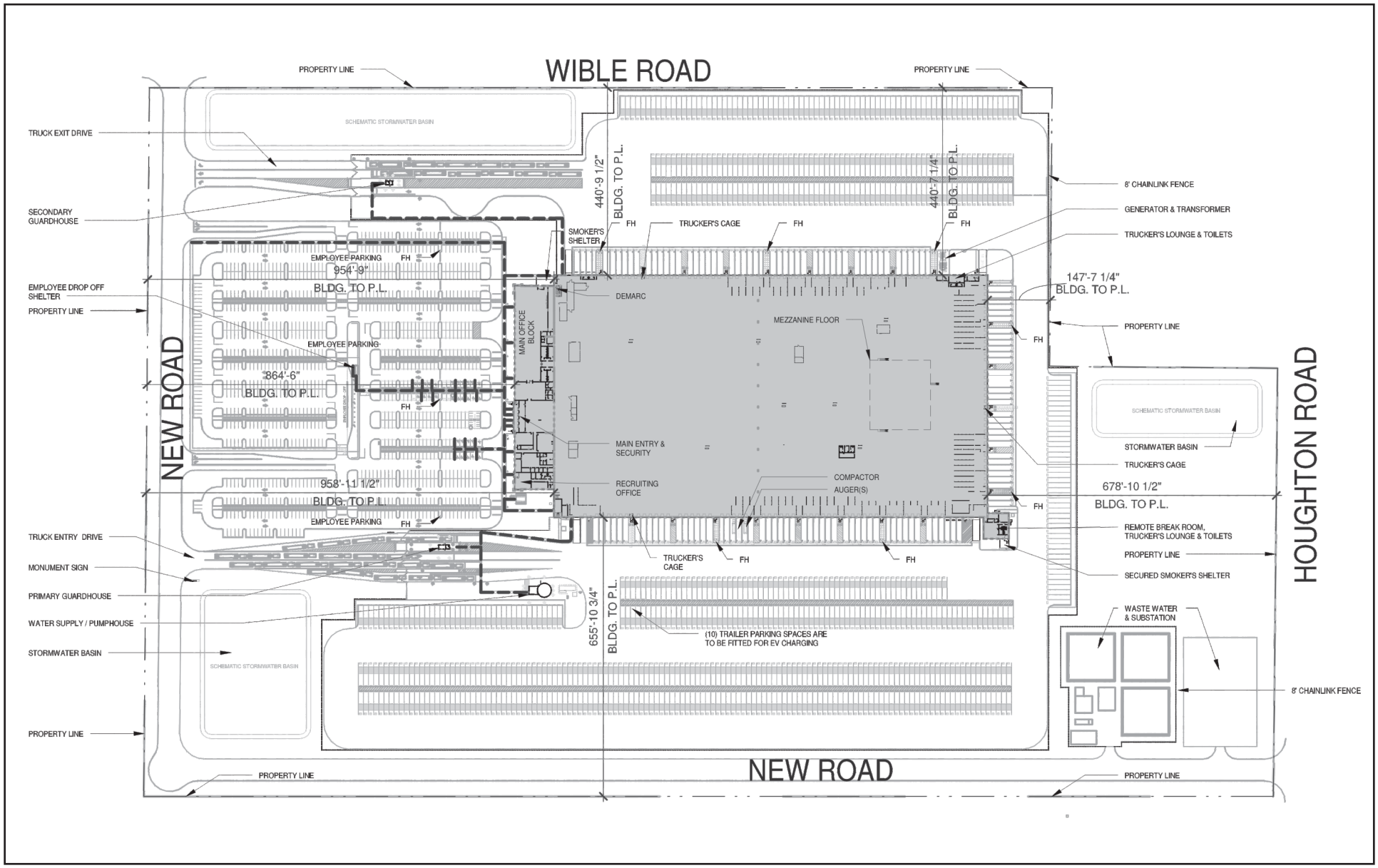


Source: Bing Aerial Imagery.

2,000 1,000 0 2,000 Feet

Figure 3-2
Local Vicinity Map

Attachment B:
Site Plan Map



Source: Kimley-Horn, Ware Malcomb, 03/30/2023.

Figure 3-3
Proposed Site Plan

November 1, 2023

Aaron Duncan, Fire Chief
308 Taft Highway
Bakersfield, CA 93307

Sent via e-mail to fireprevention@kerncountryfire.org

Subject: Westside Industrial Project Environmental Impact Report: Fire Protection Services

Dear Chief Duncan:

On behalf of Kern County, FirstCarbon Solutions (FCS) is preparing an Environmental Impact Report (EIR) for the proposed Westside Industrial Project. As part of the environmental review process, we are consulting with service providers to determine whether the project would impact their ability to deliver public services. We are contacting you to request information related to the provision of fire and emergency services.

The proposed 93.74 acres project is located 1.3 miles south of the City of Bakersfield, in unincorporated Kern County, but within the City of Bakersfield's Sphere of Influence. The project site is bound by Houghton Road to the north and Wible Road to the west and is situated approximately 1 mile west of State Route 99 and 8.75 miles east of Interstate 5. Regional access to the project site is available from SR-99 via the Houghton Road exit. Local access to the project site is available from Houghton Road and Wible Road. The proposed project would include the development of a 635,442 square foot single-story cubic warehouse distribution facility that would receive and consolidate products from vendors and then ship these products to other fulfillment centers within the network. This also includes 44,424 square feet of office space, a 24,256 square foot mezzanine, two guardhouses, and a pumphouse.

The project also includes the construction of a new private road along the eastern and southern perimeter of the project site to connect Houghton Road and Wible Road. The road would be two lanes to accommodate heavy trucks. Both the intersection of Houghton Road and the eastern perimeter road, as well as the intersection of Wible Road and Houghton Road, would be signalized. Existing roads would be improved with new pavement, raised median, curb and gutter, and sidewalk.

Potential impacts to fire services are an important element of our study. Our analysis strongly relies on your assistance in identifying potentially significant impacts to fire services that may occur as a result of the project, as well as any mitigation measure(s) that may reduce or eliminate these impacts. Any assistance that you can provide with addressing the following questions would be greatly appreciated.

Service Questions

1. Which station(s) would provide services to the project site?

2. What are the existing staffing levels, by type (department-wide and at the station(s) that would serve the project site)? What is the current number of firefighters, EMT personnel, engines, hook and ladder trucks, etc.?

3. Please provide the current average response times for emergency calls for service as a whole and for the station(s) located nearest to the project site.

4. Please provide an estimate of the annual number of service calls the proposed project would be expected to generate. If possible, please provide an estimate by type of call (e.g., EMS, fire, etc.)

5. What is the ability of the fire department to accommodate the demand of the proposed project as part of the existing facilities?

6. Are there any existing or planned mutual aid agreements with other agencies?

7. Please provide information about the residential and non-residential development fee schedule. What are the current rates? What is the estimate rate for the proposed project?

8. Do you foresee any potential challenges that the project may present to the department? This includes concerns related to response times, staffing, apparatus, fire stations, etc. Please describe any measures that you would recommend to reduce potential concerns/challenges.

9. Would the development of the proposed project impair the fire department's ability to maintain established response time standards with current staff and equipment levels?
10. Would the fire department need to construct new facilities or expand existing ones in order to serve the proposed project and the fire protection needs of the surrounding community?

11. Do you have any other comments about the potential impacts of this project on the fire department? Please provide any recommendations or special concerns that may assist us in avoiding or reducing the occurrence of potential impacts to fire services associated with the project.

Thank you for your assistance in responding to these questions. Your responses will help us ensure that our analysis is accurate and complete. To ensure a timely completion of our analysis, please provide your response via e-mail no later than Friday, November 10, 2023. If you have any questions, please contact me by email at schurchill@fcs-intl.com.

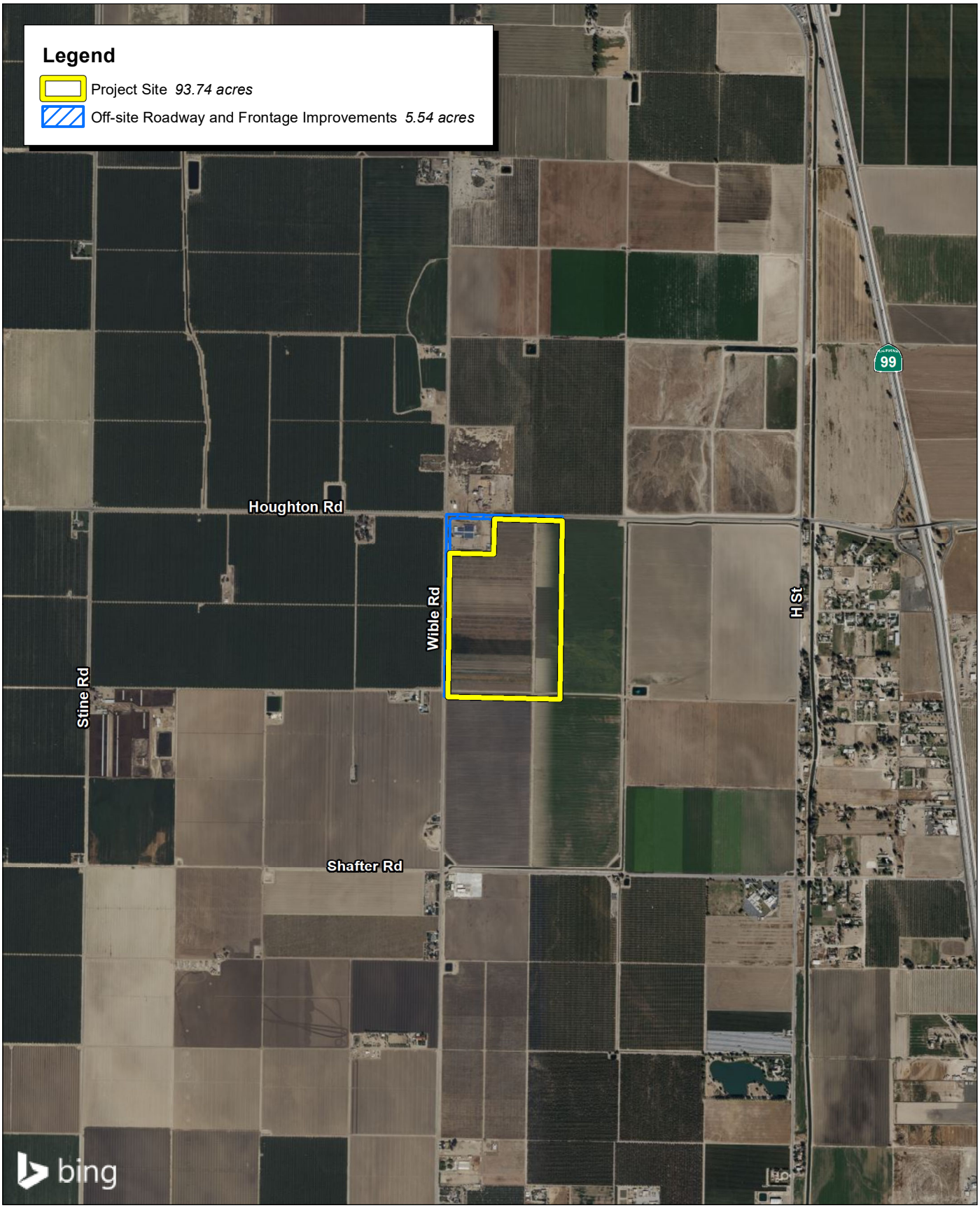
Sincerely,

Spencer Churchill, Environmental Services Analyst
FirstCarbon Solutions
250 Commerce, Suite 250

Irvine, CA 92602

Enc: Attachment A: Regional Location Map
Attachment B: Site Plan Map

Attachment A:
Regional Location Map



Source: Bing Aerial Imagery.

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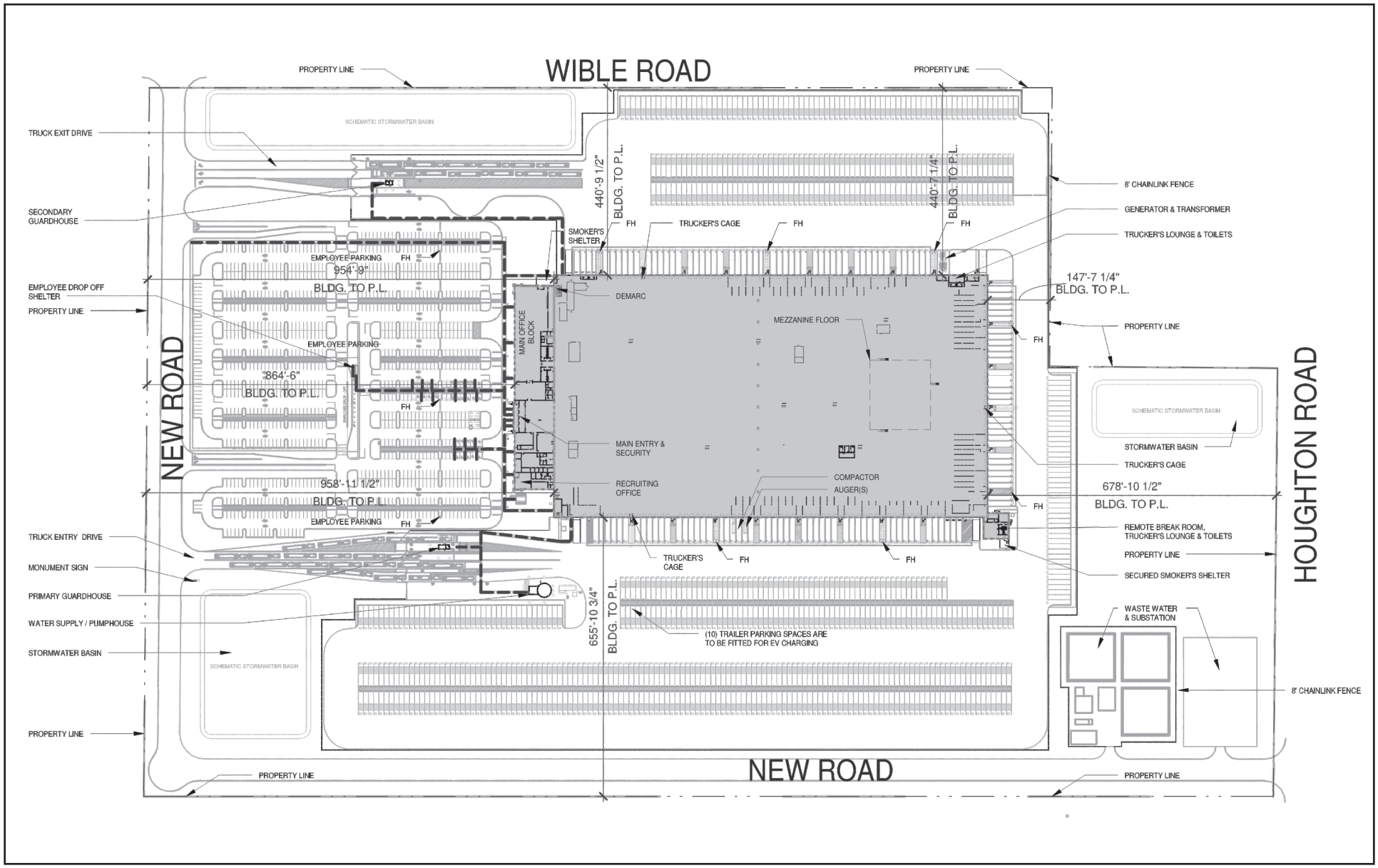
Figure 3-2
Local Vicinity Map

Attachment B:
Project Site Plan



Source: Kimley-Horn, Ware Malcomb, 03/30/2023.

Figure 3-3
Proposed Site Plan

November 1, 2023

Timothy Posey, Substation Division Commander
Kern County Sheriff's Office
1350 Norris Rd
Bakersfield, CA 93308

Sent via e-mail to PoseyT@Kernsheriff.org

Subject: Westside Industrial Project Environmental Impact Report: Police Services

Dear Commander Posey:

On behalf of Kern County, FirstCarbon Solutions (FCS) is preparing an Environmental Impact Report (EIR) for the proposed Westside Industrial Project. As part of the environmental review process, we are consulting with service providers to determine whether the project would impact their ability to deliver public services. We are contacting you to request information related to the provision of police services.

The proposed 93.74 acres project is located 1.3 miles south of the City of Bakersfield, in unincorporated Kern County, but within the City of Bakersfield's Sphere of Influence. The project site is bound by Houghton Road to the north and Wible Road to the west and is situated approximately 1 mile west of State Route 99 and 8.75 miles east of Interstate 5.

Regional access to the project site is available from SR-99 via the Houghton Road exit. Local access to the project site is available from Houghton Road and Wible Road. The proposed project would include the development of a 653,442 square foot single-story cubic warehouse distribution facility~~,~~ that would receive and consolidate products from vendors and then ship these products to other fulfillment centers within the network. This also includes 44,424 square feet of office space, a 24,256 square foot mezzanine, two guardhouses, and a pumphouse.

The project also includes the construction of a new private road along the eastern and southern perimeter of the project site to connect Houghton Road and Wible Road. The road would be two lanes to accommodate heavy trucks. Both the intersection of Houghton Road and the eastern perimeter road, as well as the intersection of Wible Road and Houghton Road, would be signalized. Existing roads would be improved with new pavement, raised median, curb and gutter, and sidewalk.

Potential impacts to police services are an important element of our study. Our analysis strongly relies on your assistance in identifying potentially significant impacts to police services that may occur as a result of the project, as well as any mitigation measure(s) that may reduce or eliminate these impacts. Any assistance that you can provide with addressing the following questions would be greatly appreciated.

Service Questions

1. Which station(s) would provide services to the project site?

2. Please describe the existing staffing levels that would serve the project site. Please include a description of number of officers, civilian personnel, active patrols at one time, etc.

3. Please provide the current average response times for emergency calls for service as a whole and for the station(s) located nearest to the project site.

4. Would the development of the proposed project impair the police department's ability to maintain established response time standards with current staff and equipment levels?

5. Please provide an estimate of the officers/1,000 residents and the target ratio that the department would like to achieve.

6. List any existing or planned mutual aid agreements with other agencies.

7. Please provide an estimate of the annual number of calls for service the proposed project would be expected to generate.

8. What are the current rates of the residential and non-residential development fees? What is the estimated rate for the proposed project?

9. Do you foresee any potential challenges that the proposed project may present to the department? (Including concerns related to response times, staffing, apparatus, stations, etc.) Please describe any measures you would recommend to reduce potential concerns/challenges.

10. Would the department need to construct new facilities or expand existing ones in order to serve the proposed project and the law enforcement needs of the City?

11. Do you have any other comments about the potential impacts of this project on the police department? Please provide any recommendations or special concerns that may assist us in avoiding or reducing the occurrence of potential impacts to police services associated with the project.

Thank you for your assistance in responding to these questions. Your responses will help us ensure that our analysis is accurate and complete. To ensure a timely completion of our analysis, please provide your response via e-mail no later than Friday, November 10, 2023. If you have any questions, please contact me by email at schurchill@fcs-intl.com.

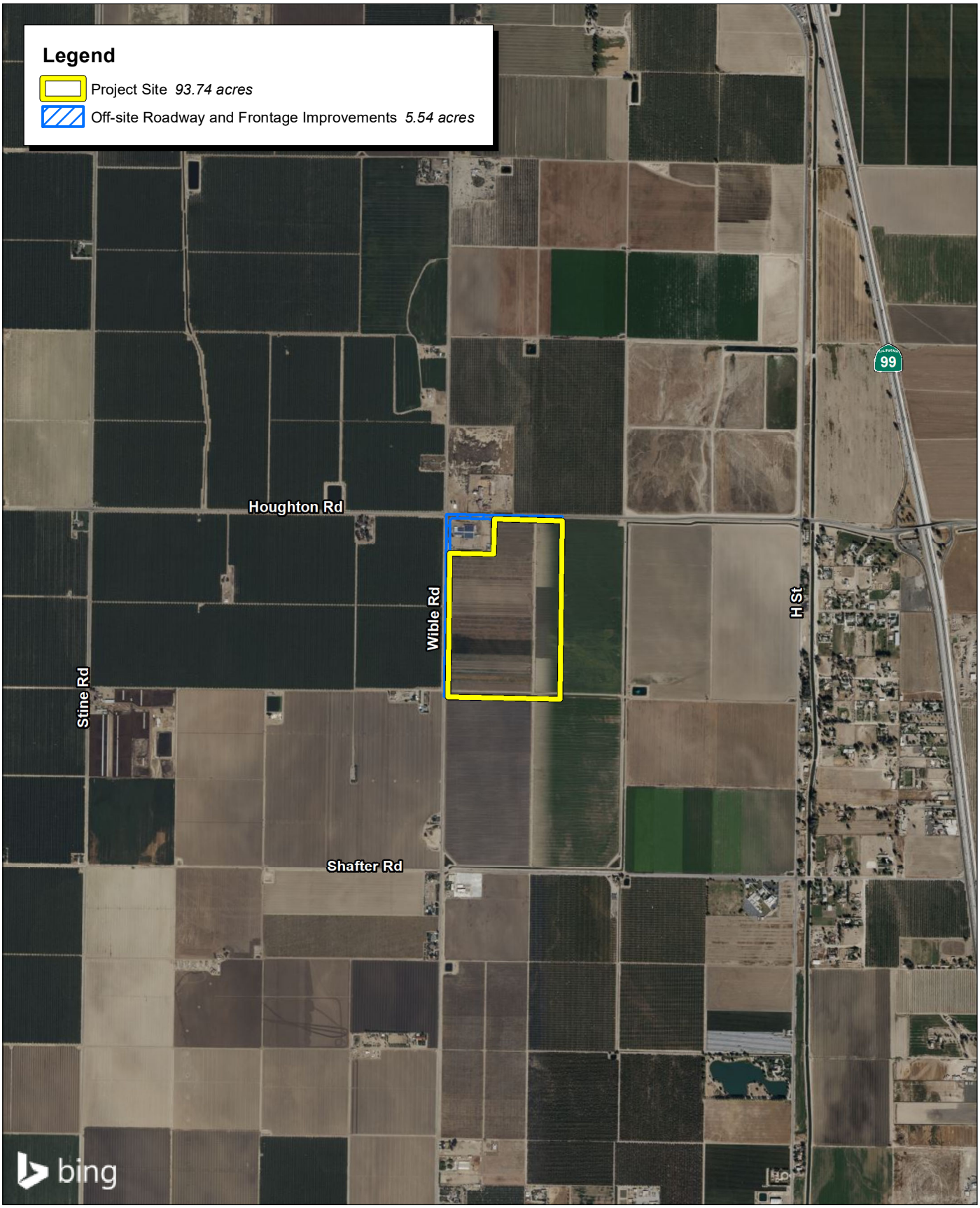
Sincerely,

Spencer Churchill, Environmental Services Analyst
FirstCarbon Solutions
250 Commerce, Suite 250

Irvine, CA 92602

Enc: Attachment A: Regional Location Map
Attachment B: Site Plan Map

Attachment A:
Local Vicinity Map

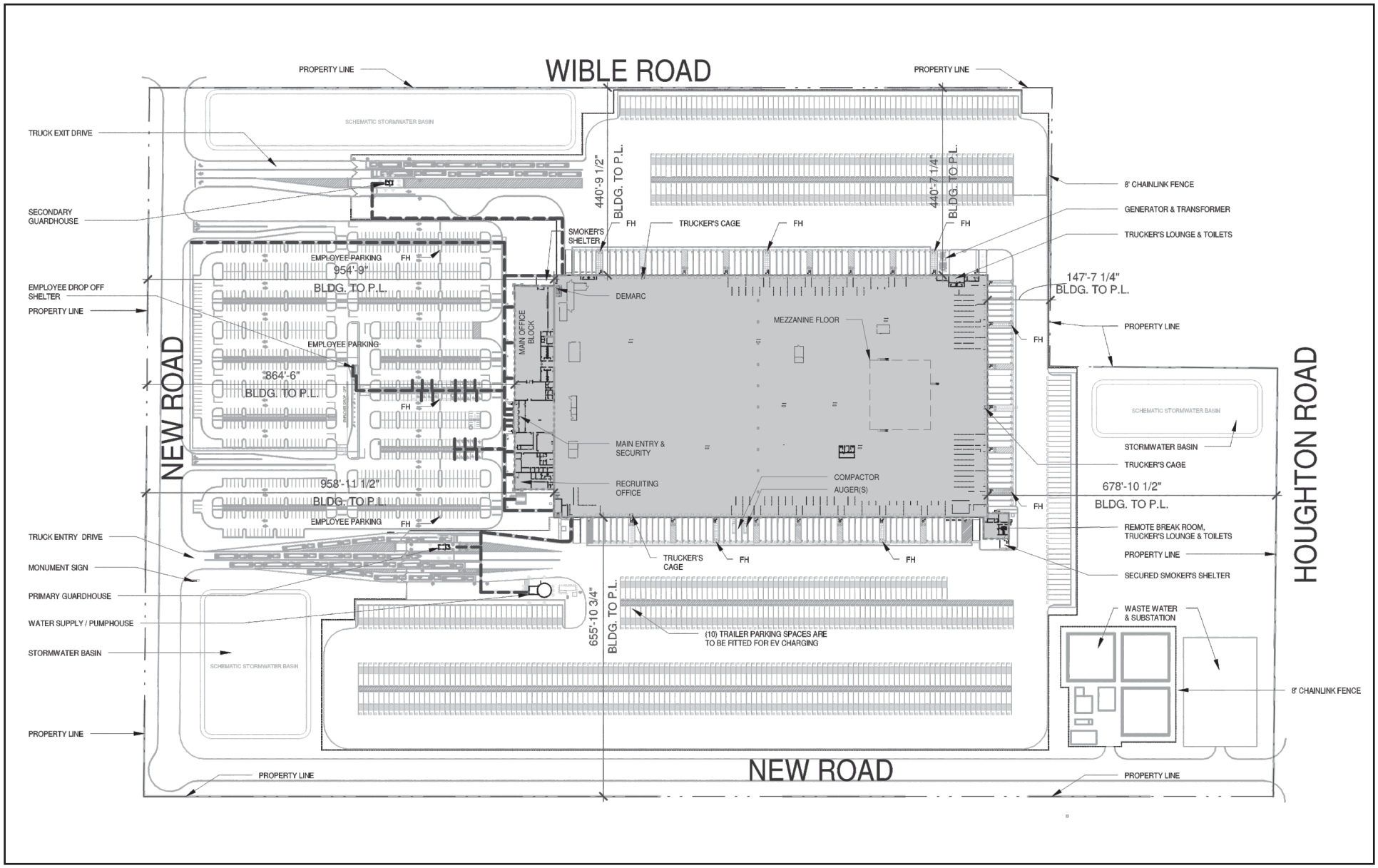


Source: Bing Aerial Imagery.

2,000 1,000 0 2,000 Feet

Figure 3-2
Local Vicinity Map

Attachment B:
Site Plan Map



Source: Kimley-Horn, Ware Malcomb, 03/30/2023.

Figure 3-3
Proposed Site Plan

November 1, 2023

Chris Salyards, Superintendent
General Shafter School District
1825 Shafter Rd
Bakersfield, CA 93313

Sent via email to: chriss@generalshafter.org

Subject: Westside Industrial Project Environmental Impact Report: School Services

Dear Superintendent Salyards:

On behalf of Kern County, FirstCarbon Solutions (FCS) is preparing an Environmental Impact Report (EIR) for the proposed Westside Industrial Project. As part of the environmental review process, we are consulting with service providers to determine whether the project would impact their ability to deliver public services. We are contacting you to request information related to the provision of school services.

The proposed 93.74 acres project is located 1.3 miles south of the City of Bakersfield, in unincorporated Kern County, but within the City of Bakersfield's Sphere of Influence. The project site is bound by Houghton Road to the north and Wible Road to the west and is situated approximately 1 mile west of State Route 99 and 8.75 miles east of Interstate 5.

Regional access to the project site is available from SR-99 via the Houghton Road exit. Local access to the project site is available from Houghton Road and Wible Road. The proposed project would include the development of a 653,442 square foot single-story cubic warehouse distribution facility, that would receive and consolidate products from vendors and then ship these products to other fulfillment centers within the network. This also includes 44,424 square feet of office space, a 24,256 square foot mezzanine, two guardhouses, and a pumphouse.

The project also includes the construction of a new private road along the eastern and southern perimeter of the project site to connect Houghton Road and Wible Road. The road would be two lanes to accommodate heavy trucks. Both the intersection of Houghton Road and the eastern perimeter road, as well as the intersection of Wible Road and Houghton Road, would be signalized. Existing roads would be improved with new pavement, raised median, curb and gutter, and sidewalk.

Potential impacts to school services are an important element of our study. Our analysis strongly relies on your assistance in identifying potentially significant impacts to school services that may occur as a result of the project, as well as any mitigation measure(s) that may reduce or eliminate these impacts. Any assistance that you can provide with addressing the following questions would be greatly appreciated.

Service Questions

1. We have prepared the following description of the General Shafter School District based on information available online. We would appreciate it if you could review and edit (as needed) for completeness and accuracy.

   According to the California School Dashboard and the District website, the district serves over 190 students grade K-8. The district includes one elementary school, with construction of a multipurpose facility scheduled to have been completed in 2019.

2. Based on the residential/commercial development potential of the proposed project, please provide an estimated number of students generated by the proposed project.

3. Please list the school(s) that may be affected by the proposed project and their current capacity/enrolment ratio.

4. Please provide information about the residential and non-residential development fee schedule currently assessed by/on behalf of the District.

5. Please define any potential challenges that the proposed project may present to the District. Please describe any measures that you would recommend to reduce potential concerns/challenges.

6. Please provide any additional information that you believe to be relevant to the proposed project.

Thank you for your assistance in responding to these questions. Your responses will help us ensure that our analysis is accurate and complete. To ensure a timely completion of our analysis, please provide your response via e-mail no later than Friday, November 10, 2023. If you have any questions, please contact me by email at schurchill@fcs-intl.com.

Sincerely,

Spencer Churchill, Environmental Services Analyst
FirstCarbon Solutions
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Irvine, CA 92602

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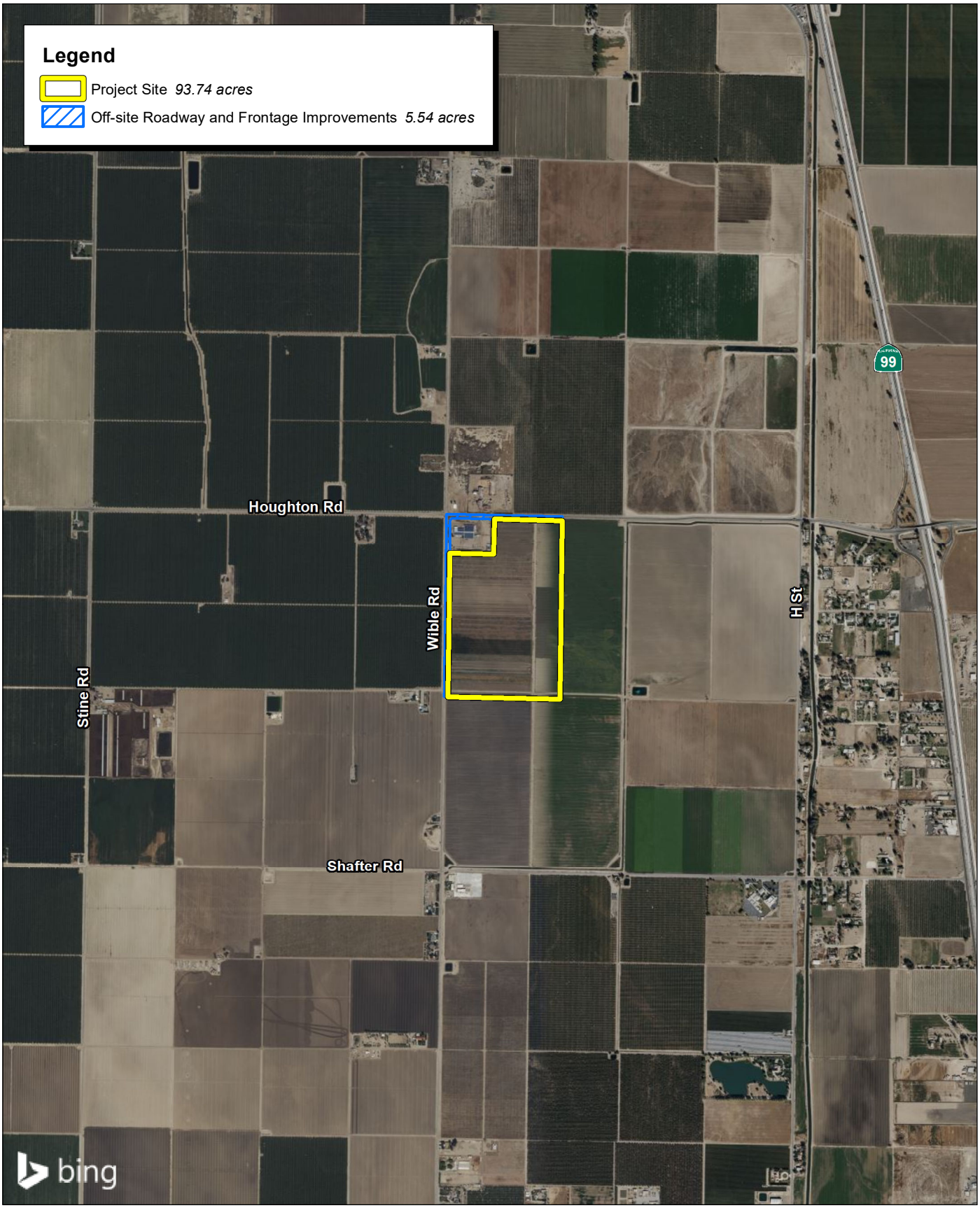
Attachment B: Site Plan Map

Attachment A:
Local Vicinity Map



Source: Bing Aerial Imagery.

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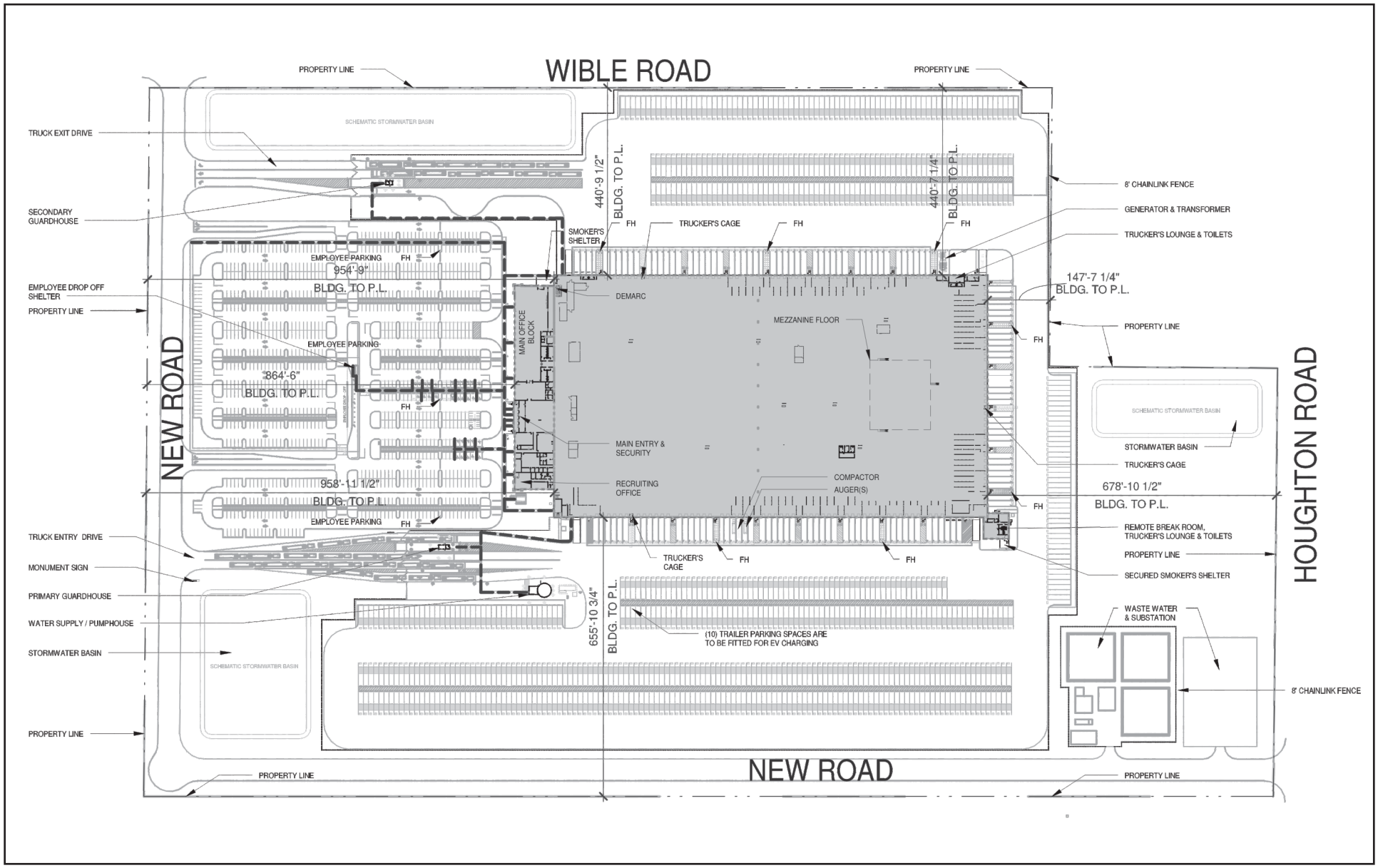
Figure 3-2
Local Vicinity Map

Attachment B:
Site Plan Map



Source: Kimley-Horn, Ware Malcomb, 03/30/2023.

Figure 3-3
Proposed Site Plan

November 1, 2023

Jenny Hannah Brown, Facilities Director
Kern High School District
5801 Sundale Avenue
Bakersfield, CA 93309

Sent via email to: jenny_hanna@kernhigh.org

Subject: Westside Industrial Project Environmental Impact Report: School Services

Dear Director Brown:

On behalf of Kern County, FirstCarbon Solutions (FCS) is preparing an Environmental Impact Report (EIR) for the proposed Westside Industrial Project. As part of the environmental review process, we are consulting with service providers to determine whether the project would impact their ability to deliver public services. We are contacting you to request information related to the provision of school services.

The proposed 93.74 acres project is located 1.3 miles south of the City of Bakersfield, in unincorporated Kern County, but within the City of Bakersfield's Sphere of Influence. The project site is bound by Houghton Road to the north and Wible Road to the west and is situated approximately 1 mile west of State Route 99 and 8.75 miles east of Interstate 5.

Regional access to the project site is available from SR-99 via the Houghton Road exit. Local access to the project site is available from Houghton Road and Wible Road. The proposed project would include the development of a 653,442 square foot single-story cubic warehouse distribution facility, that would receive and consolidate products from vendors and then ship these products to other fulfillment centers within the network. This also includes 44,424 square feet of office space, a 24,256 square foot mezzanine, two guardhouses, and a pumphouse.

The project also includes the construction of a new private road along the eastern and southern perimeter of the project site to connect Houghton Road and Wible Road. The road would be two lanes to accommodate heavy trucks. Both the intersection of Houghton Road and the eastern perimeter road, as well as the intersection of Wible Road and Houghton Road, would be signalized. Existing roads would be improved with new pavement, raised median, curb and gutter, and sidewalk.

Potential impacts to school services are an important element of our study. Our analysis strongly relies on your assistance in identifying potentially significant impacts to school services that may occur as a result of the project, as well as any mitigation measure(s) that may reduce or eliminate these impacts. Any assistance that you can provide with addressing the following questions would be greatly appreciated.

Service Questions

1. We have prepared the following description of the Kern High School District based on information available online. We would appreciate it if you could review and edit (as needed) for completeness and accuracy.

   According to the 2023-2024 Local Control and Accountability Plan (LCAP) and the District website, the District serves 42,451 students grades 9-12 and encompasses approximately 3,500 square miles. The District includes 19 comprehensive high schools, five alternative education schools, three Special Education Career Centers, three Special Education Programs, two Career and Technical education sites, one blended learning program, the Bakersfield Adult School, and one charter school. and one adult education center.

2. Based on the residential/commercial development potential of the proposed project, please provide an estimated number of students generated by the proposed project.

3. Please list the school(s) that may be affected by the proposed project and their current capacity/enrolment ratio.

4. Please provide information about the residential and non-residential development fee schedule currently assessed by/on behalf of the District.

5. Please define any potential challenges that the proposed project may present to the District. Please describe any measures that you would recommend to reduce potential concerns/challenges.

6. Please provide any additional information that you believe to be relevant to the proposed project.

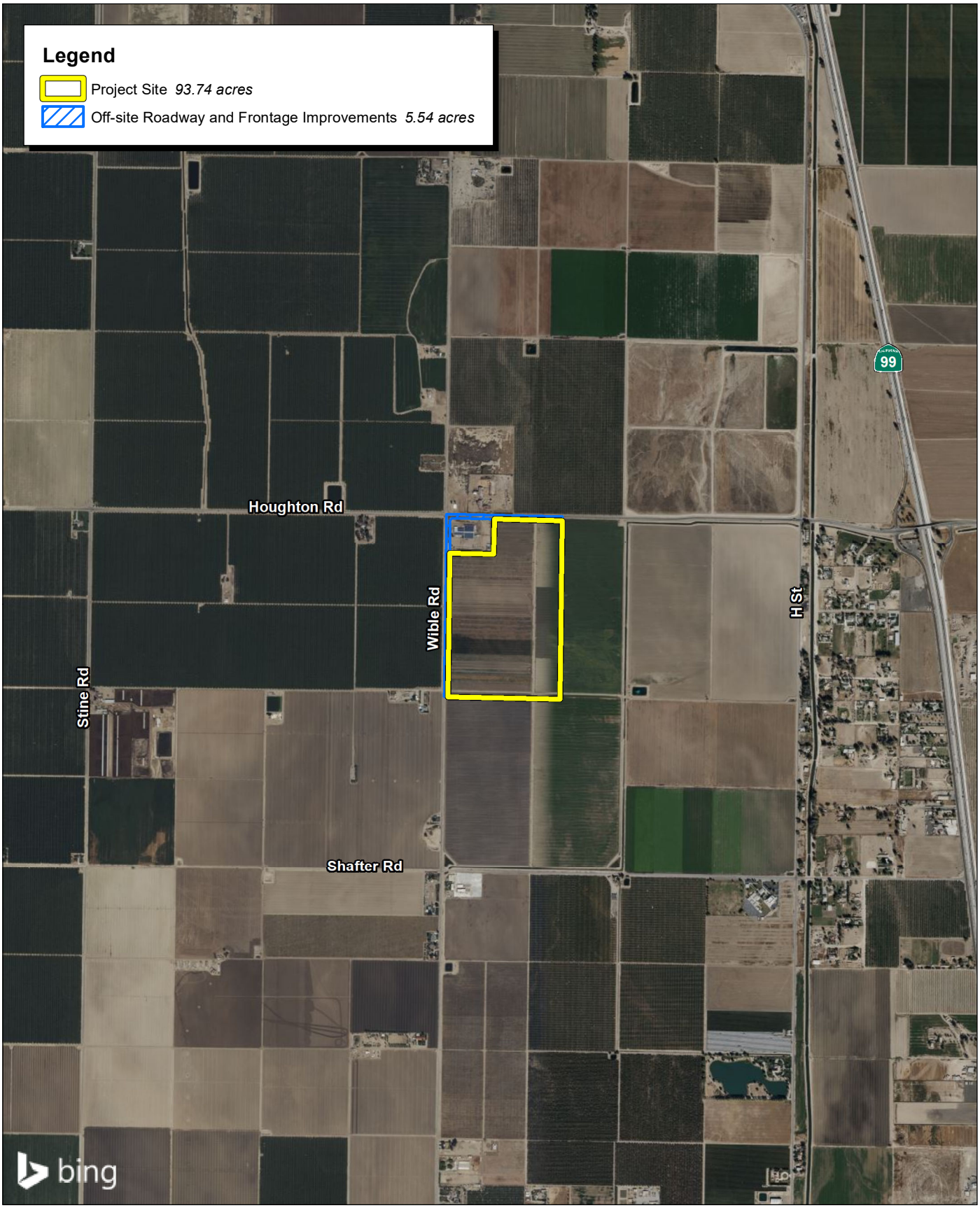
Thank you for your assistance in responding to these questions. Your responses will help us ensure that our analysis is accurate and complete. To ensure a timely completion of our analysis, please provide your response via e-mail no later than Friday, November 10, 2023. If you have any questions, please contact me by email at schurchill@fcs-intl.com.

Sincerely,

Spencer Churchill, Environmental Services Analyst
FirstCarbon Solutions
250 Commerce, Suite 250
Irvine, CA 92602

Enc: Attachment A: Regional Location Map
Attachment B: Site Plan Map

Attachment A:
Local Vicinity Map

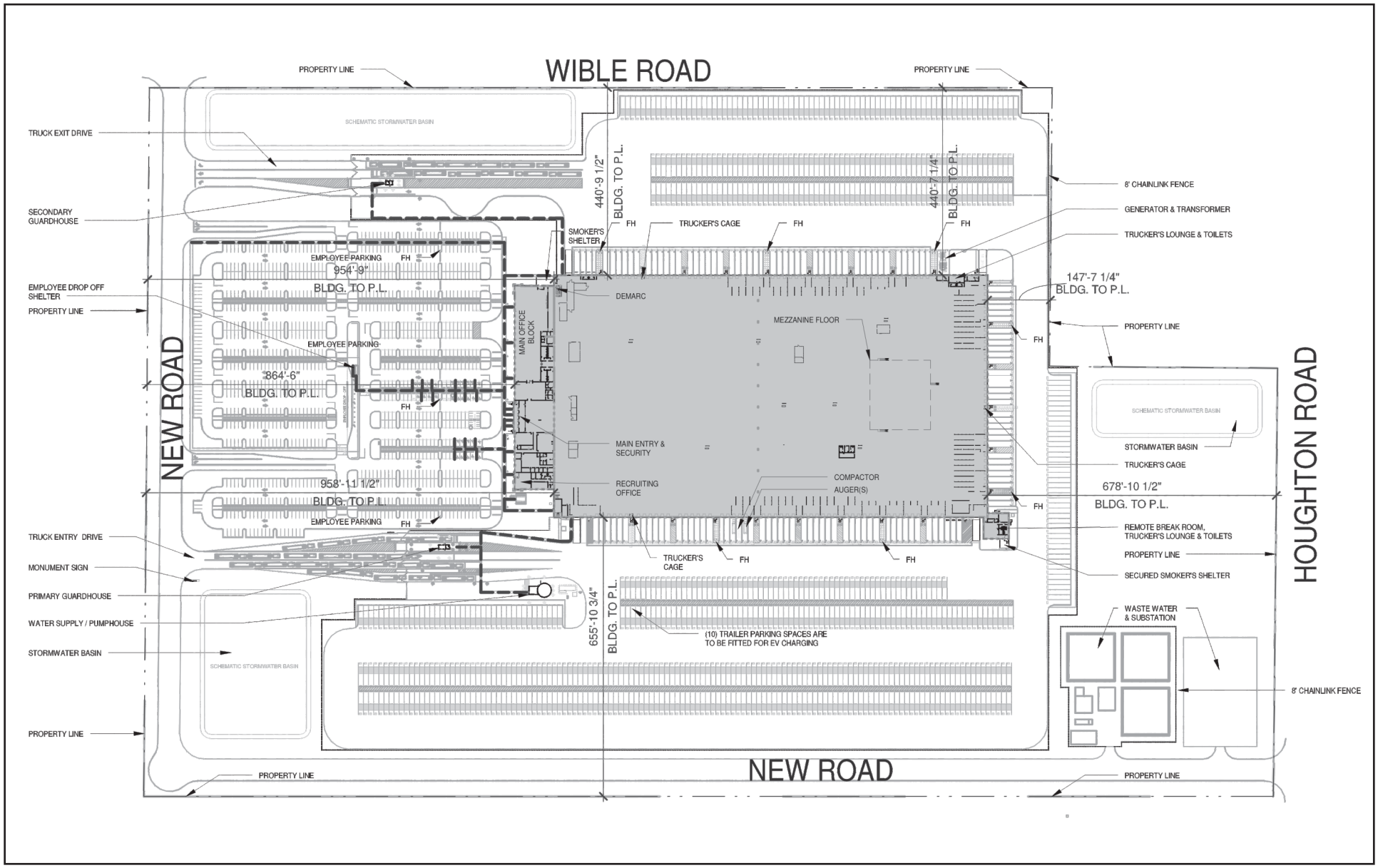


Source: Bing Aerial Imagery.

2,000 1,000 0 2,000 Feet

Figure 3-2
Local Vicinity Map

Attachment B:
Site Plan Map



Source: Kimley-Horn, Ware Malcomb, 03/30/2023.

Figure 3-3
Proposed Site Plan

Appendix J:
Traffic Study

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TRAFFIC STUDY

Westside Industrial Project

PREPARED FOR:

SEEFRIED DEVELOPMENT PROPERTIES

FEBRUARY 2024 | FINAL

Prepared By:

Kimley»Horn

Signed: Joe Shultz, P.E. (RCE #84152)

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EXECUTIVE SUMMARY

The following Traffic Study (TS) has been prepared to analyze potential Vehicle Miles Traveled (VMT) impacts pursuant to the requirements of the California Environmental Quality Act (Public Resources Code [PRC] § 21000 *et seq*. and the CEQA Guidelines § 15000 *et seq*.) (collectively, CEQA) as well as to evaluate any non-CEQA Level of Service (LOS) deficiencies associated with the Westside Industrial Project ("proposed project"), a warehouse and distribution facility proposed in unincorporated Kern County (County). The proposed 93.74-acre project site is approximately 1.3 miles south of the City of Bakersfield, and located within the City of Bakersfield Sphere of Influence (SOI). The project site is located approximately 1 mile west of State Route 99 (SR 99), and bounded by Wible Road (west), Houghton Road (north), and agricultural land (south and east).

The project's applicant is proposing to develop a warehouse and distribution facility with a building footprint of approximately 629,186-square-feet, which includes approximately 44,424 square feet of interior office space, breakrooms, and other ancillary space. Approximately 1,000 passenger vehicle parking stalls, 726 truck trailer stalls, and 16 motorcycle parking stalls are proposed. The proposed facility would primarily facilitate material handling equipment and warehouse uses, and will feature approximately 132 loading docks along the north, west, and east sides of building. The building also contains approximately 24,256-square-foot mezzanine space, which would contain material handling equipment. The proposed operations incorporate a high-level of on-site automation and logistics management, enabling efficient processing of goods, and will run 24-hours a day, 365 days per year.

PROPOSED ROADWAY AND ACCESS IMPROVEMENTS

Off-site roadway improvements would be constructed by the proposed project along Houghton Road and Wible Road. The proposed project would also construct a private access road adjacent to the east and south sides of the site, referred to as East Private Road and South Private Road. Four (4) access driveways are proposed on the private access road along the south side of the site. It should be noted that the proposed frontage improvements are pending approval of County staff, therefore, design details included in concept are subject to revision.

HOUGHTON ROAD

With the construction of the proposed project, the southern half of Houghton Road would be widened along the property frontage to provide ½ width improvements for a County standard Type "A" Arterial Highway (Lot Size > 3 < 20 acres) with a half right-of-way width of 55-feet and a half-improved width of 35-feet. The cross-section would provide a single westbound travel lane and two travel lanes in the eastbound direction along the frontage that would become a drop right-turn lane at the East Private Road. The south 7-feet of the raised median would be constructed with the north half striped as a median. For purposes of intersection lane alignments and shift tapers, the proposed improvements would extend west of Wible Road and east of the East Private Road. These improvements would be interim conditions, where half of the roadway is built to its ultimate roadway cross-section, and expected to be in place until future development of the adjacent parcels occurs.

WIBLE ROAD

With the construction of the proposed project, the eastern portion of Wible Road would be widened along the property frontage to provide ½ width improvements for a County standard Type "A" Arterial Highway (Lot Size > 3 < 20 acres) with a half right-of-way width of 55-feet and a half-improved width of 35-feet. The cross-section would provide a single southbound travel lane, painted median, and one travel lane in the northbound direction along the frontage. For purposes of intersection lane alignments and shift tapers, the proposed improvements would extend north of Houghton Road and south of the South Private Road. These improvements would be interim conditions, where half of the roadway is built to its ultimate roadway cross-section, and expected to be in place until future development of the adjacent parcels occurs.

SITE ACCESS

Access to the proposed project would be established through the proposed construction of a private access road adjacent to the east and south sides of the site, East Private Road / South Private Road, and four (4) access driveways on the private access road along the south side of the site. The following summarizes the proposed access improvements:

- East Private Road
  - Construct a 50-foot-wide roadway along the eastern limits of the proposed project site, intersecting Houghton Road;
  - Construct limited-access (outbound left-turn restricted) intersection along the easter limits of the proposed project site, approximately 1,650-feet east of Wible Road;
  - Design intersection to accommodate inbound/outbound truck turning paths; and
  - Provide stop-control for northbound approach.
- South Private Road
  - Construct a 50-foot-wide roadway along the southern limits of the proposed project site, intersecting Wible Road;
  - Construct full-access intersection along the southern limits of the proposed project site, approximately 2,650-feet south of Houghton Road;
  - Design intersection to accommodate inbound/outbound truck turning paths; and
  - Provide stop-control for westbound approach.
- Outbound Truck Driveway
  - Construct driveway approximately 250-feet east of Wible Road, along the South Private Road;
  - Provide separate left-turn and right-turn lanes for the southbound approach;
  - Stripe two-way left-turn lane along South Private Road;
  - Provide a stop control at the southbound approach; and
  - Restrict inbound vehicles with signage.
- Passenger Vehicle Driveway 1
  - Construct full-access driveway approximately 375-feet east of Wible Road, along the South Private Road;
  - Provide separate left-turn and right-turn lanes for the southbound approach;
  - Stripe two-way left-turn lane along South Private Road; and
  - Provide a stop control at the southbound approach.
- Passenger Vehicle Driveway 2
  - Construct full-access driveway approximately 925-feet east of Wible Road, along the South Private Road;

    - Provide separate left-turn and right-turn lanes for the southbound approach;
    - Stripe two-way left-turn lane along South Private Road; and
    - Provide a stop control at the southbound approach.
- Inbound Truck Driveway
    - Construct driveway approximately 1,150-feet east of Wible Road, along the South Private Road;
    - Provide two inbound travel lanes;
    - Stripe two-way left-turn lane along South Private Road; and
    - Restrict outbound vehicles with signage.

TRIP GENERATION

It is estimated that the proposed project would generate 4,052 daily trips, with 547 trips (443 inbound / 104 outbound) during the a.m. peak hour and 755 trips (294 inbound / 461 outbound) during the p.m. peak hour. A Passenger Car Equivalent (PCE) of 3.0 was applied to truck trips to account for additional intersection delay and turn-pocket queue caused by truck trips. The resulting total of 4,341 daily PCE trips, with 573 PCE trips (455 inbound / 118 outbound) during the a.m. peak hour and 767 PCE trips (300 inbound / 467 outbound) during the p.m. peak hour are analyzed.

PROJECT IMPACTS / RECOMMENDATIONS (CEQA)

Based on the quantitative VMT analysis and thresholds applied, the proposed project would result in a significant impact, requiring mitigation. Prior to occupancy, the proposed project shall develop a TDM program to reduce VMTs associated with employee trips. The following TDM measures would be implemented by the proposed project as part of the TDM program:

1. Alternative-Mode Subsidies and Incentives: Provide subsidization of transit fares, carpool, or electric vanpool for employees of the project site. Provide monetary incentives for alternative-modes of transportation.
2. Travel Behavior Change Program: Provide a web site that allows employees to research alternate modes of transportation for commuting to the site.
3. Promotions & Marketing: Provide marketing and promotional tools to educate and inform travelers about site-specific transportation options and the effects of their travel choices with passive educational and promotional materials.
4. Commute Assistance Center: Provide a computer kiosk that allows employees to research other modes of transportation for commuting.
5. Preferential Carpool / Vanpool Parking Spaces: Provide reserved carpool/vanpool spaces closer to the building entrance.
6. Passenger Loading Zones: Provide passenger loading zones for easy access to carpools or vanpools.
7. Bike Share: Implement bike share to allow people to have on-demand access to a bicycle, as-needed.
8. Bike Parking and Facilities: Include dedicated bike route into facility and secure bike lockers/parking to support safe and comfortable bicycle travel. Provide on-site bicycle repair tools.

Combining the above-mentioned mitigation measures would reduce the proposed project's VMT per employee by 5.4 percent. However, since the proposed mitigations are not expected to reduce the proposed project's VMT per employee by more than 24.5 percent, the proposed project's VMT impact would be significant and unavoidable.

PROJECT DEFICIENCIES / RECOMMENDATIONS (NON-CEQA)

Level Of Service (LOS) operations were evaluated for the following five (5) scenarios:

- Existing (2023) Conditions – Represents the traffic conditions of the existing street network when traffic data was collected in May 2023.
- Opening Year (2026) Conditions – Represents the expected traffic conditions in 2026, the proposed project's anticipated opening year.
- Opening Year (2026) Plus Project Conditions – Represents the traffic conditions for the Opening Year (2026) with the addition of the proposed project's improvements and trip generation.
- Horizon Year (2046) Conditions – Represents the traffic conditions in 2046, the Kern COG travel demand model 2046 horizon year.
- Horizon Year (2046) Plus Project Conditions – Represents the traffic conditions for the Horizon Year (2046) Plus Project Conditions with the addition of the proposed project's improvements and trip generation.

Under the Opening Year (2026) Plus Project and Horizon Year (2046) Plus Project scenarios, the proposed project's traffic is expected to cause a LOS deficiency at Houghton Road & Union Avenue.

Under the Opening Year (2026) Plus Project and Horizon Year (2046) Plus Project scenarios, the intersection of Houghton Road & Union Avenue (Intersection #6) would not satisfy CA MUTCD Warrant 1 (8-hour) and Warrant 2 (4-hour). However, Warrant 3 (peak hour) would be satisfied for a single hour of the day (3 PM – 4 PM).

The CA MUTCD states the following:

> The Peak Hour signal warrant is intended for use at a location where traffic conditions are such that for a minimum of 1 hour of an average day, the minor-street traffic suffers undue delay when entering or crossing the major street. This signal warrant shall be applied only in unusual cases, such as office complexes, manufacturing plants, industrial complexes, or high-occupancy vehicle facilities that attract or discharge large numbers of vehicles over a short time.

It should be noted that the CA MUTCD suggests this warrant only be considered at intersections that provide direct access to proposed project site. However, the County has elected to consider the Peak Hour signal warrant at Houghton Road & Union Avenue. Therefore, a traffic signal would be warranted.

To alleviate the intersection LOS deficiency, it is recommended that the proposed project signalize the intersection and modify the raised median on Union Avenue to provide a northbound left-turn pocket (150-feet minimum). The following summarizes the recommended improvements and resulting lane geometry and control:

- Northbound: Modify raised median to provide left-turn pocket, thru lane and thru/right-turn lane;
- Southbound: Existing left-turn pocket (140-feet), thru lane and thru/right-turn lane;
- Eastbound: Existing shared left-turn/thru/right-turn lane;
- Westbound: Existing shared left-turn/thru lane and right-turn pocket (100-feet); and
- Signalize intersection, providing NB/SB protected left-turn phasing and EB/WB permissive phasing.

This improvement would enable the intersection to operate at LOS B for the AM and PM peak hours under both the Opening Year (2026) Plus Project and Horizon Year (2046) Plus Project conditions.

As stated above, the intersection satisfies only the CA MUTCD traffic signal Warrants 3 (peak hour) for a single hour of the day. Therefore, the recommendation for signalization is subject to the approval of the County, and acceptance of the Peak Hour Warrant as the basis for recommendation. These improvements would be constructed as an Opening Day (2026) feature, prior to occupancy since the proposed project traffic is expected to trigger the LOS deficiency.

1. INTRODUCTION

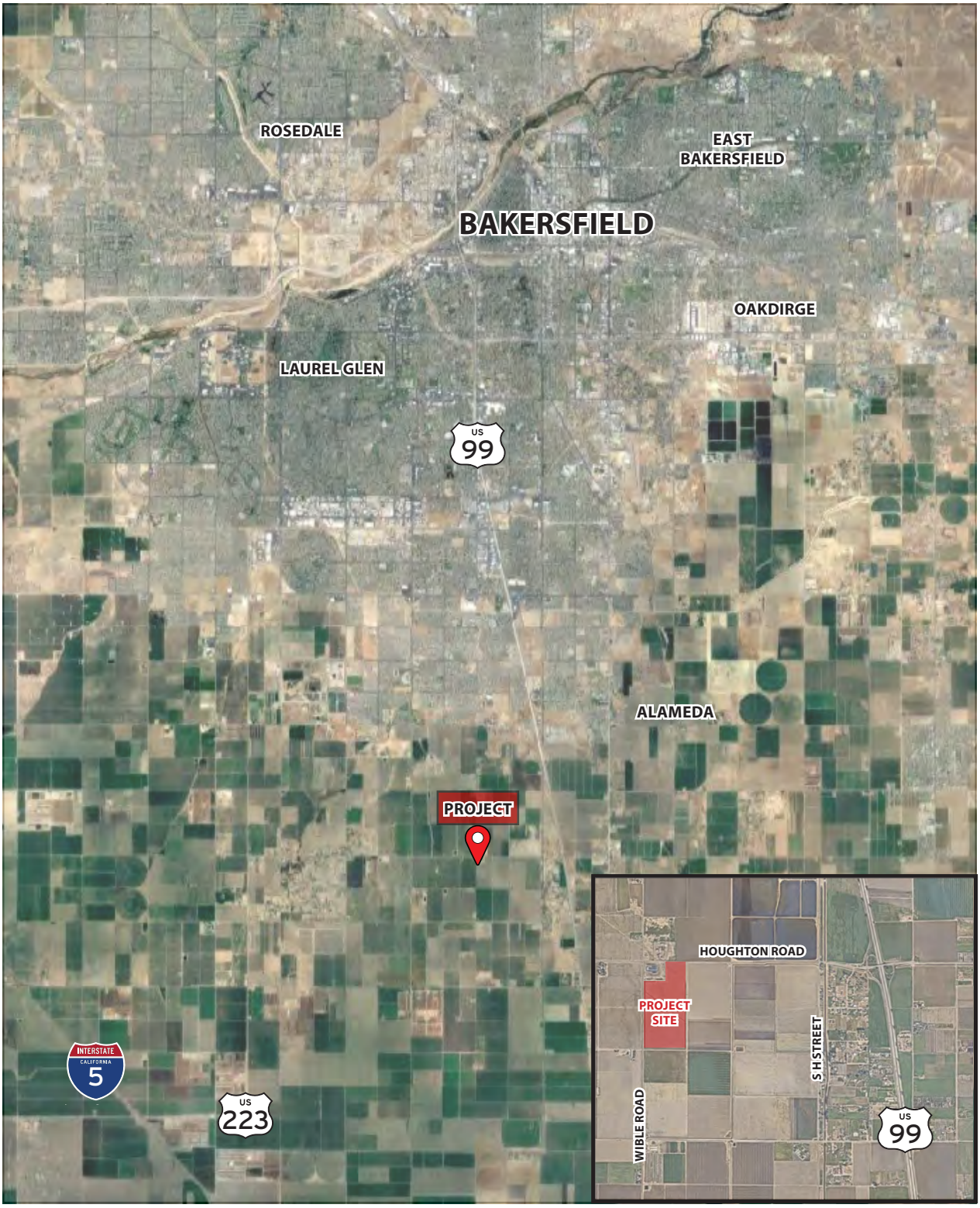
The following Traffic Study (TS) has been prepared to analyze potential Vehicle Miles Traveled (VMT) impacts pursuant to the requirements of the California Environmental Quality Act (Public Resources Code [PRC] § 21000 *et seq*. and the CEQA Guidelines § 15000 *et seq*.) (collectively, CEQA) as well as to evaluate any non-CEQA Level of Service (LOS) deficiencies associated with the Westside Industrial Project ("proposed project"), a warehouse and distribution facility proposed near the southern end of the San Joaquin Valley in unincorporated Kern County (County). The proposed project would include the construction of an approximately 629,186-square-foot single-story warehouse distribution facility and associated improvements on approximately 93.74-acres of privately owned land. The project site is bounded by Wible Road (west), Houghton Road (north), and agricultural land (south and east). The Assessor's Parcel Number (APN) is 184-391-08.

The proposed project site is approximately 1.3 miles south of the City of Bakersfield, and located within the City of Bakersfield Sphere of Influence (SOI). The City of Arvin lies approximately 11 miles east of the site, and the unincorporated community of Lamont is approximately 6 miles northeast. The proposed project site is situated approximately 1 mile west of State Route 99 (SR 99) and 8.75 miles east of Interstate 5 (I-5). Regional access to the project site is available from SR-99 via the Houghton Road exit. Local access to the project site is available from Houghton Road and Wible Road. Unpaved roads provide existing access within the project site. The project vicinity is characterized by cultivated agricultural uses (row crops and orchards) as well as agricultural processing facilities. The General Shafter Elementary School is located approximately 1 mile southeast of the project site at South H Street and Shafter Road. In addition, Kern High School District has identified a future school site at Wible Road and Engle Road approximately 0.5 mile north of the project site. **Figure 1-1** depicts the proposed project's location within the region.

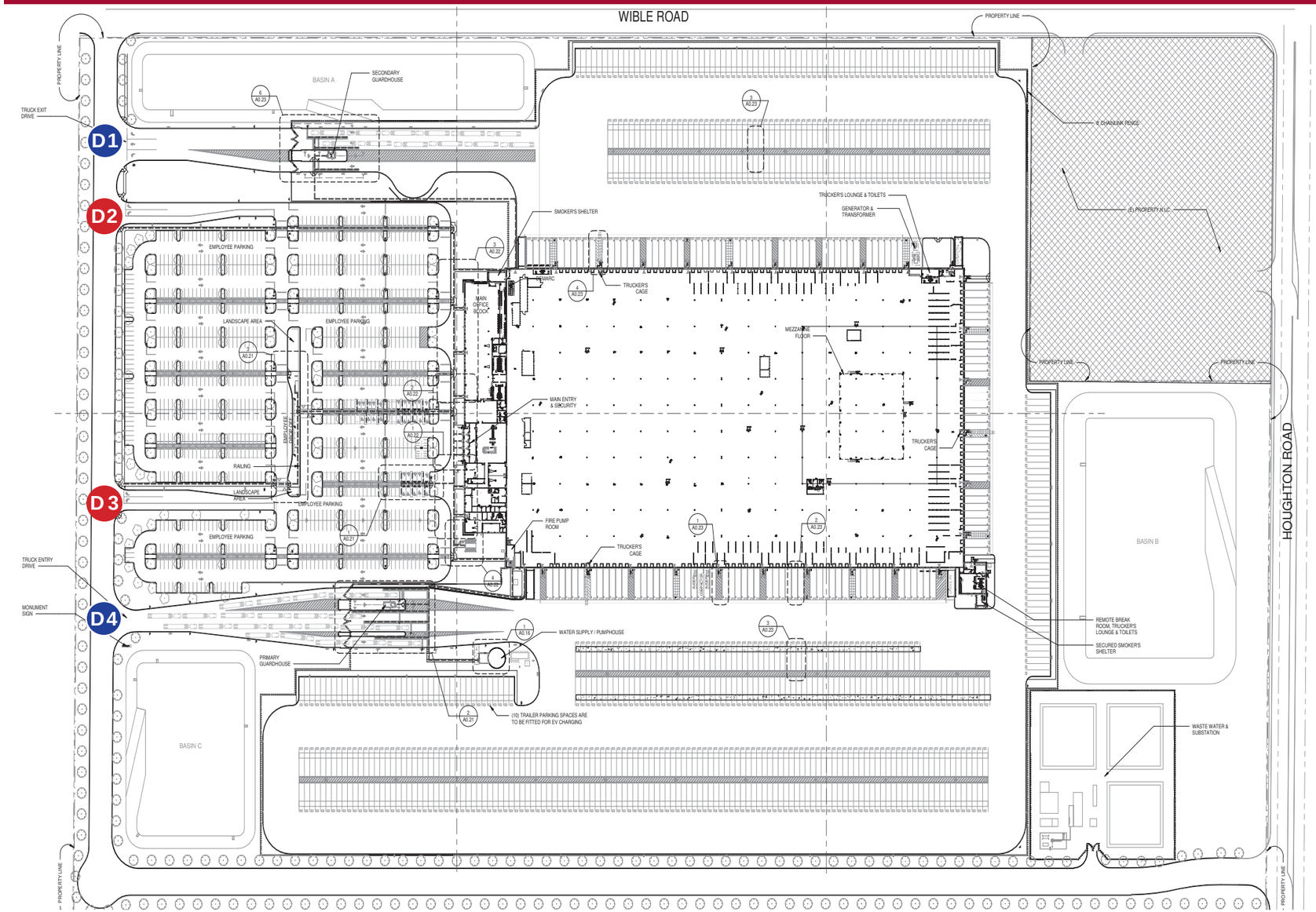
The project's applicant is proposing to develop a warehouse and distribution facility with a building footprint of approximately 629,186-square-feet, which includes approximately 44,424 square feet of interior office space, breakrooms, and other ancillary space. Approximately 1,000 passenger vehicle parking stalls, 726 truck trailer stalls, and 16 motorcycle parking stalls are proposed. The proposed facility would primarily facilitate material handling equipment and warehouse uses, and will feature approximately 132 loading docks along the north, west, and east sides of building. The building also contains approximately 24,256-square-foot mezzanine space, which would contain material handling equipment. The proposed operations incorporate a high-level of on-site automation and logistics management, enabling efficient processing of goods, and will run 24-hours a day, 365 days per year. Off-site roadway improvements would be constructed by the proposed project along Houghton Road and Wible Road. The proposed project would also construct a private access road adjacent to the east and south sides of the site, referred to as East Private Road and South Private Road. Four (4) access driveways are proposed on the private access road along the south side of the site. **Figure 1-2** shows the proposed site plan.

Kern County and City of Bakersfield have jointly adopted a general plan for the metropolitan area (Metropolitan Bakersfield General Plan 2002). The project site is within the jurisdictional boundaries of the Metropolitan Bakersfield General Plan and is designated Intensive Agricultural (R-IA). The R-IA designation is applied to areas devoted to the production of irrigated crops, or areas that have the potential for such use. The proposed project includes a request to amend the Metropolitan Bakersfield General Plan, which would change the existing Kern County General Plan map code for the project site from R-IA to Light Industrial (LI). The project site is zoned Exclusive Agriculture (A) by the Kern County Zoning Code. The proposed project includes a request for a Zone Classification Change (ZCC) from Exclusive Agriculture (A) to Light Industrial/Precise Development Plan (M-1 PD).

FIGURE 1-1



Regional Vicinity Map



LEGEND

- X Truck Access Driveway
- X Passenger Vehicle Access Driveway

Proposed Site Plan

STUDY AREA

The proposed project is expected to generate new vehicular trips that will increase traffic volumes on the surrounding street network, primarily along Houghton Road, between Wible Road and Union Avenue. To assess changes in traffic conditions associated with the proposed project, the intersections in **Table 1** and roadway segments in **Table 2** were evaluated. **Figure 1-3** illustrates the location of each intersection and roadway segment relative to the proposed project site. The four (4) access driveways proposed are also analyzed.

Table 1: Study Intersections

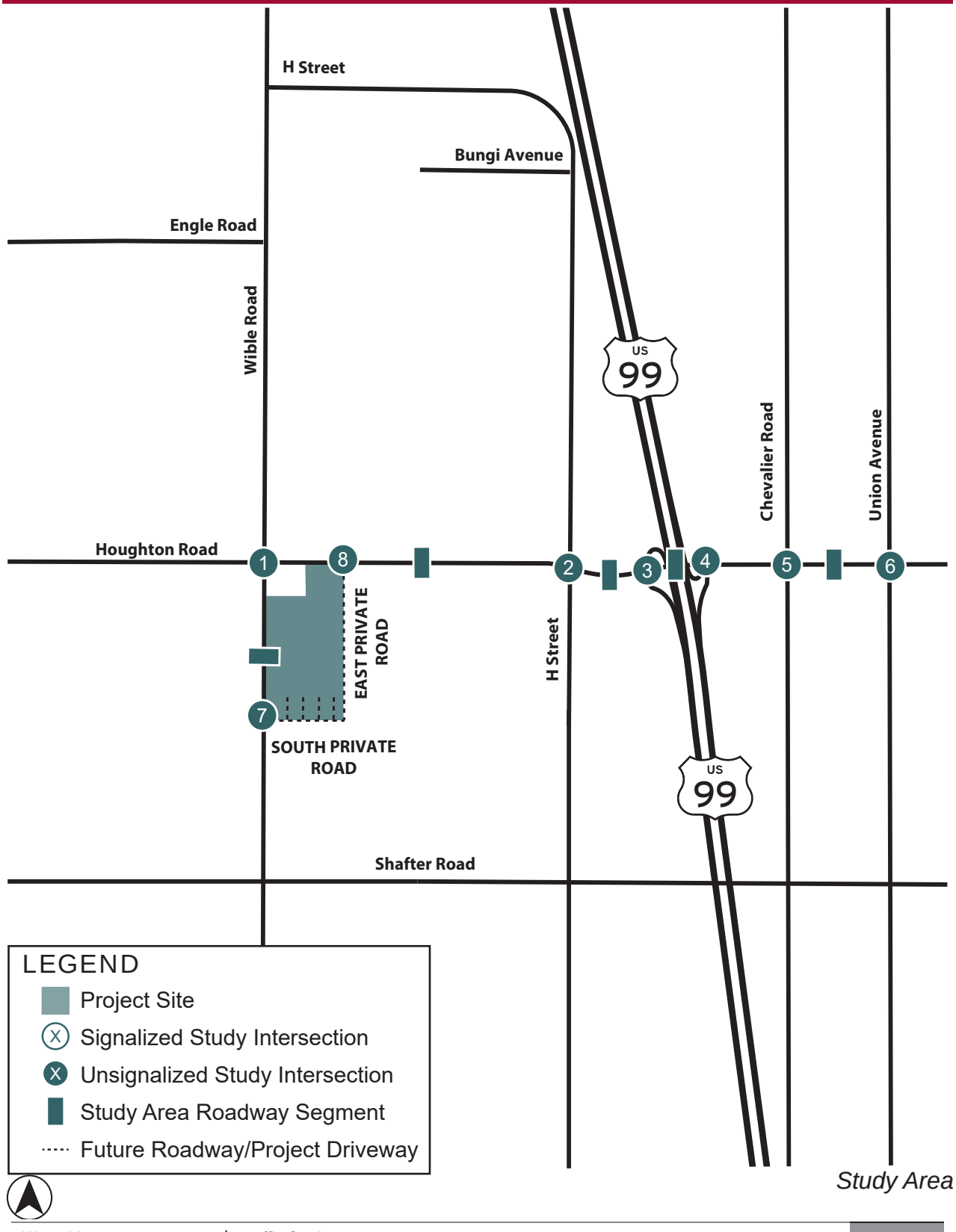
#	Intersection	Ex. Traffic Control (a)	Jurisdiction
1	Houghton Road / Wible Road	AWSC	Kern County
2	Houghton Road / H Street	AWSC	Kern County
3	SR 99 Southbound (SB) Ramps / Costajo Street / Houghton Road	TWSC	Caltrans
4	SR 99 Northbound (NB) Ramps / Houghton Road	OWSC	Caltrans
5	Chevalier Road / Houghton Road	TWSC	Kern County
6	Houghton Road / Union Avenue	AWSC	Kern County
7	Wible Road / South Private Road	DNE	Kern County
8	Houghton Road / East Private Road	DNE	Kern County

Notes:
(a) Signal = Traffic Signal;
AWSC = All-Way Stop Control
TWSC = Two-Way Stop Control
OWSC = One-Way Stop Control
DNE = Project Improvement – Does Not Exist Currently

Table 2: Study Roadway Segments

#	Roadway Segment	Ex. Geometry	Jurisdiction
1	Houghton Road, Wible Road to H Street	2-Lane Undivided	Kern County
2	Houghton Road, H Street to SR 99 SB Ramps	2-Lane Undivided	Kern County
3	Houghton Road, SR 99 SB Ramps to SR 99 NB Ramps	2-Lane Undivided	Caltrans
4	Houghton Road, SR 99 NB Ramps to Union Avenue	2-Lane Undivided	Kern County
5	Wible Road, Houghton Road to South Private Road	2-Lane Undivided	Kern County

FIGURE 1-3


H Street
Bungi Avenue
Engle Road
Wible Road
US 99
Chevalier Road
Union Avenue
Houghton Road
1
8
2
3
4
5
6
EAST PRIVATE ROAD
H Street
7
SOUTH PRIVATE ROAD
US 99
Shafter Road
LEGEND
Project Site
Signalized Study Intersection
Unsignalized Study Intersection
Study Area Roadway Segment
Future Roadway/Project Driveway
Study Area

METHODOLOGY

This Traffic Study adheres to the Kern County guidelines, *Kern County Public Works Division Nine – Standards for Traffic Engineering, Chapter II. Traffic Studies*. This TS, similarly, adheres to the foregoing.

VEHICLE MILES TRAVELED (CEQA)

Senate Bill 743 (SB 743) was approved by the California legislature in September 2013. SB 743 requires changes to California Environmental Quality Act (CEQA), specifically directing the Governor's Office of Planning and Research (OPR) to develop alternative metrics to the use of vehicular LOS for evaluating transportation impacts of projects. OPR updated guidelines for CEQA and wrote a technical advisory for evaluating transportation impacts in CEQA in December 2018 (OPR Technical Advisory). OPR recommended that Vehicle Miles Travelled (VMT) replace LOS as the primary measure of transportation impacts.

The OPR Technical Advisory included transportation impact thresholds to adhere to the updated CEQA requirements, and helps with answering important implementation questions about the methodology, thresholds, and mitigation approaches for VMT impact analysis. Since Kern County has not adopted a VMT methodology or significant criteria, the VMT analysis for the proposed project was conducted following guidance outlined by OPR Technical Advisory on Evaluation Transportation Impacts in CEQA.[1]

Impact Criteria

Table 3 summarizes the VMT thresholds of significance for typical land uses, as recommended by OPR Technical Advisory.

Table 3: VMT Threshold of Significance

Land Use	Threshold of Significance
Residential	Project VMT per capita exceeds 85% of County Average VMT per capita
Office	Project VMT per employee exceeds 85% of County Average VMT per employee
Retail	Project generates a net increase in total regional VMT

While OPR's guidelines related to SB 743 is useful for evaluating typical residential, office and retail land use projects, it does not provide solutions to more complex, non-standard land uses like the proposed project's industrial land use. There are several practical issues that are not addressed by OPR's guidance. However, the guidance provides latitude for the reviewing agency to implement elements of VMT standards, such as thresholds.

[1] OPR. April 2018. Technical Advisory on Evaluating Transportation Impacts in CEQA. Website: https://opr.ca.gov/docs/20180416-743_Technical_Advisory_4.16.18.pdf

LOCAL TRANSPORTATION ANALYSIS (NON-CEQA)

A non-CEQA Local Transportation Analysis (LTA) was conducted to evaluate the proposed project's effect on traffic operations within the study area. This analysis evaluates intersection LOS analysis, roadway segment LOS analysis, queueing analysis and signal warrant evaluation. A traffic LOS analysis was conducted to identify the proposed project's access and circulation needs per guidelines outlined in the *Kern County Public Works Division Nine – Standards for Traffic Engineering, Chapter II. Traffic Studies.*

Analysis Scenarios

Five (5) scenarios were analyzed as part of the traffic operations analysis, listed below:

- **Existing (2023) Conditions** – Represents the traffic conditions of the existing street network when traffic data was collected in May 2023. This scenario does not include the proposed project's traffic.
- **Opening Year (2026) Conditions** – Represents the expected traffic conditions in 2026, the proposed project's anticipated opening year. Traffic volumes were developed from growth rates calculated using the Kern Council of Governments (COG) travel demand model. No cumulative project improvements or volumes were assumed. This scenario does not include traffic generated by the proposed project.
- **Opening Year (2026) Plus Project Conditions** – Represents the traffic conditions for the Opening Year (2026) with the addition of the proposed project's improvements and trip generation. Comparison of this scenario to the Opening Year (2026) Conditions scenario determines whether deficiencies are a direct result of the proposed project.
- **Horizon Year (2046) Conditions** – Represents the traffic conditions in 2046, the Kern COG travel demand model 2046 horizon year. Traffic volumes were developed from growth rates calculated using the Kern Council of Governments (COG) travel demand model. No cumulative project improvements or volumes were assumed. This scenario does not include traffic generated by the proposed project.
- **Horizon Year (2046) Plus Project Conditions** – Represents the traffic conditions for the Horizon Year (2046) Plus Project Conditions with the addition of the proposed project's improvements and trip generation. Comparison of this scenario to the Horizon Year (2046) Conditions scenario determines whether future deficiencies are expected to result from the proposed project.

Level of Service

Although CEQA now recognizes VMT as the primary analysis methodology for transportation impacts for purposes of CEQA, intersection and roadway segment LOS also analyzed as part of a non-CEQA evaluation to determine the operational effects of nearby study intersections due to the proposed project.

Intersection

The intersection analysis utilizes LOS methodologies for intersections published in the *Highway Capacity Manual (HCM)*, *6th Edition* (Transportation Research Board, 2016). LOS is a measure of congestion from a driver's perspective. LOS ranges from A (best), which represents free flow conditions with minimal delay, to F (worst), which represents heavy delay and a facility that is operating at or near its functional capacity. LOS methodologies and thresholds for this study were determined using HCM methods using the *Synchro 11* traffic analysis software.

The HCM includes procedures for analyzing side street stop controlled (SSSC), all-way stop controlled (AWSC), and signalized intersections. The SSSC procedure defines LOS as the highest delay of each

minor street movements or major street left turns. For AWSC and signalized intersection procedures define LOS as a function of average control delay for the entire intersection. **Table 4** presents the operational characteristics associated with each LOS category for signalized and unsignalized intersections.

Table 4: Intersection Level of Service Definitions

Level of Service	Description	Signalized (Avg. control delay per vehicle sec/veh.)	Unsignalized (Avg. control delay per vehicle sec/veh.)
A	Free flow with no delays. Users are virtually unaffected by others in the traffic stream	≤ 10	≤ 10
B	Stable traffic. Traffic flows smoothly with few delays.	> 10 – 20	> 10 – 15
C	Stable flow but the operation of individual users becomes affected by other vehicles. Modest delays.	> 20 – 35	> 15 – 25
D	Approaching unstable flow. Operation of individual users becomes significantly affected by other vehicles. Delays may be more than one cycle during peak hours.	> 35 – 55	> 25 – 35
E	Unstable flow with operating conditions at or near the capacity level. Long delays and vehicle queuing.	> 55 – 80	> 35 – 50
F	Forced or breakdown flow that causes reduced capacity. Stop and go traffic conditions. Excessive long delays and vehicle queuing.	> 80	> 50

Source: Transportation Research Board, Highway Capacity Manual 2016, National Research Council, 2016.

The following assumptions were included in the analysis:

- Peak-hour factor (PHF) based on the existing traffic data was used for the Existing and Opening Year scenarios. 0.92 PHF used for the Horizon Year scenarios.
- A Heavy Vehicle (HV) percentage of 12-percent based on the existing traffic data was used for all analysis scenarios and intersection movements.

Roadway Segment

Roadway segment LOS is analyzed using calculated volume-to-capacity (V/C) ratios based on roadway capacities in the Metropolitan Bakersfield General Plan, shown below.

Roadway Capacities

- 6-lane arterial 40,000 vehicles
- 4-lane arterial 30,000 vehicles
- 4-lane collector 30,000 vehicles
- 2-lane collector 15,000 vehicles

A V/C of 0.80 or less corresponds to a LOS of C or better.

Queuing

Vehicle queueing that exceeds a turn pocket length can create potentially hazardous conditions by blocking or disrupting through traffic in adjacent travel lanes. Vehicle queuing at interchange locations has the potential safety hazard of causing backup onto the freeway's mainlines or within the exit ramps deceleration zones. The effects of vehicle queuing for all exclusive turn lanes and the Caltrans exit ramps were analyzed for the Opening Year (2026) Plus Project and Horizon Year (2042) Plus Project scenarios using *Synchro 11* software and *HCM* methodology. The 95th percentile is defined as the queue length that has only a 5-percent probability of being exceeded during the analysis time period.

Signal Warrants

Traffic signals may be justified when traffic operations fall below acceptable LOS standards and when one or more signal warrants are satisfied. Traffic volumes at the unsignalized study intersections, where deficiencies are identified, were compared against the 8-hour, 4-hour and peak hour warrants in the 2014 California Manual on Uniform Traffic Control Devices (CA MUTCD)[2].

Deficiency Criteria

Potential deficiencies were determined by comparing conditions with the proposed project to those without the proposed project.

Intersection LOS (County) – Criteria for LOS deficiencies for the County intersections in this study are based on Kern County's *General Plan Circulation Element* (2009). The County standard for the minimum LOS for intersections is LOS D or better. However, since the study area is located within the Metropolitan Bakersfield General Plan Sphere Of Influence, the minimum LOS for intersections under the County's jurisdiction is LOS C or better. Therefore, a project-related deficiency is assumed if the addition of project traffic would cause a County intersection that is operating acceptably (LOS A, B or C) to begin to operate unacceptably (LOS D, E or F). For County intersections already operating unacceptably (LOS D, E or F), a project-related deficiency is assumed if the addition of project traffic would increase the delay by more than 2.0 seconds at LOS D/E or more than 1.0 second at LOS F. If project-related deficiency is found, improvements would be required.

Intersection LOS (Caltrans) – Criteria for LOS deficiencies for the Caltrans intersections in this study are based on Caltrans' *Guide for the Preparation of Traffic Impact Studies* dated December 2002, which states that "Caltrans endeavors to maintain a target LOS at the transition between LOS "C" and LOS "D" (see Appendix "C-3") on State highway facilities, however, Caltrans acknowledges that this may not always be feasible and recommends that the lead agency consult with Caltrans to determine the appropriate target LOS. If an existing State highway facility is operating at less than the appropriate target LOS, the existing MOE should be maintained." Therefore, a project-related deficiency is assumed if the addition of project traffic would cause a Caltrans intersection that is operating acceptably (LOS A, B, C or D) to begin to operate unacceptably (LOS E or F). For Caltrans intersections already operating unacceptably (LOS E or F), a project-related deficiency is assumed if the addition of project traffic would increase the delay by more than 2.0 seconds at LOS E or more than 1.0 second at LOS F. If project-related deficiency is found, improvements may be required.

[2] *California Manual on Uniform Traffic Control Devices,* (FHWA's MUTCD 2009 Edition, including Revisions 1 & 2 as amended for use in California), 2014 Edition, Revision 6 (March 30, 2021)

Roadway Segment LOS – Criteria for LOS deficiency for the roadway segments in this study are based on Kern County's *General Plan Circulation Element* (2009). The County standard for the minimum LOS for roadway segments is LOS D or better. However, since the study area is located within the Metropolitan Bakersfield General Plan Sphere Of Influence, the minimum LOS for roadway segments is LOS C or better. Therefore, a project-related deficiency is assumed if the addition of project traffic would cause a roadway segment that is operating acceptably (LOS A, B or C) to begin to operate unacceptably (LOS D, E or F). For roadway segments already operating unacceptably (LOS D, E or F), a project-related deficiency is assumed if the addition of project traffic would increase the V/C ratio more than 0.02 at LOS D/E or more than 0.01 at LOS F. If project-related deficiency is found, improvements would be required.

Vehicle Queueing – Unacceptable or extended queuing is defined as spill over from turn pockets into through lanes and/or spill over into adjacent intersections. The County and Caltrans do not have specific thresholds for identifying project-related queueing deficiencies. This study assumes spill over to mean that the estimated 95th percentile queue for a turn pocket or Caltrans exit ramp where project trips are added, exceeds available storage by more than one car length, or 25-feet. If a turn pocket is anticipated to exceed available storage under no-project conditions, the proposed project would be expected to cause constrained access for that movement if it increases the deficient queue by more than 25-feet.

REPORT ORGANIZATION

The remainder of this TS is divided into the following chapters:

- Chapter 2 – Existing (2023) Conditions: describes the existing conditions of transportation network and summarizes existing traffic data collected.
- Chapter 3 – Project Description: proposed roadway/access improvements adjacent to the proposed project's site and project-related trip generation/distribution/assignment.
- Chapter 4 – Vehicle Miles Traveled (VMT) analysis: summarizes methodology, inputs, assumptions, results and conclusion of the VMT analysis. (CEQA)
- Chapter 5 – Local Transportation Analysis (Non-CEQA): describes the supplemental traffic operation analysis which includes an analysis of intersection LOS, roadway segment LOS, queueing and signal warrant analysis. (non-CEQA)
- Chapter 6 – Access and Circulation: describes site access and internal circulation for the proposed project. (non-CEQA)
- Chapter 7 – Conclusion and Recommendations: summarizes potential impacts (CEQA) and deficiencies (non-CEQA) of the proposed project and recommended feasible mitigations and improvements.

2. EXISTING (2023) CONDITIONS

This chapter describes the existing conditions of the roadway network within the vicinity of the proposed project site.

EXISTING MULTI-MODAL FACILITIES

Currently, there are no sidewalks, bicycle facilities or transit service in the proposed project's study area. The nearest transit service consists of Kern Transit's Route 130 (Santa Clarita-Bakersfield) and Route 145 (Lamont-Bakersfield South). Both routes stop at the McKee Road Park & Ride lot, which is 4 miles north of the site on the east side of SR 99. Both routes start at the GET Downtown Transit Center in downtown Bakersfield and make several stops before reaching the McKee Road stop. However, the McKee Road stop is too far to provide a practical transit solution for the proposed project site.

EXISTING ROADWAY NETWORK

The roadway network within the study area is within Kern County and Caltrans jurisdictions. This section provides a description of the relevant roadways included in this study.

State Route 99 (SR 99) is a north-south divided freeway that connects to Interstate 5 approximately 16-miles south of the study area up to Sacramento. As of 2023, the freeway adjacent to the study area was under construction to widen from three lanes in each direction to four lanes in each direction. There is one (1) interchange within the study area at Houghton Road. The freeway exit ramps are stop-controlled.

Houghton Road is an east-west roadway providing access from rural areas in the west to the SR 99 in the east. Within the study area, Houghton Road is constructed as a two-lane undivided roadway and classified as a future arterial roadway in the Metropolitan Bakersfield General Plan.

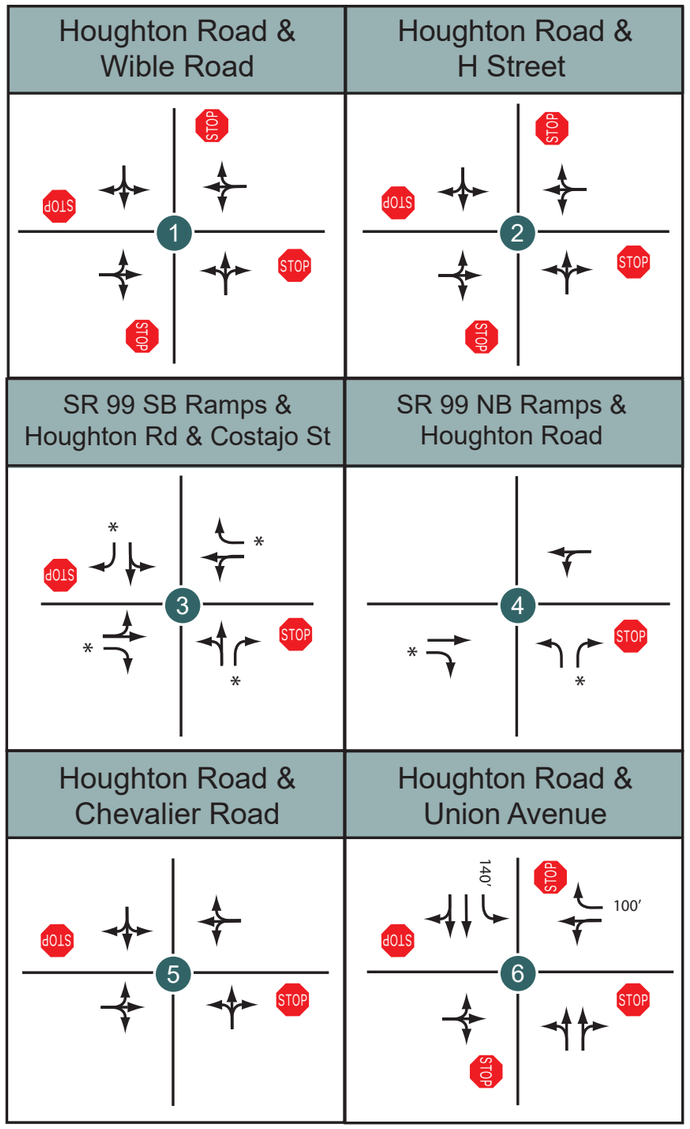
Wible Road is a north-south roadway providing access from rural areas in the south to Brundage Lane in Bakersfield to the north. Within the study area, Wible Road is constructed as a two-lane undivided roadway and classified as a future arterial roadway in the Metropolitan Bakersfield General Plan. The intersection with Houghton Road is all-way stop-controlled.

H Street is a north-south roadway providing local access between Curnow Road and Bear Mountain Road. Within the study area, H Street is constructed as a two-lane undivided roadway. The intersection with Houghton Road is all-way stop-controlled.

Chevalier Road is a north-south roadway providing local access between Houghton Road and Shafter Road. Within the study area, Chevalier Road is constructed as a two-lane undivided roadway. The intersection with Houghton Road is two-way stop-controlled.

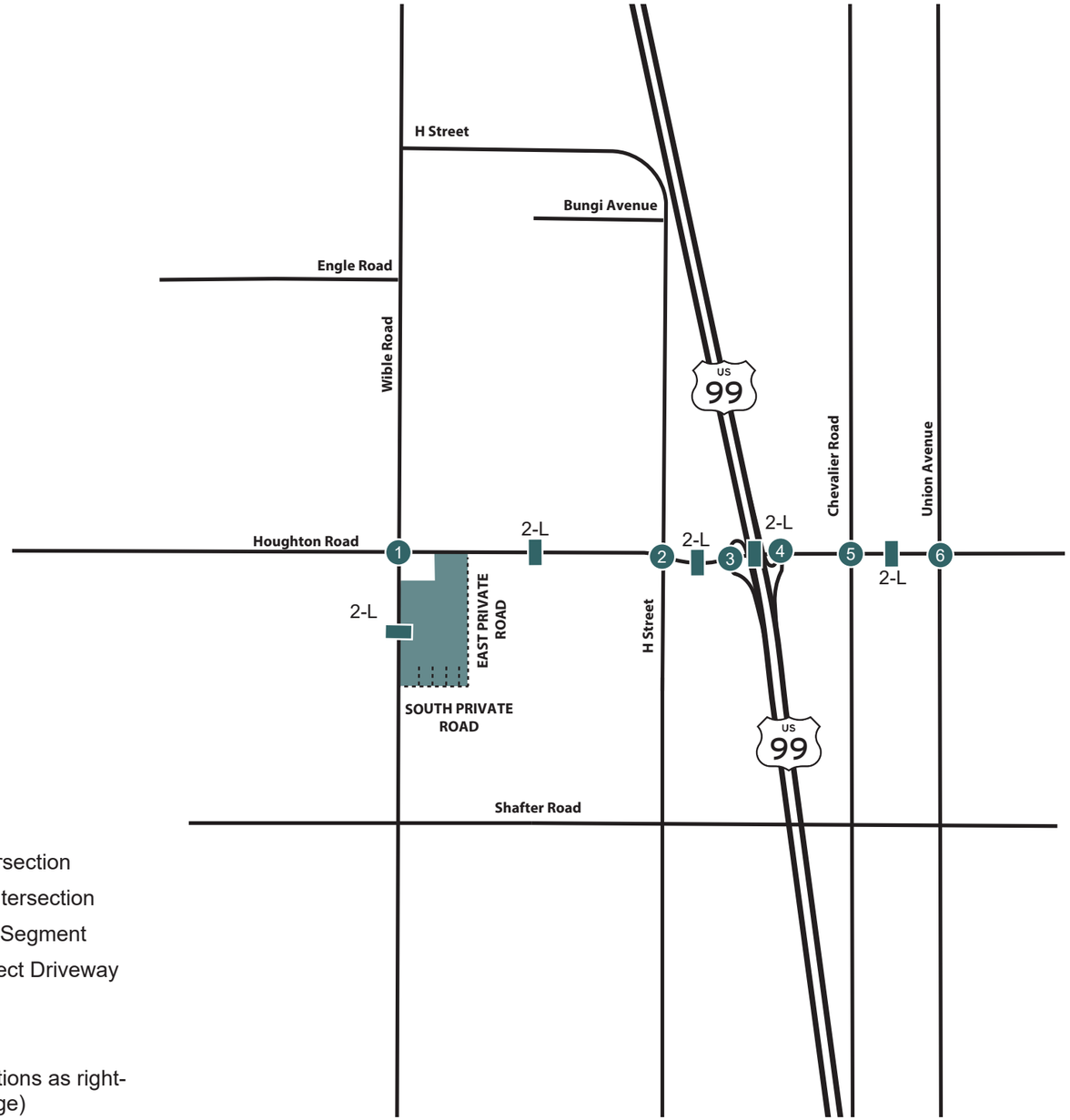
Union Avenue (Business SR 99) is a north-south roadway providing a roadway connection between agricultural areas east of SR 99 with downtown Bakersfield. Within the study area, Union Avenue is constructed as a major four-lane arterial. The intersection with Houghton Road is all-way stop-controlled.

The existing intersection/roadway lane configurations and traffic controls, as of June 2023, are illustrated in **Figure 2-1**.



LEGEND

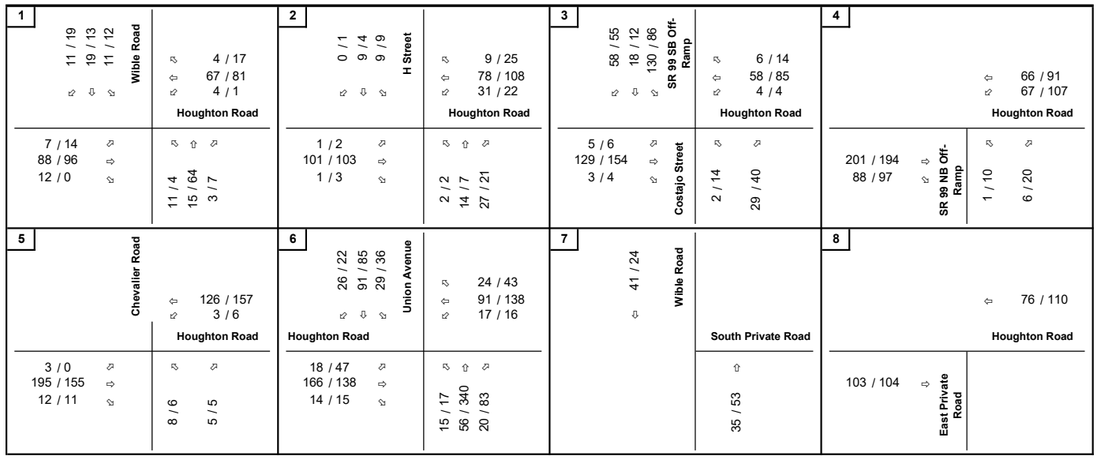
- Project Site
- (X) Signalized Study Intersection
- X Unsignalized Study Intersection
- Study Area Roadway Segment
- ····· Future Roadway/Project Driveway
- 2-L Two-Lane
- XXX' Turn Pocket Length
- * Flared approach functions as right-turn pocket (40' storage)

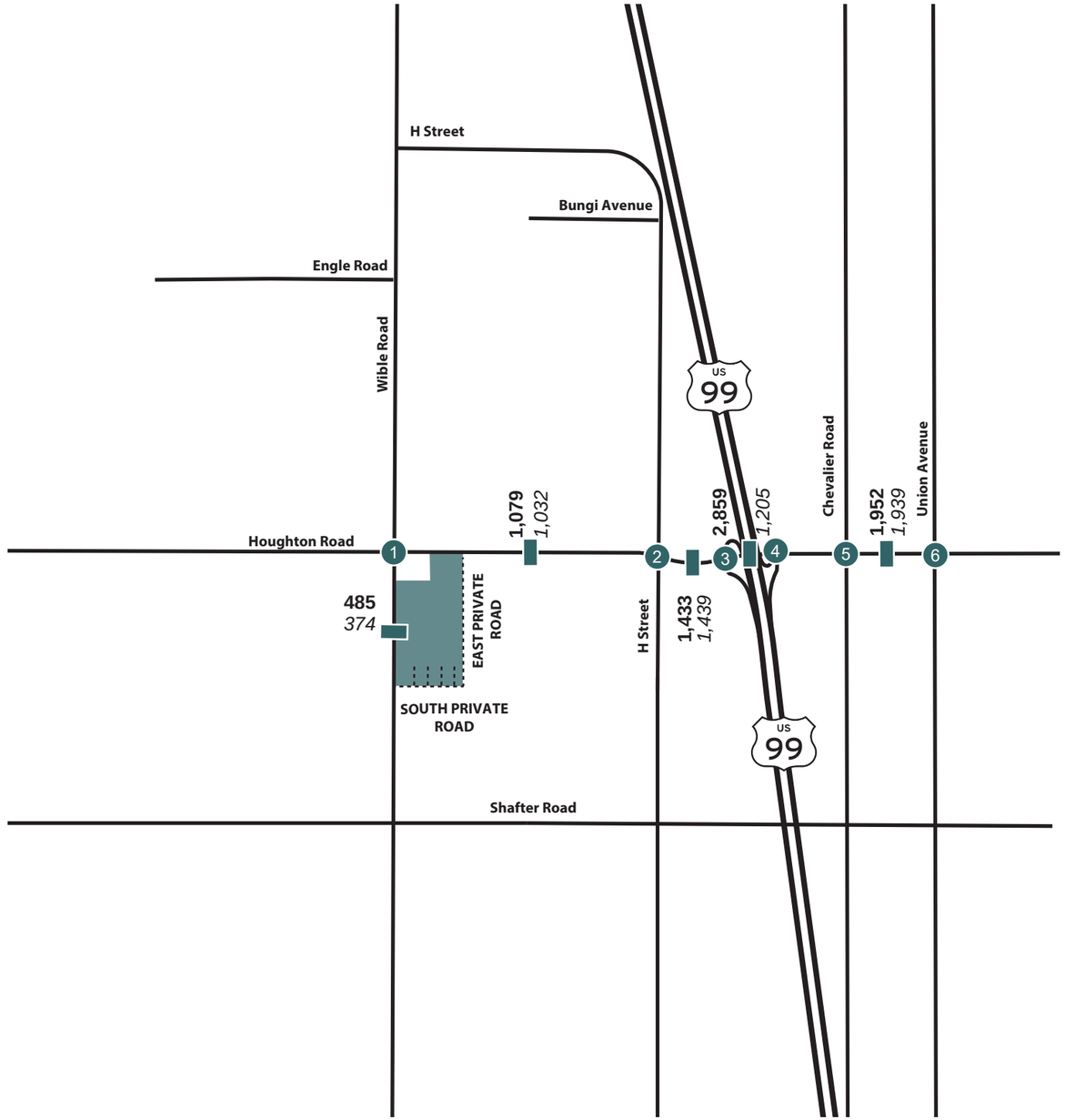


Existing (2023) Transportation Conditions

TRAFFIC VOLUMES

Intersection turning movement and roadway segment volumes for the study area were collected on Tuesday, May 2nd, 2023, when local schools were in session and when weather was fair. Intersection turning movement volumes were collected for 14 hours, between 6 AM and 8 PM, at four (4) intersections identified for potential future signalization. At the two (2) intersections of Houghton Road/H Street and Houghton Road/Chevalier Road, intersection turning movements were collected for 4 hours during the typical commuter peak hours (7-9 AM and 4-6 PM). Roadway segment data was collected for a 24-hour period at five (5) locations. Vehicular classification data was obtained from the roadway segment data on Houghton Road, between H Street and SR 99 SB Ramps. A HV percentage was determined from the classification data for purposes of the intersection LOS analysis calculations. Existing (2023) peak hour turning movement and Average Daily Traffic (ADT) volumes are illustrated in **Figure 2-2**. **Appendix A** contains the intersection and roadway segment/classification data sheets.





LEGEND

- Project Site
- Signalized Study Intersection
- Unsignalized Study Intersection
- Study Area Roadway Segment
- ⇦ X / Y AM/PM Peak Hour Turning Volumes
- **X,XXX** Average Daily Traffic Volumes (EB/NB)
- *X,XXX* Average Daily Traffic Volumes (WB/SB)
- ····· Future Roadway/Project Driveway

Existing (2023) Peak Hour Turning Movement and ADT Volumes

3. PROJECT CONDITIONS

This chapter presents a description of the proposed roadway and site access improvements adjacent to the proposed project and project-related trip generation, trip distribution, and trip assignment.

PROPOSED ROADWAY AND ACCESS IMPROVEMENTS

Off-site roadway improvements would be constructed by the proposed project along Houghton Road and Wible Road. The proposed project would also construct a private access road adjacent to the east and south sides of the site, referred to as East Private Road and South Private Road. Four (4) access driveways are proposed on the private access road along the south side of the site. **Appendix B** contains concept drawings of the proposed frontage. It should be noted that the proposed frontage improvements are pending approval of County staff, therefore, design details included in concept are subject to revision.

HOUGHTON ROAD

With the construction of the proposed project, the southern half of Houghton Road would be widened along the property frontage to provide ½ width improvements for a County standard Type "A" Arterial Highway (Lot Size > 3 < 20 acres) with a half right-of-way width of 55-feet and a half-improved width of 35-feet. The cross-section would provide a single westbound travel lane and two travel lanes in the eastbound direction along the frontage that would become a drop right-turn lane at the East Private Road. The south 7-feet of the raised median would be constructed with the north half striped as a median. For purposes of intersection lane alignments and shift tapers, the proposed improvements would extend west of Wible Road and east of the East Private Road. These improvements would be interim conditions, where half of the roadway is built to its ultimate roadway cross-section, and expected to be in place until future development of the adjacent parcels occurs.

WIBLE ROAD

With the construction of the proposed project, the eastern portion of Wible Road would be widened along the property frontage to provide ½ width improvements for a County standard Type "A" Arterial Highway (Lot Size > 3 < 20 acres) with a half right-of-way width of 55-feet and a half-improved width of 35-feet. The cross-section would provide a single southbound travel lane, painted median, and one travel lane in the northbound direction along the frontage. For purposes of intersection lane alignments and shift tapers, the proposed improvements would extend north of Houghton Road and south of the South Private Road. These improvements would be interim conditions, where half of the roadway is built to its ultimate roadway cross-section, and expected to be in place until future development of the adjacent parcels occurs.

PRIVATE ROAD

With the construction of the proposed project, a private access road is proposed along the east and south sides of the site. This private roadway would be constructed with a 50-foot curb-to-curb width and striped with a 12-foot two-way left-turn lane, single 12-foot travel lanes in each direction and 8-foot shoulders.

ACCESS DRIVEWAYS

With the construction of the proposed project, four (4) access driveways would be constructed along the south side: one (1) outbound-only driveway for delivery trucks, two (2) full-access stop-controlled driveways for passenger vehicles, and one (1) inbound-only driveway for delivery trucks. Guard stations are proposed

at the delivery truck driveways.

TRIP GENERATION

Trip generation estimates are based on the *Institute of Transportation Engineers (ITE) Trip Generation Manual, 11th Edition*.[3] A trip is defined as a single or one-directional vehicle movement with either the origin or destination at the project site. In other words, a trip can be either "to" or "from" the site and therefore, a single visitor to a site is counted as two. Trips generated by the proposed project are estimated for a typical weekday, and for a typical weekday's AM and PM commuter peak hours, which are between 7-9 AM and 4-6 PM. **Table 5** presents ITE trip rates for Industrial land uses that were considered for estimating trip generation.

Table 5: ITE Trip Rates Considered

ITE Land Use	Daily Trip Rate	AM Peak Hour Trip Rate	PM Peak Hour Trip Rate
110 – General Light Industrial	4.87 / ksf	0.74 / ksf	0.65 / ksf
130 – Industrial Park	3.37 / ksf	0.34 / ksf	0.34 / ksf
150 – Warehousing	1.71 / ksf	0.17 / ksf	0.18 / ksf
154 – High-Cube Transload and Short-Term Warehouse	1.40 / ksf	0.08 / ksf	0.10 / ksf
155 – High-Cube Fulfillment Center Warehouse (Non-Sort)	1.81 / ksf	0.15 / ksf	0.16 / ksf
155 – High-Cube Fulfillment Center Warehouse (Sort)	**6.44 / ksf**	**0.87 / ksf**	**1.20 / ksf**
156 – High-Cube Parcel Hub Warehouse	4.63 / ksf	0.70 / ksf	0.64 / ksf

Source: Trip Generation Manual, 11th Edition, Institute of Transportation Engineers, 2022.

Based on the building size and operations expected to occur, the proposed project is expected to operate most similar to the ITE land use descriptions outlined under Land Use 154 (High-Cube Transload and Short-Term Warehouse), Land Use 155 (High-Cube Fulfillment Center Warehouse) and Land Use 156 (High-Cube Parcel Hub Warehouse). Of the three warehouse uses, ITE Land Use 155 generates higher Daily, AM peak hour, and PM peak hour trips. Based on the tenant's estimated number of employees and shift structure, trip generation for the proposed project is expected to be most similar to the average rates for ITE Land Use 155 (High-Cube Fulfillment Center Warehouse - Sort). Therefore, the volume of traffic is expected to be most accurately represented by selecting these rates.

Table 6 contains a summary of the proposed project's trip generation. It is estimated that the proposed project would generate 4,052 daily trips, with 547 trips (443 inbound / 104 outbound) during the a.m. peak hour and 755 trips (294 inbound / 461 outbound) during the p.m. peak hour. A Passenger Car Equivalent (PCE) of 3.0 was applied to truck trips to account for additional intersection delay and turn-pocket queue caused by truck trips. The resulting total of 4,341 daily PCE trips, with 573 PCE trips (455 inbound / 118 outbound) during the a.m. peak hour and 767 PCE trips (300 inbound / 467 outbound) during the p.m. peak hour are analyzed.

[3] *Trip Generation Manual, 11th Edition*, Institute of Transportation Engineers, 2022.

TABLE 6: TRIP GENERATION SUMMARY

Land Use as listed in ITE		Units[1]	Trip Rate[2]	Daily Trips	AM Peak-Hour					PM Peak-Hour				
					% of ADT[2]	In:Out Ratio[2]	In	Out	Total	% of ADT[2]	In:Out Ratio[2]	In	Out	Total
Driveway Trips														
Total Proposed Vehicles														
Land Use 155	High-Cube Fulfillment Center Warehouse	629.2 ksf	6.44 / ksf	4,052	14%	0.81 : 0.19	443	104	547	19%	0.39 : 0.61	294	461	755
Total Vehicle Subtotal				**4,052**			**443**	**104**	**547**			**294**	**461**	**755**
Proposed Trucks														
Land Use 155	High-Cube Fulfillment Center Warehouse	629.2 ksf	0.23 / ksf	145	9%	0.50 : 0.50	6	7	13	4%	0.46 : 0.54	3	3	6
Truck Subtotal (PCE)[3]		**629.2**		**434**			**18**	**21**	**39**			**9**	**9**	**18**
BUILDOUT NET TRIP GENERATION =				**4,341**			**455**	**118**	**573**			**300**	**467**	**767**

Note:
1. ksf = Thousand Square Feet
2. Trip Rates per ITE Trip Generation Manual, 11th Edition; Industrial Park: LUC 155: High-Cube Fulfillment Center Warehouse - Sort
3. PCE = 3.0; Passenegr Car Equivalent (PCE) applied to truck volumes.

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PROJECT TRIP DISTRIBUTION AND ASSIGNMENT

The proposed project's employee trip distribution was developed using select zone model runs from the Kern Council of Governments (Kern COG) travel demand model. The Kern COG Model compiles a wide variety of data and forecasts future transportation demands that are currently known and planned for. The model-based distribution was refined based on the existing roadway/freeway configurations and expected travel patterns from the most populated areas in Bakersfield and surrounding communities.

The following is the trip distribution patterns for the passenger vehicles assumed for the proposed project:

- 5% to/from the west along Houghton Road, west of Wible Road;
- 15% to/from the north along Wible Road, north of Houghton Road;
- 5% to/from the south along Wible Road, south of South Private Road;
- 45% to/from the north along SR 99, using Houghton Road interchange;
- 10% to/from the south along SR 99, using Houghton Road interchange;
- 7% to/from the north along Union Avenue, north Houghton Road;
- 10% to/from the east along Houghton Road, east of Union Avenue; and
- 3% to/from the south along Union Avenue, south of Houghton Road.

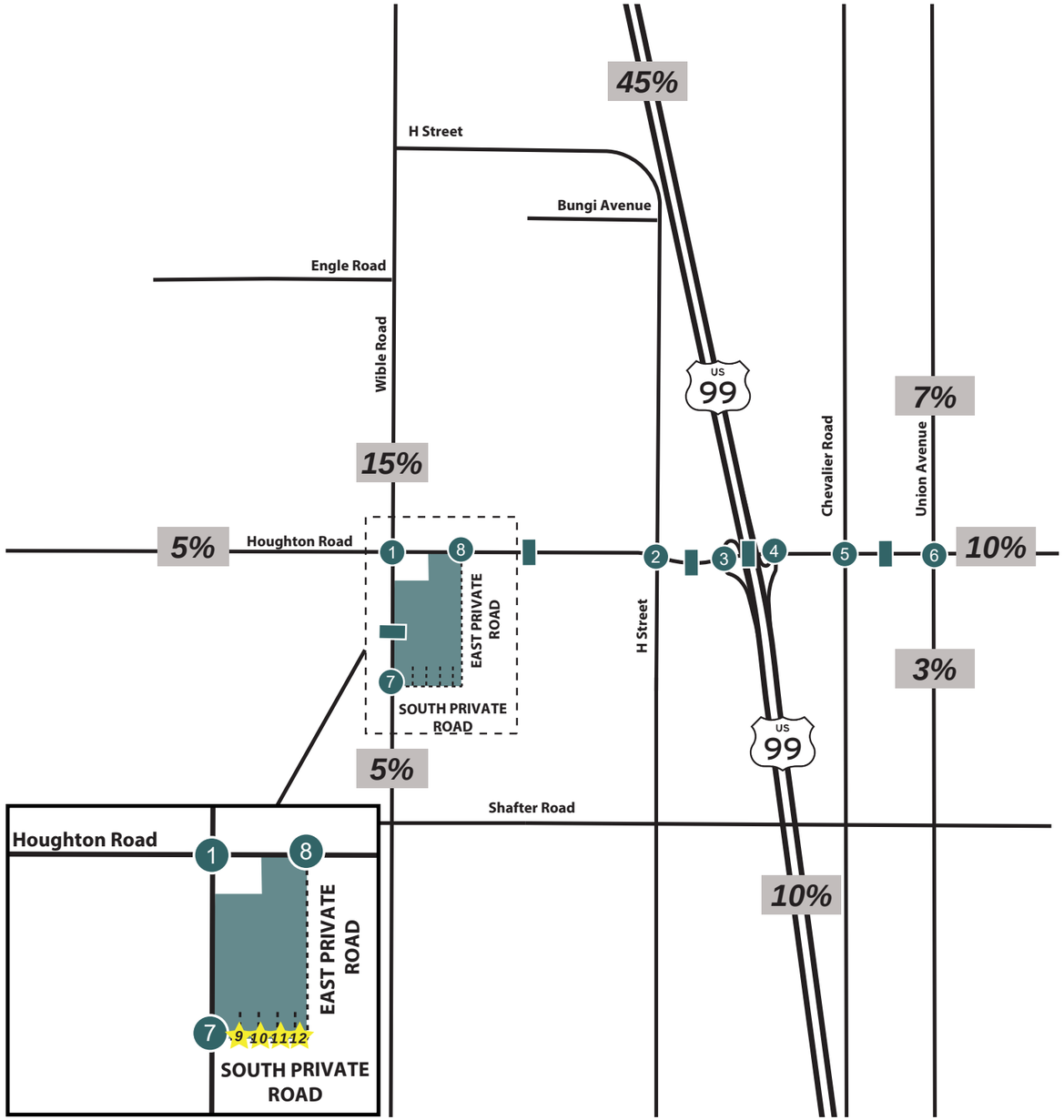
Since delivery trucks would not originate locally and would travel to/from the site via designated truck routes from the SR 99 freeway, these vehicles are assumed to be distributed to the study area as follows:

- 60% to/from the north along SR 99, using the Houghton Road interchange; and
- 40% to/from the south along SR 99, using the Houghton Road interchange.

Figure 3-1 shows the passenger vehicle trip distribution and **Figure 3-2** shows the delivery truck trip distribution for the proposed project's traffic. Based on this assumed trip distribution, the passenger vehicle and truck volumes generated by the proposed project were assigned to the street network. **Figure 3-3** illustrates the trip assignment for passenger vehicles and **Figure 3-4** illustrates the trip assignment for delivery trucks, normalized with a PCE. **Figure 3-5** shows the total trip assignment for the proposed project, normalized with a PCE.

Appendix C contains the Kern COG Model Plots and distribution calculations.

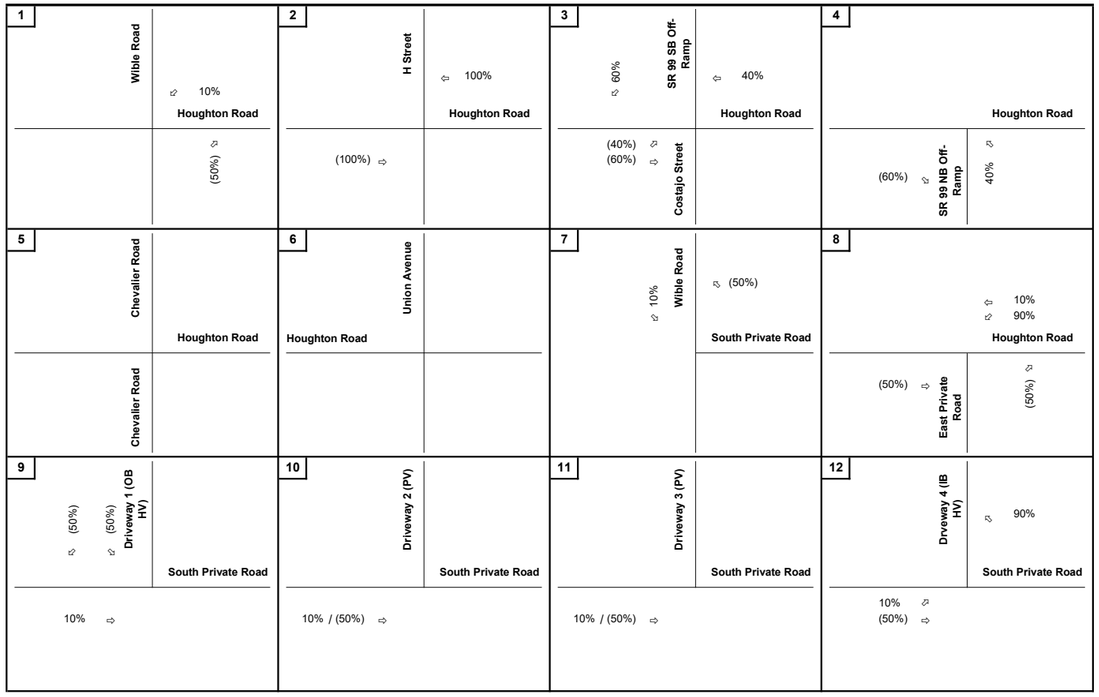
1		2		3		4	
15% ⇦ Wible Road	30% ⇨ Houghton Road	H Street	75% ⇨ Houghton Road	45% ⇨ SR 99 SB Off-Ramp	30% ⇨ Houghton Road	20% ⇨ Houghton Road	
5% ⇨	(5%) ⇦ (15%) ⇨ (30%) ⇨	(75%) ⇨		(10%) ⇦ (65%) ⇨ Costajo Street		(20%) ⇦ (45%) ⇨ SR 99 NB Off-Ramp	10% ⇨
5		**6**		**7**		**8**	
Chevalier Road ⇦ 20%	Houghton Road	7% ⇦ Houghton Road Union Avenue	10% ⇨	50% ⇨ Wible Road	(50%) ⇦ (5%) ⇦ South Private Road	30% ⇦ 45% ⇨ Houghton Road	
(20%) ⇨		(7%) ⇦ (10%) ⇦ (3%) ⇨	3% ⇨		5% ⇨	(30%) ⇨ East Private Road	(45%) ⇦
9		**10**		**11**		**12**	
Driveway 1 (OB HV) ⇦ (55%)	South Private Road	(35%) ⇦ (15%) ⇨ Driveway 2 (PV)	15% ⇨ (20%) ⇦ South Private Road	(20%) ⇦ (30%) ⇨ Driveway 3 (PV)	30% ⇨ 15% ⇦ South Private Road	Drveway 4 (IB HV) ⇦ 45%	South Private Road
55% ⇨		35% ⇦ 20% ⇨		20% ⇦ (15%) ⇨		(45%) ⇨	



Passenger Car Trip Distribution

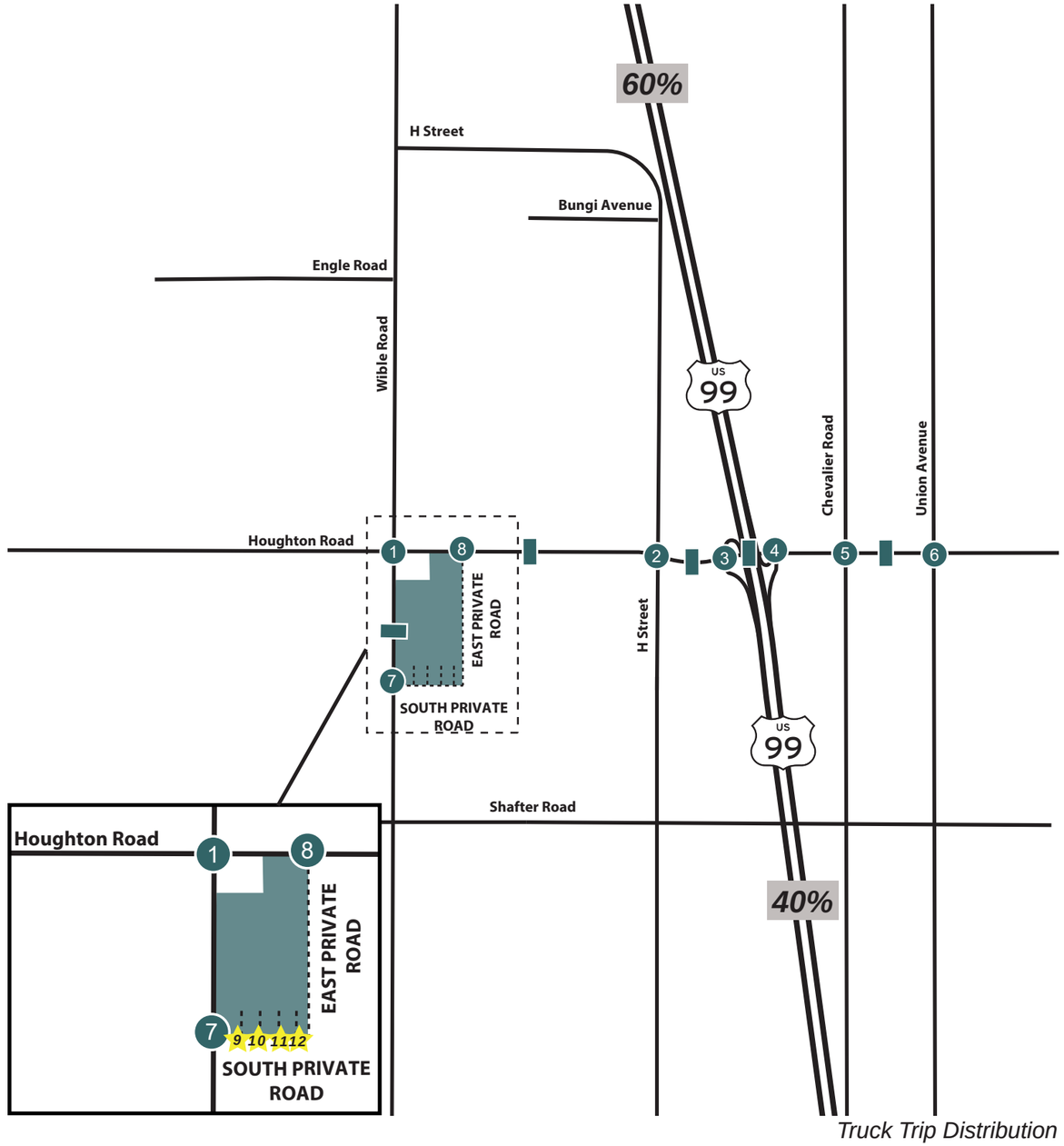
LEGEND

- Project Site
- Signalized Study Intersection
- Unsignalized Study Intersection
- X% General Percent Distribution
- ⇦ X% / (Y%) In/Out Percent Distribution
- Future Roadway/Project Driveway
- Project Driveway

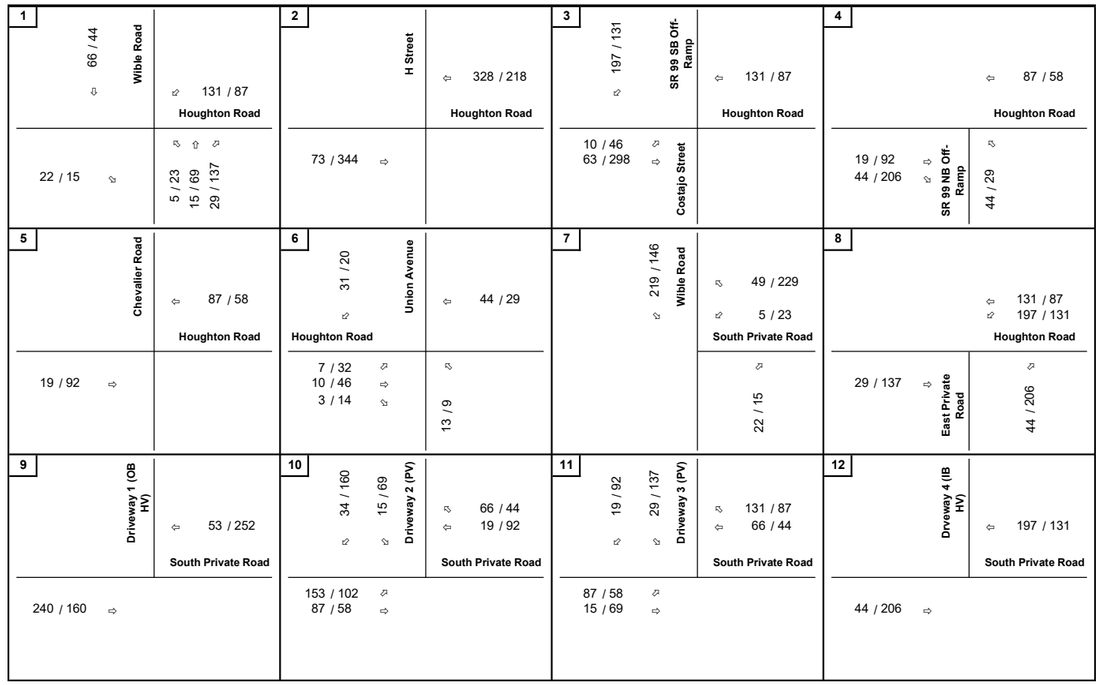


LEGEND

- Project Site
- Signalized Study Intersection
- Unsignalized Study Intersection
- X% General Percent Distribution
- X% / (Y%) In/Out Percent Distribution
- Future Roadway/Project Driveway
- Project Driveway

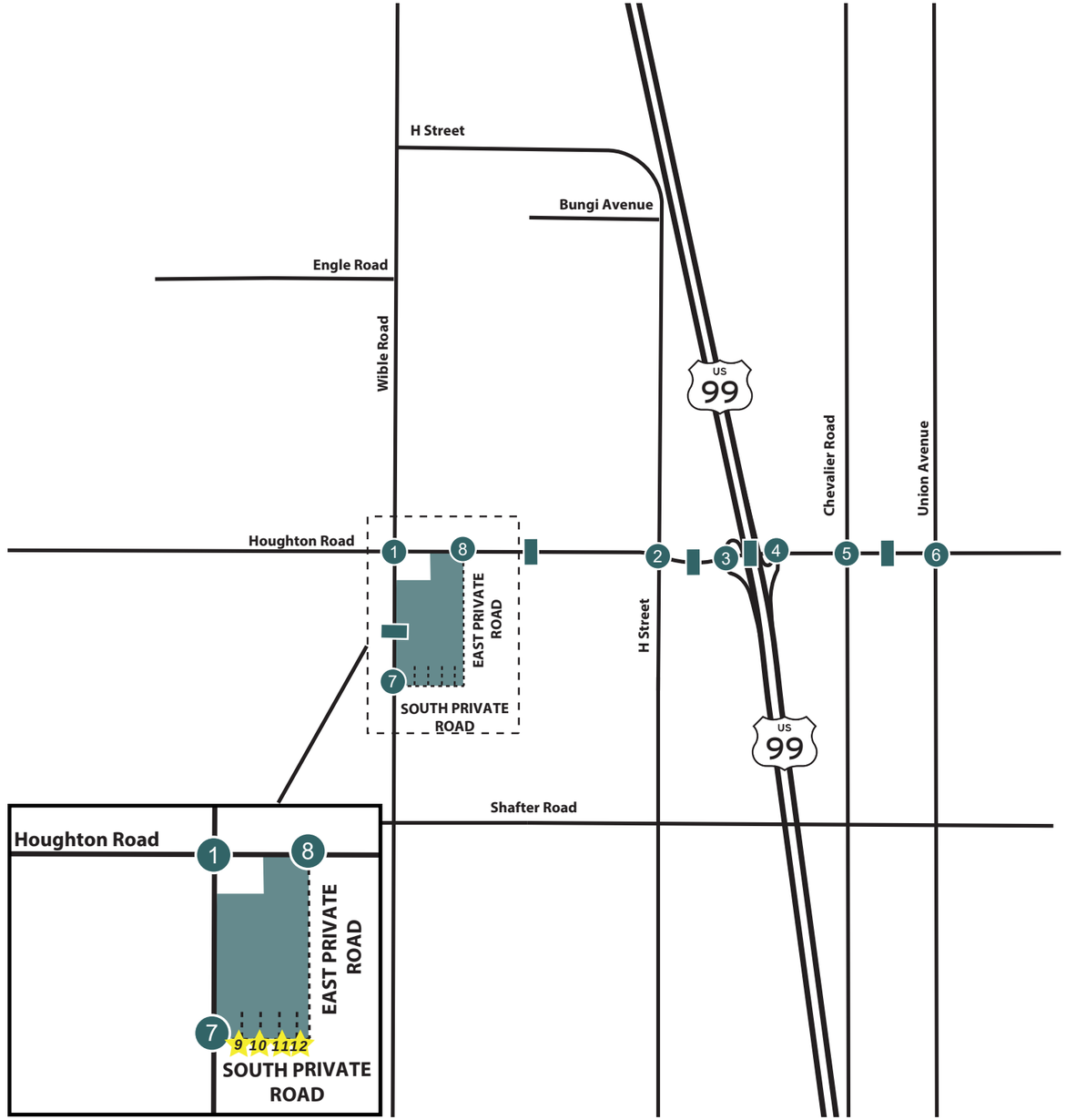


Truck Trip Distribution

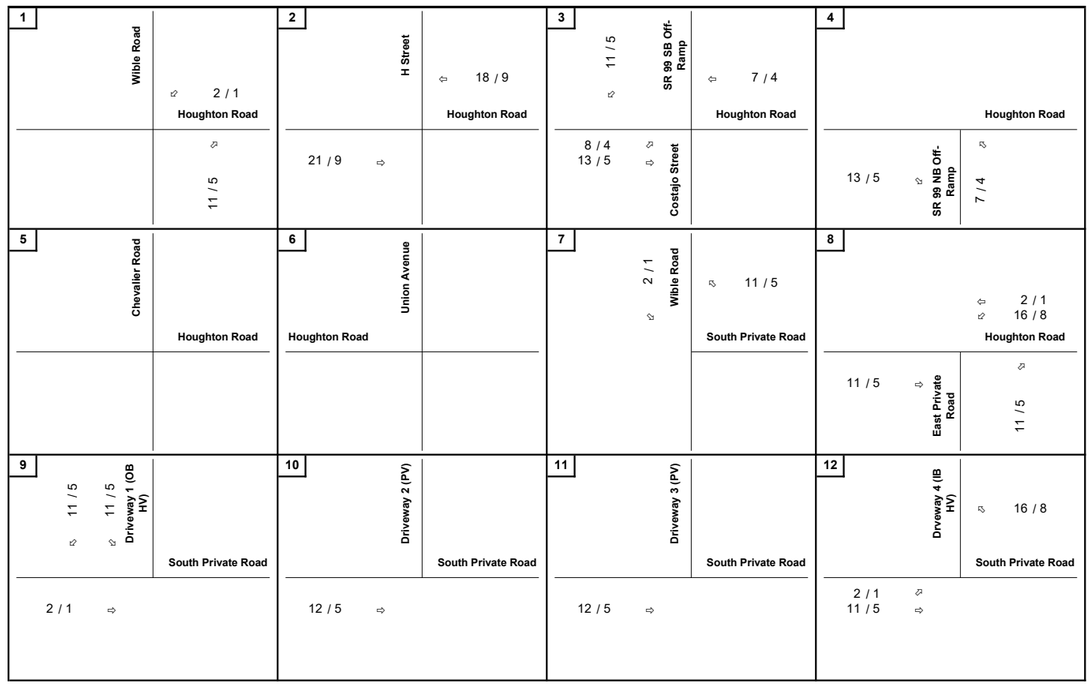


LEGEND

- Project Site
- Signalized Study Intersection
- Unsignalized Study Intersection
- Study Area Roadway Segment
- ⇦ X / Y AM/PM Peak Hour Trip Assignment
- X,XXX Roadway Trip Assignment
- Future Roadway/Project Driveway
- Project Driveway

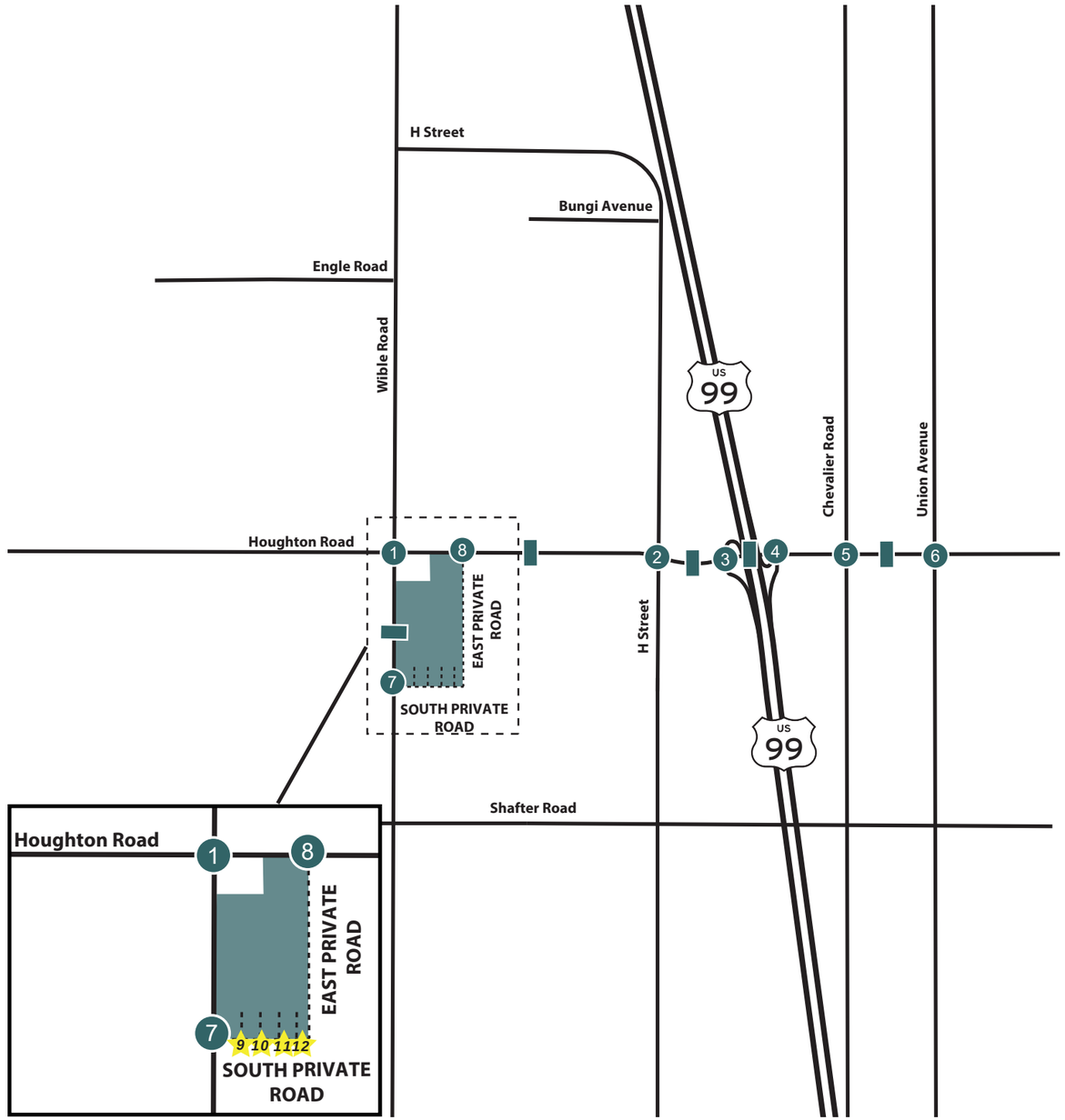


Passenger Car Trip Assignment

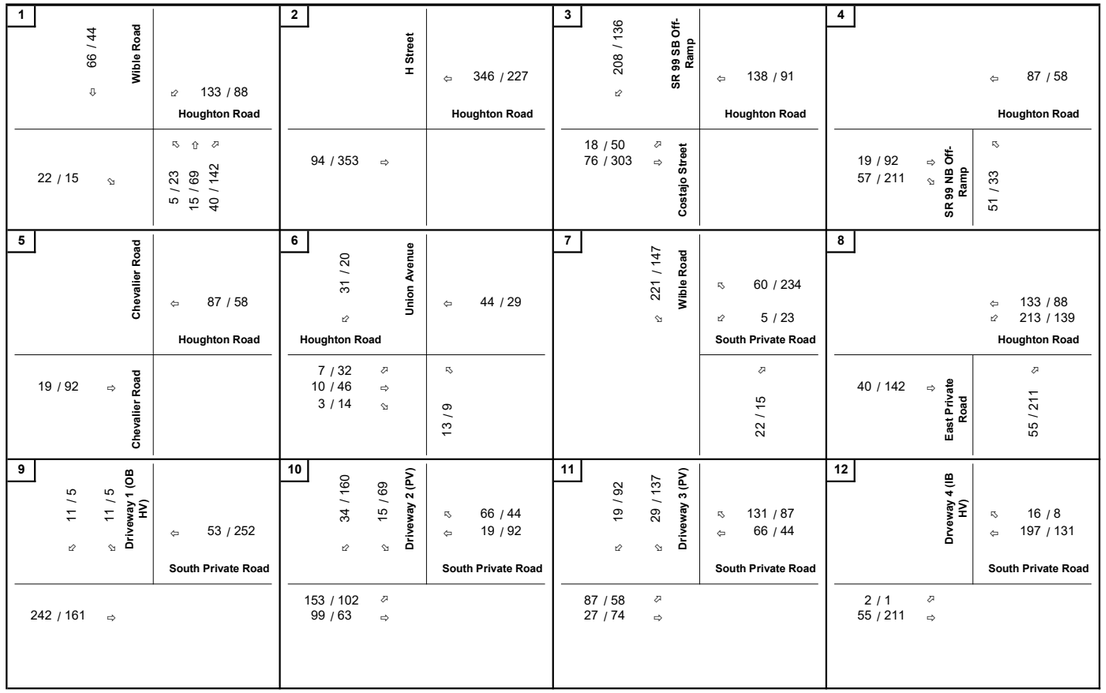


LEGEND

- Project Site
- Signalized Study Intersection
- Unsignalized Study Intersection
- Study Area Roadway Segment
- ⇦ X / Y AM/PM Peak Hour Trip Assignment
- X,XXX Roadway Trip Assignment
- Future Roadway/Project Driveway
- X Project Driveway

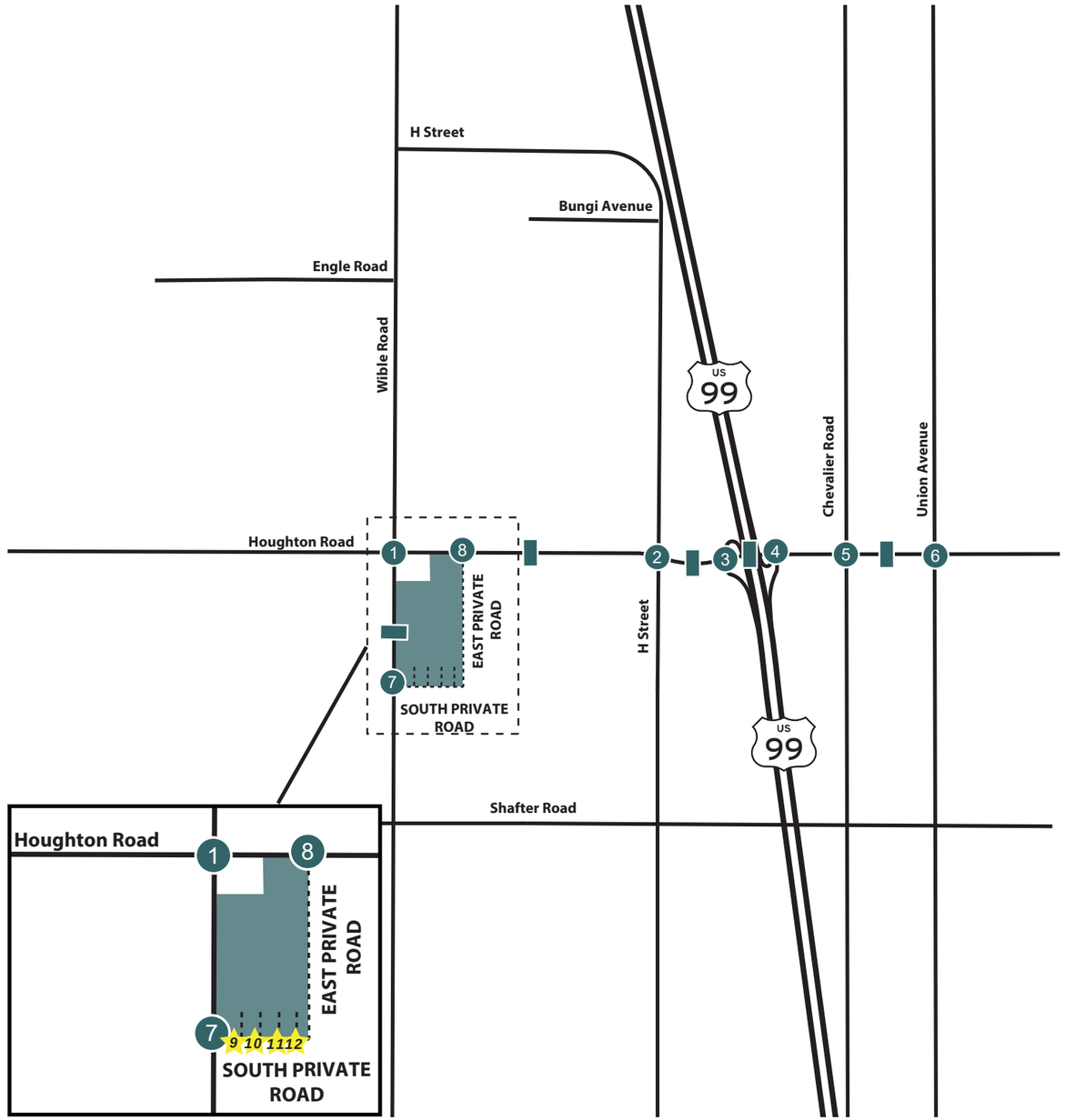


Truck Trip Assignment (PCE)



LEGEND

- Project Site
- Signalized Study Intersection
- Unsignalized Study Intersection
- Study Area Roadway Segment
- ⇦ X / Y AM/PM Peak Hour Trip Assignment
- X,XXX Roadway Trip Assignment
- Future Roadway/Project Driveway
- Project Driveway



Total Trip Assignment (PCE)

4. VEHICLE MILES TRAVELED ANALYSIS (CEQA)

This chapter discussed the VMT screening and analysis conducted for the proposed project.

SCREENING

The OPR guidelines provides details on appropriate screening thresholds that can be used to identify when a proposed land use project is presumed to result in a less than significant impact such that a more detailed level analysis is not warranted. Screening thresholds related to the proposed land use is broken into the following three steps:

1. Transit Priority Area (TPA) Screening
   As described in the OPR Technical Advisory, projects located within a half-mile from an existing major transit stop or within half of a mile from an existing stop along a high-quality transit corridor can be screened out.
2. Low VMT Area Screening
   Projects that are located within low VMT efficient areas can be screened out.
3. Low Project Type Screening
   Projects that generate less than 110 daily trips could be considered not to lead to a significant impact and can be screened out.

A land use project must only meet one of the above screening thresholds to be presumed to not result in a significant impact under CEQA pursuant to SB 743. However, the proposed project does not meet any of the criteria that would allow the proposed project to be presumed to have less than significant impacts and thus screened out from further evaluation. Therefore, a complete VMT analysis is required to further evaluate the potential VMT impacts of the proposed project.

PROJECT VMT

The OPR guidance related to SB 743 is a helpful introduction to using VMT to evaluate projects. OPR has established that a broad range of analysis tools may be acceptable for the purposes of VMT analysis including:

Travel demand models, sketch models, spreadsheet models, research and data can all be used to calculate and estimate VMT. To the extent possible, lead agencies should choose models that have sensitivity to features of the project that affect VMT. Those tools and resources can also assist in establishing thresholds of significance and estimating VMT reduction attributable to mitigation measures and project alternatives. When using models and tools for those various purposes, agencies should use comparable data and methods, in order to set up an "apples-to-apples" comparison between thresholds, VMT estimates, and VMT mitigation estimates[4].

Kimley-Horn had developed a VMT efficiency matrices using Replica Big Data platform for the proposed project as well as covering most of the California. Replica provides travel and demographic data similar to a travel demand model with various trip attributes such as trip mode, trip purpose, trip distance, origin, and destination. Replica provides trip data for the year 2023 using different data points including cell phone data. Vehicle trips by purpose and trip distances for Kern County and surrounding areas were compiled at block-group level from the Replica big data platform. Population data from the Census Bureau's American

[4] OPR Guidelines, page 30

Community Survey (ACS) was compiled for the year 2019 as well. VMT per Capita for the Los Angeles County as well as for the Project area separately was calculated at block-group level, using the existing big data trips, trip purpose, trip distance and population. The proposed project area VMT was compared against the threshold considered for this project to assess potential significant VMT impacts.

POTENTIAL IMPACTS

Table 7 shows the proposed project's VMT results based on the Replica Big Data.

Table 7: VMT per Employee – Replica Big Data

Efficiency Metric	Existing County Average VMT	VMT Threshold	Project Area VMT	Potentially Significant?
VMT per Employee	23.29	19.80	26.23	**Yes**

The proposed project would result in a significant impact, and requires mitigation that would be expected to reduce the average miles traveled to the project site by 6.43 VMT per employee, or approximately 24.5 percent of the total VMT.

Appendix H contains VMT calculations and support information.

5. LOCAL TRANSPORTATION ANALYSIS (NON-CEQA)

This chapter will discuss non-CEQA traffic operation analysis prepared to determine the effect of the proposed project on the transportation system. This operational traffic analysis includes an evaluation of intersection LOS, roadway segment LOS, queuing, and signal warrant analysis.

LEVEL OF SERVICE

LOS analysis was conducted to evaluate the proposed project's effect on the operations of the study intersections and roadway segments.

EXISTING (2023) CONDITIONS

Existing (2023) Conditions represents the on-the-ground conditions present in May 2023, when traffic data was collected. This scenario does not include the proposed project's traffic.

Existing (2023) Transportation Conditions

Existing (2023) Transportation Conditions were discussed in Chapter 2 and illustrated in Figure 2-1.

Existing (2023) Traffic Volumes

Existing (2023) Traffic Volumes were discussed in Chapter 2 and illustrated in Figure 2-2.

Existing (2023) Intersection Level of Service

Table 9 displays the intersection LOS analysis results under Existing (2023) Conditions, showing all intersections operate at LOS C or better during the AM and PM commuter peak hours. **Appendix D** contains the intersection LOS calculation worksheets.

Existing (2023) Roadway Segment Level of Service

Table 8 displays the roadway segment LOS analysis results under Existing (2023) Conditions, showing all roadway segments operate at LOS C or better.

Table 8: Existing (2023) Conditions Roadway Segment LOS Summary

#	Roadway Segment	Functional Classification (a)	ADT (b)	V/C (c)	LOS C or Better?
1	Houghton Road: Wible Road to H Street	2-Lane Collector	2,111	0.14	Yes
2	Houghton Road: H Street to SR 99 SB Ramps	2-Lane Collector	2,872	0.19	Yes
3	Houghton Road: SR 99 SB Ramps to NB Ramps	2-Lane Collector	4,064	0.27	Yes
4	Houghton Road: SR 99 NB Ramps to Union Avenue	2-Lane Collector	3,891	0.26	Yes
5	Wible Road: Houghton Road to South Private Road	2-Lane Collector	859	0.06	Yes

Notes:
(a) Functional roadway classification per Metropolitan Bakersfield General Plan
(b) ADT = Average Daily Traffic (two-way total)
(c) V/C = Volume to capacity ratio

TABLE 9: EXISTING (2023) CONDITIONS INTERSECTION LOS SUMMARY

#	Intersection	Jurisdiction	Traffic Control	Peak Hour	Existing (2023) Conditions	
					Delay (a)	LOS (b)
1	Wible Rd & Houghton Rd	County	All-Way Stop	AM	8.2	A
				PM	8.5	A
2	Houghton Rd & H St	County	All-Way Stop	AM	8.4	A
				PM	8.3	A
3	Costajo Rd/SR 99 SB Ramps & Houghton Rd	Caltrans	Two-Way Stop	AM	11.9	B
				PM	11.8	B
4	SR 99 NB Ramps & Houghton Rd	Caltrans	One-Way Stop	AM	10.3	B
				PM	11.2	B
5	Chevalier Rd & Houghton Rd	County	Two-Way Stop	AM	11.6	B
				PM	10.6	B
6	Houghton Rd & Union Ave	County	All-Way Stop	AM	11.6	B
				PM	19.5	C

Notes:

Bold values indicate intersections operating at unacceptable LOS. **Bold and shaded** values indicate project significant impact.

ECL = Exceeds Calculable Limit. Reported when delay exceeds 180 seconds.

(a) Delay refers to the average control delay for the entire intersection, measured in seconds per vehicle. At a one- or two-way stop-controlled intersection, delay refers to the worst movement. At intersections 3 and 4, delay refers to the worst approach to account for slip right-turn lanes.

(b) LOS calculations are based on the methodology outlined in the *Highway Capacity Manual 6th Edition* and performed using Synchro 11.0

County - Kern County

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OPENING YEAR (2026) CONDITIONS

Opening Year (2026) Conditions represent the expected conditions when the proposed project is constructed, which is assumed to occur in 2026.

Opening Year (2026) Transportation Conditions

The transportation conditions for Opening Year (2026) Conditions are assumed to be the same as Existing (2023) Conditions, illustrated on Figure 2-2, since no improvements are expected within the study area before the proposed project is expected to open.

Opening Year (2026) Traffic Volumes

To account for background growth within the study area, the Opening Year (2026) traffic volumes were developed by calculating the total traffic growth from the Kern COG model between the base year (2022) and the horizon year (2046) and applying a four-year growth increment to account for growth from the base year to opening year (2026). This growth increment was calculated for each intersection approach and applied to Existing (2023) Peak Hour Turning Movement and ADT Volumes, shown on Figure 2-2, using the existing turning movement and roadway segment proportions. The resulting Opening Year (2026) Peak Hour Turning Movement and ADT Volumes are presented in **Figure 5-1. Appendix E** contains the methodology used for traffic forecasting of future baseline volumes, model plots and future volume development calculation worksheets.

Opening Year (2026) Intersection Level of Service

Table 11 displays the intersection LOS analysis results under Opening Year (2026) Conditions, showing all intersections are expected to operate at LOS C or better during the AM and PM commuter peak hours. **Appendix D** contains the intersection LOS calculation worksheets.

Opening Year (2026) Roadway Segment Level of Service

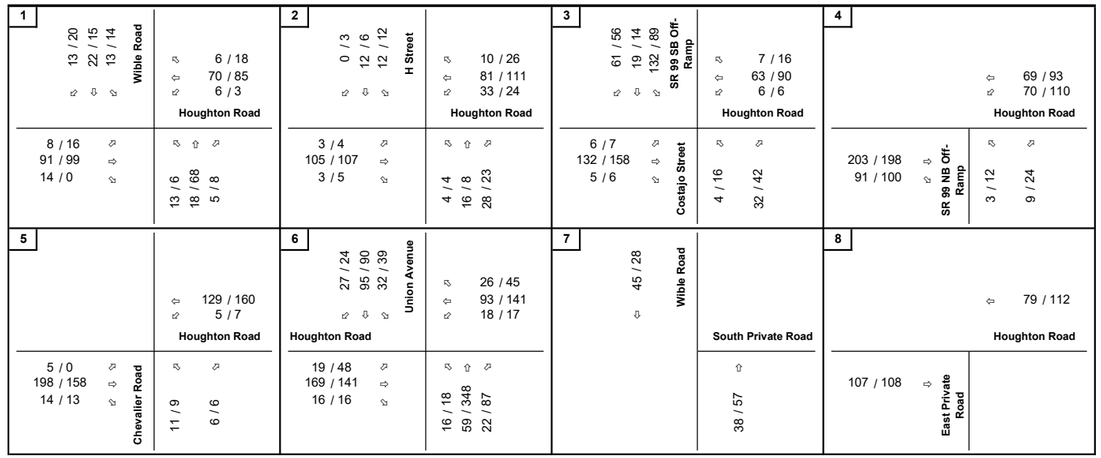
Table 10 presents the roadway segment LOS analysis under Opening Year (2026) Conditions, showing all segments are expected to operate at LOS C or better.

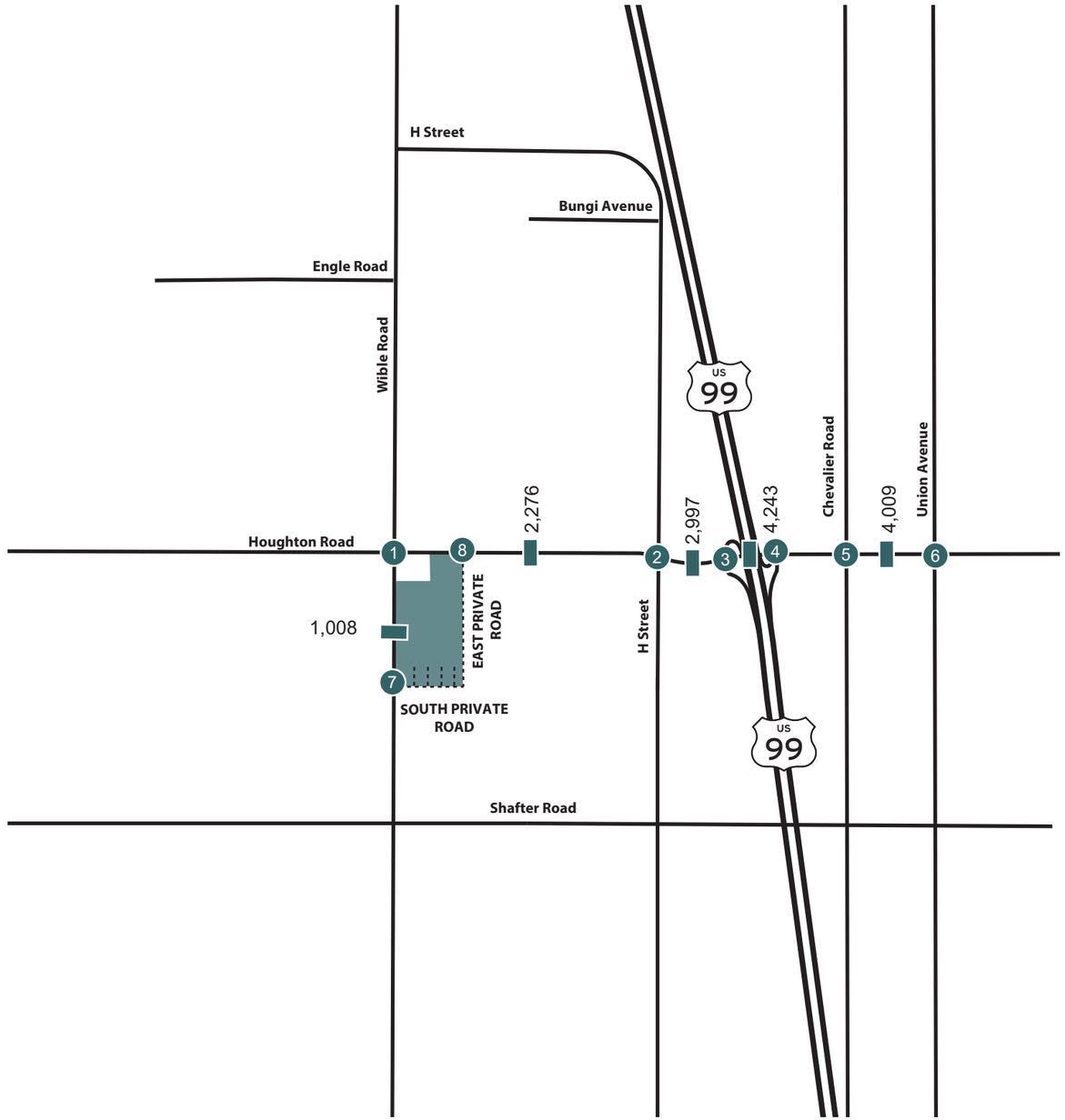
Table 10: Opening Year (2026) Conditions Roadway Segment LOS Summary

#	Intersection	Functional Class (a)	ADT (b)	V/C (c)	LOS C or Better?
1	Houghton Road: Wible Road to H Street	2-Lane Collector	2,276	0.15	Yes
2	Houghton Road: H Street to SR 99 SB Ramps	2-Lane Collector	2,997	0.20	Yes
3	Houghton Road: SR 99 SB Ramps to NB Ramps	2-Lane Collector	4,243	0.28	Yes
4	Houghton Road: SR 99 NB Ramps to Union Avenue	2-Lane Collector	4,009	0.27	Yes
5	Wible Road: Houghton Road to South Private Road	2-Lane Collector	1,008	0.07	Yes

Notes:

(a) Functional roadway classification per Metropolitan Bakersfield General Plan
(b) ADT = Average Daily Traffic (two-way total)
(c) V/C = Volume to capacity ratio





LEGEND

- Project Site
- (X) Signalized Study Intersection
- X Unsignalized Study Intersection
- Study Area Roadway Segment
- ⇦ X / Y AM/PM Peak Hour Turning Volumes
- X,XXX Average Daily Traffic Volumes
- ····· Future Roadway/Project Driveway

Opening Year (2026) Peak Hour Turning Movement and ADT Volumes

TABLE 11: OPENING YEAR (2026) CONDITIONS INTERSECTION LOS SUMMARY

#	Intersection	Jurisdiction	Traffic Control	Peak Hour	Opening Year (2026)		Opening Year (2026) Plus Project			
					Delay (a)	LOS (b)	Delay (a)	LOS (b)	Δ (c)	Deficient?
1	Wible Rd & Houghton Rd	County	All-Way Stop	AM	8.3	A	10.0	A	1.7	NO
				PM	8.6	A	10.7	B	2.1	NO
2	Houghton Rd & H St	County	All-Way Stop	AM	8.5	A	13.7	B	5.2	NO
				PM	8.5	A	15.5	C	7.0	NO
3	Costajo Rd/SR 99 SB Ramps & Houghton Rd	Caltrans	Two-Way Stop	AM	12.2	B	16.3	C	4.1	NO
				PM	12.1	B	23.8	C	11.7	NO
4	SR 99 NB Ramps & Houghton Rd	Caltrans	One-Way Stop	AM	10.7	B	14.3	B	3.6	NO
				PM	11.3	B	16.1	C	4.8	NO
5	Chevalier Rd & Houghton Rd	County	Two-Way Stop	AM	11.9	B	12.5	B	0.6	NO
				PM	10.9	B	12.7	B	1.8	NO
6	Houghton Rd & Union Ave	County	All-Way Stop	AM	12.0	B	12.4	B	0.4	NO
				PM	20.9	C	26.9	**D**	6.0	**YES**
7	Wible Rd & South Private Rd	County	Two-Way Stop	AM	DNE	DNE	14.8	B	-	NO
				PM	DNE	DNE	12.6	B	-	NO
8	East Private Rd & Houghton Rd	County	One-Way Stop	AM	DNE	DNE	9.4	A	-	NO
				PM	DNE	DNE	11.7	B	-	NO
9	South Private Rd & Outbound Truck Dwy	County	One-Way Stop	AM	DNE	DNE	10.3	B	-	NO
				PM	DNE	DNE	10.8	B	-	NO
10	South Private Rd & Passenger Car Dwy 1	County	One-Way Stop	AM	DNE	DNE	11.8	B	-	NO
				PM	DNE	DNE	11.7	B	-	NO
11	South Private Rd & Passenger Car Dwy 2	County	One-Way Stop	AM	DNE	DNE	10.9	B	-	NO
				PM	DNE	DNE	11.6	B	-	NO
12	South Private Rd & Inbound Truck Dwy	County	NONE	AM	DNE	DNE	NONE	A	-	NO
				PM	DNE	DNE	NONE	A	-	NO

Notes:

Bold values indicate intersections operating at unacceptable LOS. **Bold and shaded** values indicate project significant impact.

ECL = Exceeds Calculable Limit. Reported when delay exceeds 180 seconds.

(a) Delay refers to the average control delay for the entire intersection, measured in seconds per vehicle. At a one- or two-way stop-controlled intersection, delay refers to the worst movement. At intersections 3 and 4, delay refers to the worst approach to account for slip right-turn lanes.

(a) Delay refers to the average control delay for the entire intersection, measured in seconds per vehicle. At a one- or two-way stop-controlled intersection, delay refers to the worst movement.

(b) LOS calculations are based on the methodology outlined in the *Highway Capacity Manual 6th Edition* and performed using Synchro 11.0

(c) Change in delay due to addition of project traffic

County - Kern County

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OPENING YEAR (2026) PLUS PROJECT CONDITIONS

Opening Year Plus Project Conditions represent the expected conditions in 2026, when the Project is expected to be complete, with the addition of the proposed project's roadway and access improvements and traffic generated.

Opening Year (2026) Plus Project Transportation Conditions

The Opening Year (2026) Plus Project Conditions are the same as Existing (2023) Conditions with the addition of the Project's frontage improvements as described in Section 3, and illustrated in the drawings contained in **Appendix B**. The transportation conditions within the study area with the construction of the Project are illustrated in **Figure 5-2**.

Opening Year (2026) Plus Project Traffic Volumes

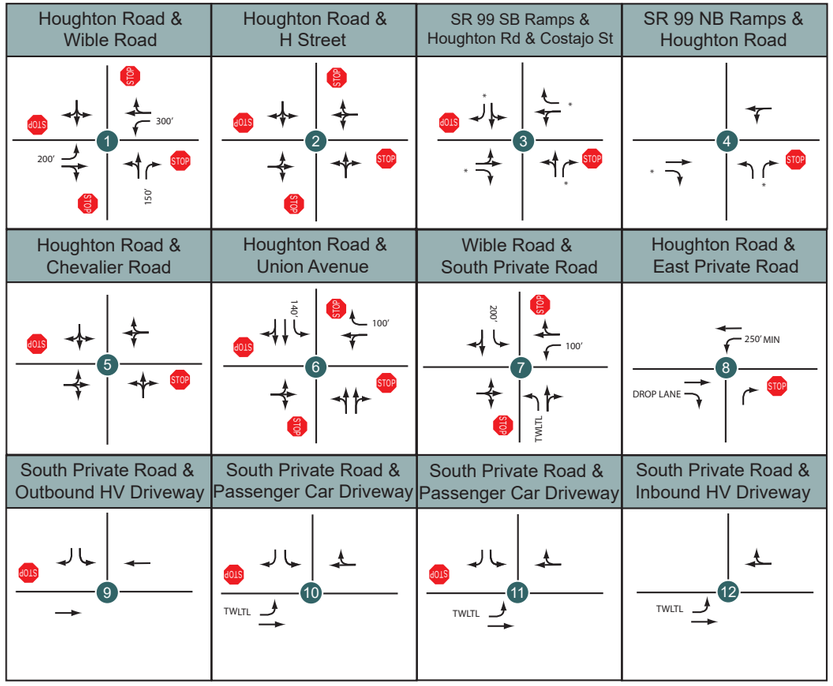
Opening Year (2026) Plus Project traffic volumes were developed by adding the proposed project's trip assignments, shown in Figure 3-5, to the Opening Year (2026) Peak Hour Turning Movement and ADT Volumes, Figure 5-1. **Figure 5-3** presents the Opening Year (2026) Plus Project Peak Hour Turning Movement and ADT Volumes**.**

Opening Year (2026) Plus Project Intersection Level of Service

Table 11 displays the intersection LOS analysis results under Opening Year (2026) Plus Project Conditions, showing all intersections are expected to operate at LOS C or better during the AM and PM commuter peak hours with the addition of the proposed project's traffic, except for the intersection at Houghton Road & Union Avenue (Intersection #6), which operates at LOS B in the AM peak hour and LOS D in the PM peak hour. **Appendix D** contains the intersection LOS calculation worksheets.

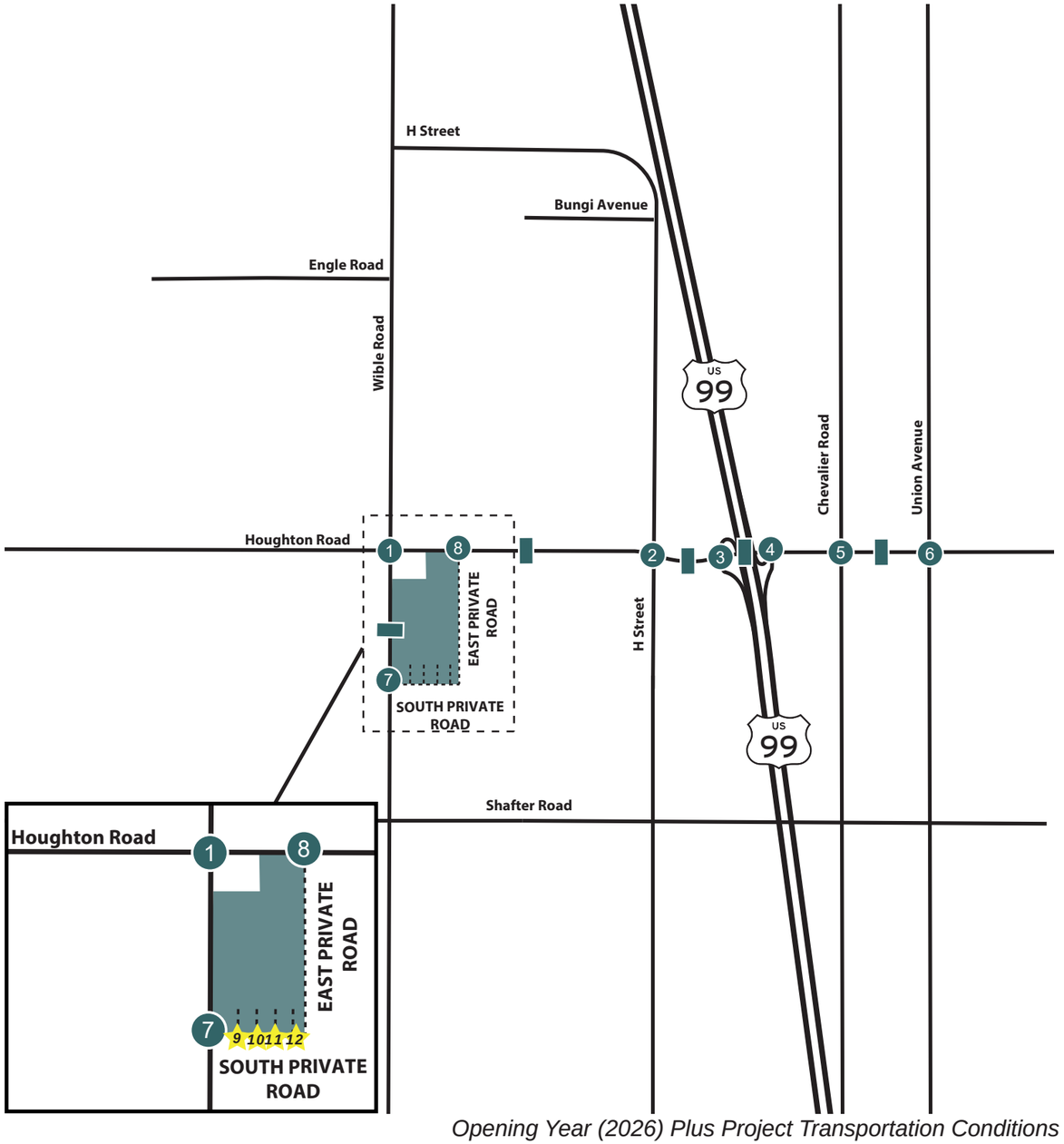
Opening Year (2026) Plus Project Roadway Segment Level of Service

Table 12 presents the roadway segment LOS analysis results under Opening Year (2026) Conditions and Opening Year (2026) Plus Project Conditions, showing all segments are expected to continue to operate at LOS C or better with the addition of proposed the project's traffic.

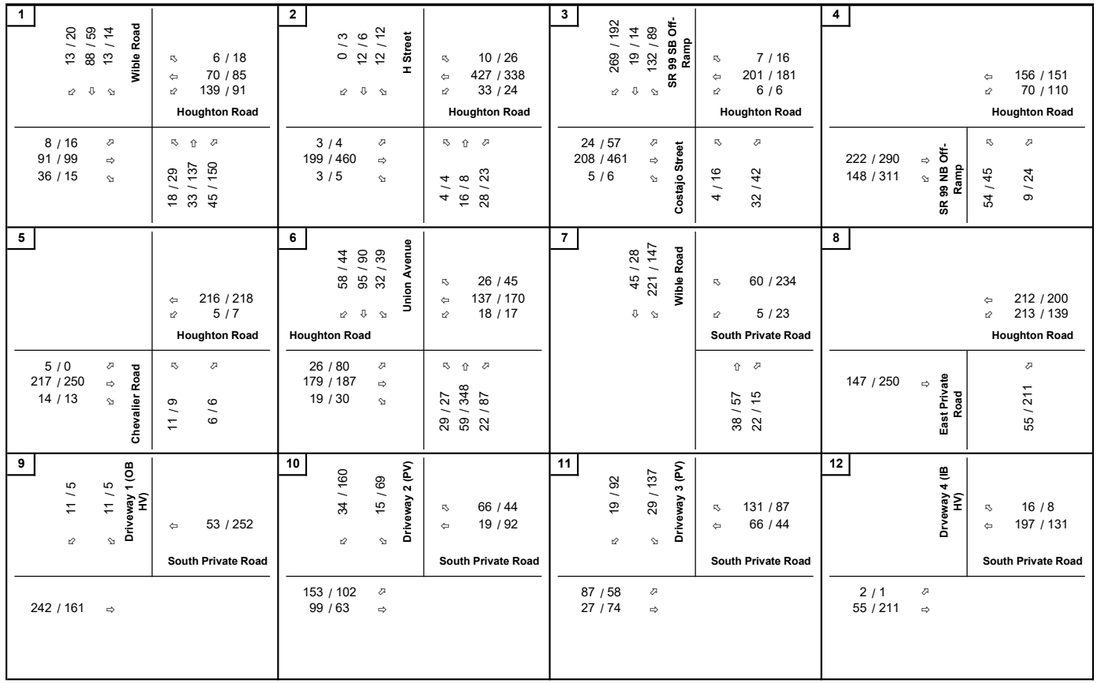


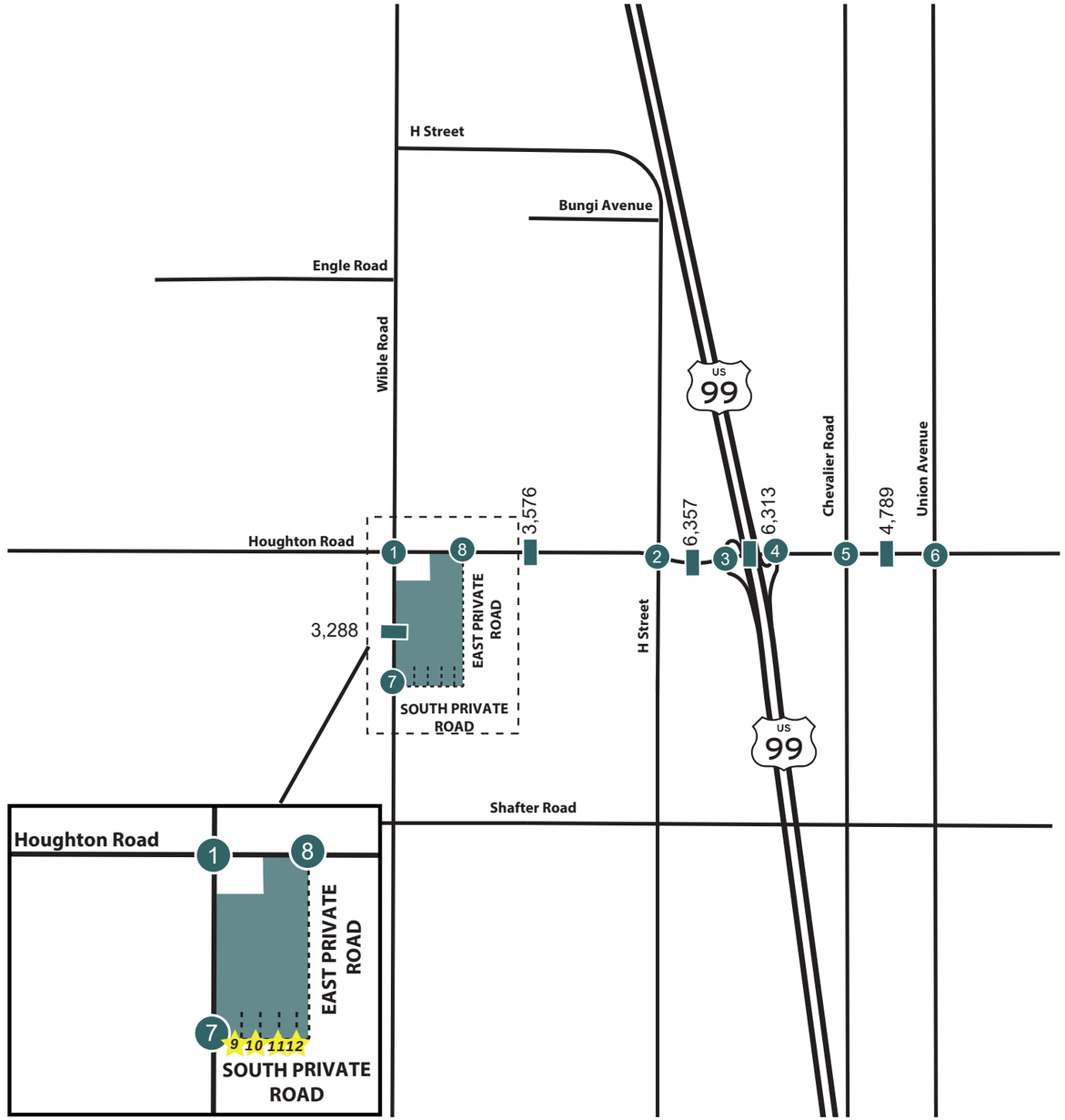
LEGEND

- Project Site
- Signalized Study Intersection
- Unsignalized Study Intersection
- Study Area Roadway Segment
- Future Roadway/Project Driveway
- X Project Driveway
- XXX' Turn Pocket Length
- * Flared approach functions as right-turn pocket (40' storage)
- TWLTL Two-Way Left-Turn Lane



Opening Year (2026) Plus Project Transportation Conditions





LEGEND

- Project Site
- Signalized Study Intersection
- Unsignalized Study Intersection
- Study Area Roadway Segment
- ⇦ X / Y AM/PM Peak Hour Turning Volumes
- X,XXX Average Daily Traffic Volumes
- Future Roadway/Project Driveway
- X Project Driveway

Opening Year (2026) Plus Project Peak Hour Turning Movement and ADT Volumes

Table 12: Opening Year (2026) Roadway Segment LOS Results

#	Intersection	Functional Class (a)	Opening Year (2026)			Opening Year (2026) Plus Project			Δ V/C
			ADT (b)	V/C (c)	LOS C or Better?	ADT (b)	V/C (c)	LOS C or Better?	
1	Houghton Road: Wible Road to H Street	2-Lane Collector	2,276	0.15	Yes	3,576	0.24	Yes	0.09
2	Houghton Road: H Street to SR 99 SB Ramps	2-Lane Collector	2,997	0.20	Yes	6,357	0.42	Yes	0.22
3	Houghton Road: SR 99 SB Ramps to NB Ramps	2-Lane Collector	4,243	0.28	Yes	6,313	0.42	Yes	0.14
4	Houghton Road: SR 99 NB Ramps to Union Avenue	2-Lane Collector	4,009	0.27	Yes	4,789	0.32	Yes	0.05
5	Wible Road: Houghton to South Private Road	2-Lane Collector	1,008	0.07	Yes	3,288	0.22	Yes	0.15

Notes:

(a) Functional roadway classification per Metropolitan Bakersfield General Plan

(b) ADT = Average Daily Traffic (two-way total)

(c) V/C = Volume to capacity ratio

HORIZON YEAR (2046) CONDITIONS

Horizon Year conditions represent the expected background conditions in 2046, which is the Kern COG model's future forecast horizon year.

Horizon Year (2046) Transportation Conditions

The transportation conditions for the Horizon Year (2046) Conditions are assumed to be the same as Existing (2023) Conditions and Opening Year (2026) Conditions, illustrated on Figure 2-2, since no improvements are expected within the study area at this time.

Horizon Year (2046) Traffic Volumes

To account for background growth within the study area, the Horizon Year (2046) traffic volumes were developed by calculating the total traffic growth from the Kern COG model between the base year (2022) and the horizon year (2046). The 2046 model scenario accounts for all planned projects and ambient growth in Countywide population and employment at this time. The entire growth increment was calculated for each intersection approach and applied to the Existing (2022) Peak Hour Turning Movement and ADT Volumes, shown on Figure 2-2, using the existing turning movement and roadway segment proportions. The resulting Horizon Year (2046) Peak Hour Turning Movement and ADT Volumes are presented in **Figure 5-4**. **Appendix E** contains the methodology used for traffic forecasting of future baseline volumes, model plots and future volume development calculation worksheets.

Horizon Year (2046) Intersection Level of Service

Table 14 displays the intersection LOS analysis results under Horizon Year (2046) Conditions, showing all intersections are expected to operate at LOS C or better during the AM and PM commuter peak hours. **Appendix D** contains the intersection LOS calculation worksheets.

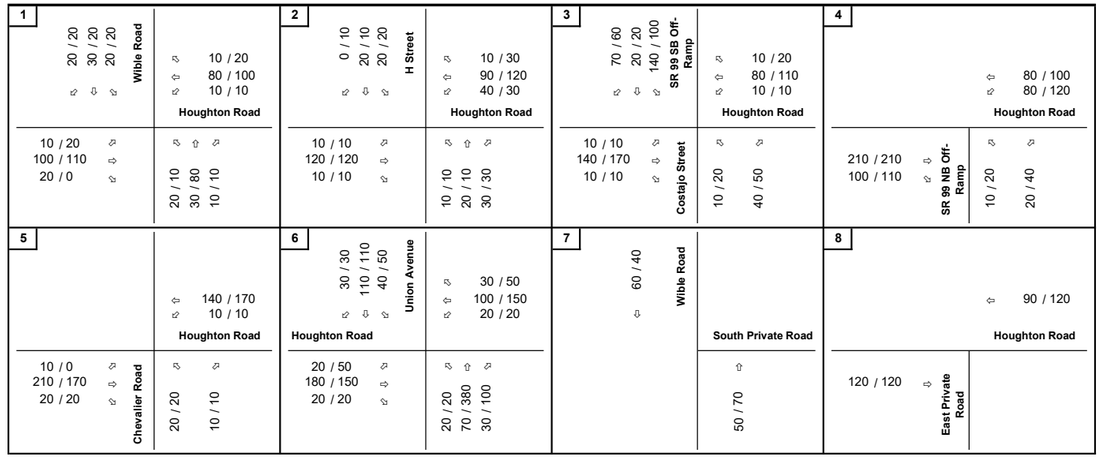
Horizon Year (2046) Roadway Segment Level of Service

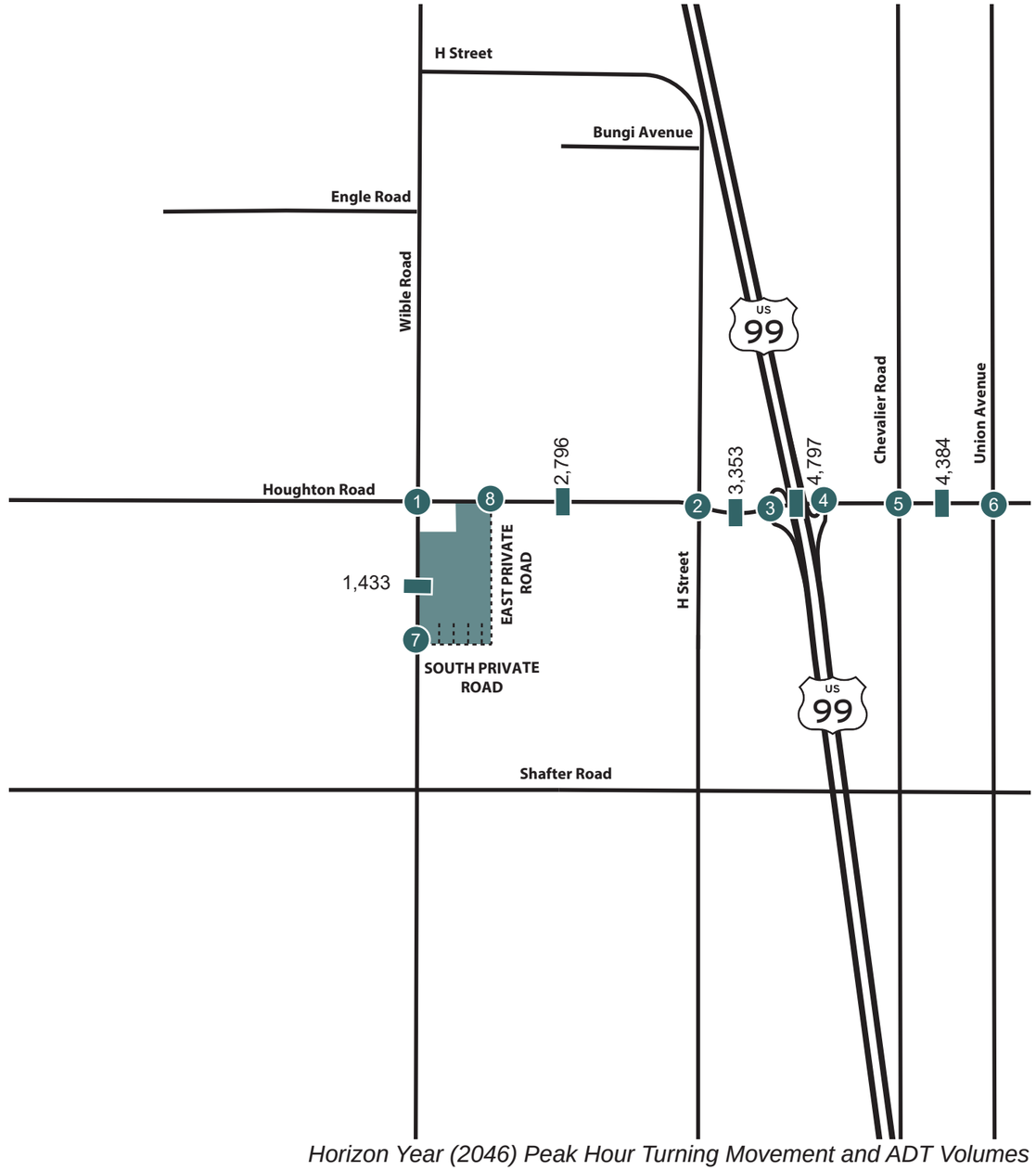
Table 13 presents the roadway segment LOS analysis under Horizon Year (2046) Conditions, showing all segments are expected to operate at LOS C or better.

Table 13: Horizon Year (2046) Conditions Roadway Segment LOS Summary

#	Intersection	Functional Class (a)	ADT (b)	V/C (c)	LOS C or Better?
1	Houghton Road: Wible Road to H Street	2-Lane Collector	2,796	0.19	Yes
2	Houghton Road: H Street to SR 99 SB Ramps	2-Lane Collector	3,353	0.22	Yes
3	Houghton Road: SR 99 SB Ramps to NB Ramps	2-Lane Collector	4,797	0.32	Yes
4	Houghton Road: SR 99 NB Ramps to Union Avenue	2-Lane Collector	4,384	0.29	Yes
5	Wible Road: Houghton Road to South Private Road	2-Lane Collector	1,433	0.10	Yes

Notes:
(a) Functional roadway classification per Metropolitan Bakersfield General Plan
(b) ADT = Average Daily Traffic (two-way total)
(c) V/C = Volume to capacity ratio





LEGEND

- Project Site
- Signalized Study Intersection
- Unsignalized Study Intersection
- Study Area Roadway Segment
- ⇦ X / Y AM/PM Peak Hour Turning Volumes
- X,XXX Average Daily Traffic Volumes
- ····· Future Roadway/Project Driveway

Horizon Year (2046) Peak Hour Turning Movement and ADT Volumes

TABLE 14: HORIZON YEAR (2046) CONDITIONS INTERSECTION LOS SUMMARY

#	Intersection	Jurisdiction	Traffic Control	Peak Hour	Horizon Year (2046)		Horizon Year (2046) Plus Project			
					Delay (a)	LOS (b)	Delay (a)	LOS (b)	Δ (c)	Deficient?
1	Wible Rd & Houghton Rd	County	All-Way Stop	AM	8.3	A	10.4	B	2.1	NO
				PM	8.7	A	11.0	B	2.3	NO
2	Houghton Rd & H St	County	All-Way Stop	AM	8.4	A	14.7	B	6.3	NO
				PM	8.6	A	17.4	C	8.8	NO
3	Costajo Rd/SR 99 SB Ramps & Houghton Rd	Caltrans	Two-Way Stop	AM	12.3	B	16.1	C	3.8	NO
				PM	12.6	B	24.5	C	11.9	NO
4	SR 99 NB Ramps & Houghton Rd	Caltrans	One-Way Stop	AM	10.7	B	14.2	B	3.5	NO
				PM	11.4	B	15.8	C	4.4	NO
5	Chevalier Rd & Houghton Rd	County	Two-Way Stop	AM	11.7	B	12.8	B	1.1	NO
				PM	11.3	B	13.0	B	1.7	NO
6	Houghton Rd & Union Ave	County	All-Way Stop	AM	11.3	B	12.6	B	1.3	NO
				PM	18.2	C	28.0	**D**	9.8	**YES**
7	Wible Rd & South Private Rd	County	Two-Way Stop	AM	DNE	DNE	15.3	C	-	NO
				PM	DNE	DNE	12.9	B	-	NO
8	East Private Rd & Houghton Rd	County	One-Way Stop	AM	DNE	DNE	9.4	A	-	NO
				PM	DNE	DNE	11.8	B	-	NO
9	South Private Rd & Outbound Truck Dwy	County	One-Way Stop	AM	DNE	DNE	10.3	B	-	NO
				PM	DNE	DNE	10.8	B	-	NO
10	South Private Rd & Passenger Car Dwy 1	County	One-Way Stop	AM	DNE	DNE	11.8	B	-	NO
				PM	DNE	DNE	11.7	B	-	NO
11	South Private Rd & Passenger Car Dwy 2	County	One-Way Stop	AM	DNE	DNE	10.9	B	-	NO
				PM	DNE	DNE	11.6	B	-	NO
12	South Private Rd & Inbound Truck Dwy	County	NONE	AM	DNE	DNE	NONE	A	-	NO
				PM	DNE	DNE	NONE	A	-	NO

Notes:

Bold values indicate intersections operating at unacceptable LOS. **Bold and shaded** values indicate project significant impact.

ECL = Exceeds Calculable Limit. Reported when delay exceeds 180 seconds.

(a) Delay refers to the average control delay for the entire intersection, measured in seconds per vehicle. At a one- or two-way stop-controlled intersection, delay refers to the worst movement. At intersections 3 and 4, delay refers to the worst approach to account for slip right-turn lanes.

(a) Delay refers to the average control delay for the entire intersection, measured in seconds per vehicle. At a one- or two-way stop-controlled intersection, delay refers to the worst movement.

(b) LOS calculations are based on the methodology outlined in the *Highway Capacity Manual 6th Edition* and performed using Synchro 11.0

(c) Change in delay due to addition of project traffic

County - Kern County

HORIZON YEAR (2046) PLUS PROJECT CONDITIONS

Horizon Year Plus Project Conditions represent the expected conditions in 2046, which is the Kern COG model's future forecast horizon year, with the addition of the proposed project's roadway and access improvements and traffic generated.

Horizon Year (2046) Plus Project Transportation Conditions

The Horizon Year (2046) Plus Project Conditions are the same as Opening Year (2023) Plus Project Transportation Conditions, as illustrated in Figure 5-2.

Horizon Year (2046) Plus Project Traffic Volumes

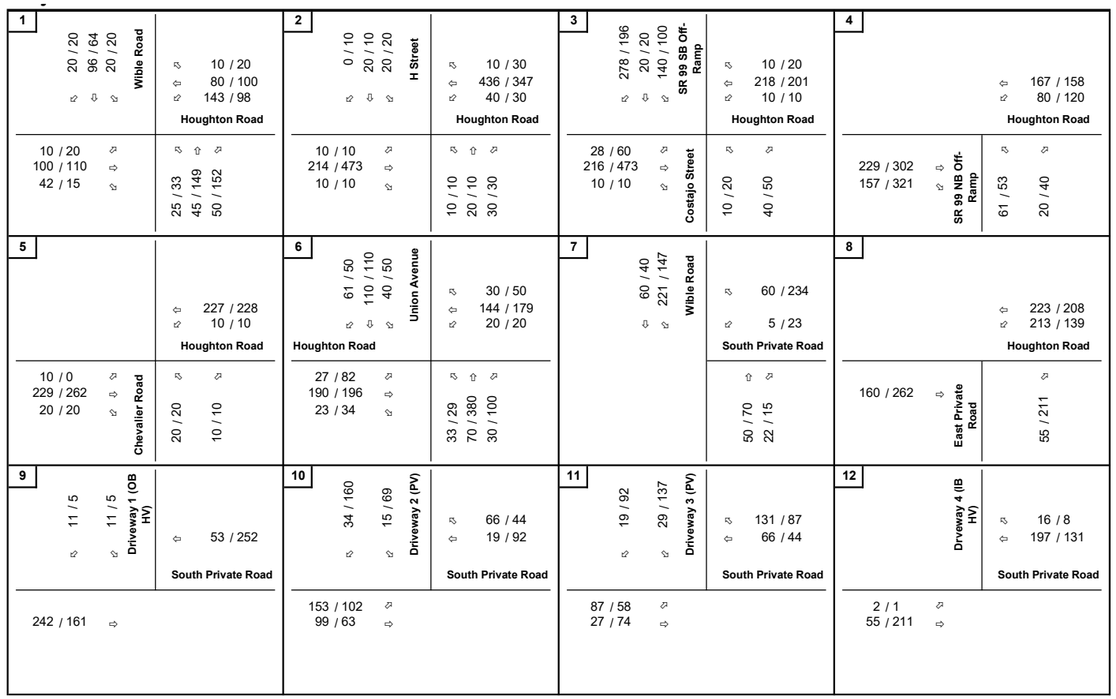
Horizon Year (2046) Plus Project traffic volumes were developed by adding the proposed project's trip assignments, shown in Figure 3-5, to the Horizon Year (2046) Peak Hour Turning Movement and ADT Volumes, Figure 5-4. **Figure 5-5** presents the Horizon Year (2046) Plus Project Peak Hour Turning Movement and ADT Volumes**.**

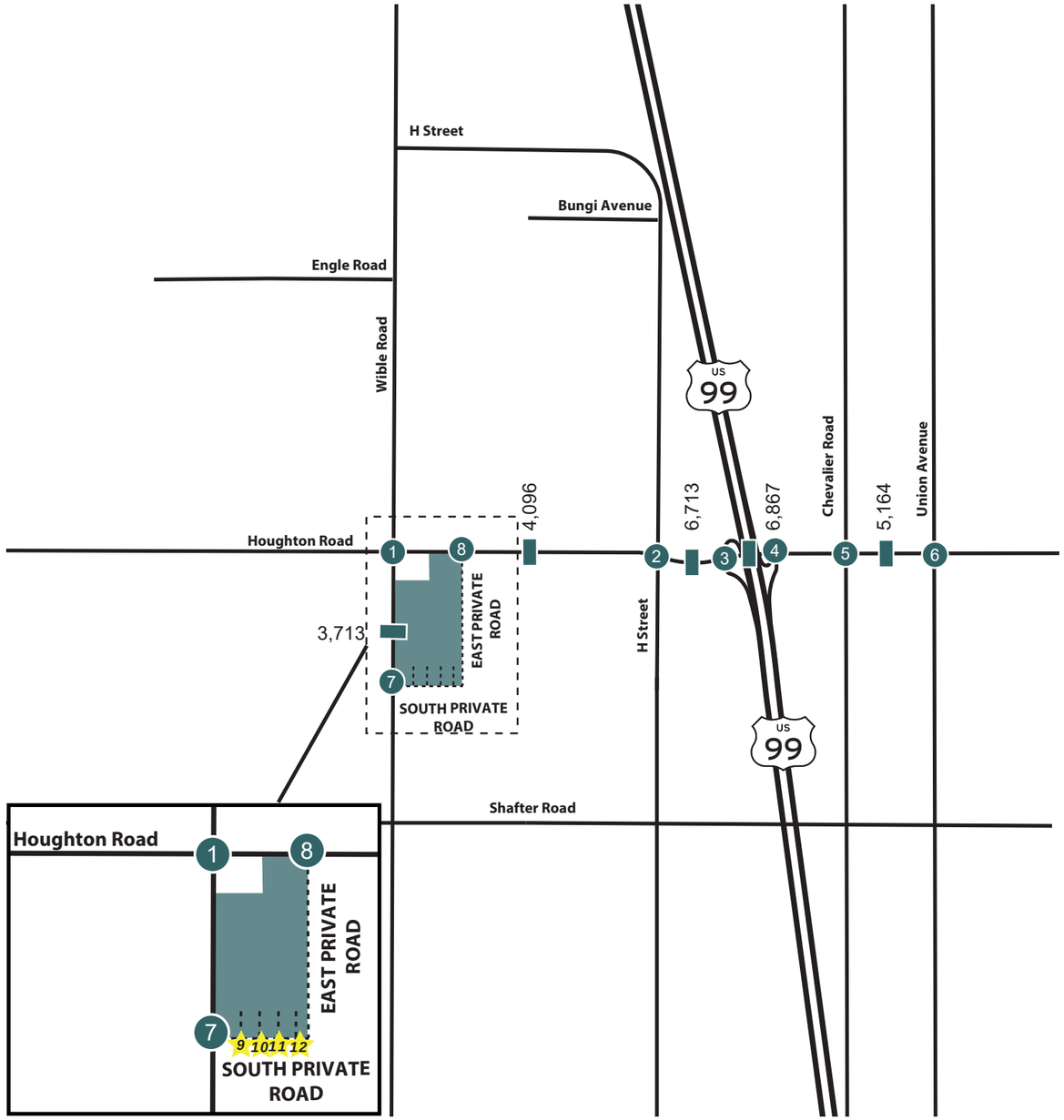
Horizon Year (2046) Plus Project Intersection Level of Service

Table 14 displays the intersection LOS analysis results under Horizon Year (2046) Plus Project Conditions, showing all intersections are expected to operate at LOS C or better during the AM and PM commuter peak hours with the addition of the proposed project's traffic, except for the intersection at Houghton Road & Union Avenue (Intersection #6), which operates at LOS B in the AM peak hour and LOS D in the PM peak hour. **Appendix D** contains the intersection LOS calculation worksheets.

Horizon Year (2046) plus Project Roadway Segment Level of Service

Table 15 presents the roadway segment LOS analysis results under Horizon Year (2046) Conditions and Horizon Year (2046) Plus Project Conditions, showing all segments are expected to operate at LOS C or better with the addition of the proposed project's traffic.





LEGEND

- Project Site
- Signalized Study Intersection
- Unsignalized Study Intersection
- Study Area Roadway Segment
- ⇦ X / Y AM/PM Peak Hour Turning Volumes
- X,XXX Average Daily Traffic Volumes
- Future Roadway/Project Driveway
- X Project Driveway

Horizon Year (2046) Plus Project Peak Hour Turning Movement and ADT Volumes

Table 15: Horizon Year (2046) Plus Project Roadway Segment LOS Summary

#	Intersection	Functional Class (a)	Horizon Year (2046)			Horizon Year (2046) Plus Project			Δ V/C
			ADT (b)	V/C (c)	LOS C or Better?	ADT (b)	V/C (c)	LOS C or Better?	
1	Houghton Road: Wible Road to H Street	2-Lane Collector	2,796	0.19	Yes	4,096	0.27	Yes	0.09
2	Houghton Road: H Street to SR 99 SB Ramps	2-Lane Collector	3,353	0.22	Yes	6,713	0.45	Yes	0.22
3	Houghton Road: SR 99 SB Ramps to NB Ramps	2-Lane Collector	4,797	0.32	Yes	6,867	0.46	Yes	0.14
4	Houghton Road: SR 99 NB Ramps to Union Avenue	2-Lane Collector	4,384	0.29	Yes	5,164	0.34	Yes	0.05
5	Wible Road: Houghton to South Private Road	2-Lane Collector	1,433	0.10	Yes	3713	0.25	Yes	0.15

Notes:

(a) Functional roadway classification per Metropolitan Bakersfield General Plan

(b) ADT = Average Daily Traffic (two-way total)

(c) V/C = Volume to capacity ratio

SIGNAL WARRANT

Traffic signals may be justified when one or more signal warrants is satisfied. Signal warrant analysis was performed at the deficient intersection (Houghton Road & Union Avenue) identified in the LTA per the *2014 California Manual on Uniform Traffic Control Devices (CA MUTCD)*. Traffic volumes for the Opening Year (2026), Horizon Year (2046), Opening Year (2026) Plus Project, and Horizon Year (2046) Plus Project scenarios were evaluated for the hours of 6 AM – 8PM.

The following traffic signal warrants were applicable to the project location:

> Traffic Signal Warrant #1 – Eight Hour Vehicular Volume is satisfied when traffic volumes on the major and minor approaches exceed thresholds for eight hours of the day. This warrant typically applies at locations where a large volume of intersection traffic is the principal reason to consider installing a traffic control signal or when traffic volumes on a major street are so heavy that traffic on the minor street suffers excessive delay or conflict in entering or crossing the major street.
>
> Traffic Signal Warrant #2 – Four Hour Vehicular Volume is satisfied when traffic volumes on the major and minor approaches exceed thresholds for four hours of the day. This warrant typically applies at locations where a large volume of intersection traffic is the principal reason to consider installing a traffic control signal or when traffic volumes on a major street are so heavy that traffic on the minor street suffers excessive delay or conflict in entering or crossing the major street.
>
> Traffic Signal Warrant #3 – Peak Hour Vehicular Volume is satisfied when traffic volumes on the major and minor approaches exceed thresholds for one hour of the day. This warrant applies to unusual cases, such as office complex, manufacturing plants, industrial complexes, or high-occupancy vehicle facilities that attract or discharge large numbers of vehicles over a short time. Therefore, this warrant is recommended to only be considered at intersections that provide direct access to proposed project site (Intersections 7 and 8).

Opening Year (2026) Plus Project

The intersection of Houghton Road & Union Avenue (Intersection #6) would operate at LOS D during the PM peak hour under Opening Year (2026) Plus Project conditions. Under these conditions, the intersection would not satisfy CA MUTCD Warrant 1 (8-hour) and Warrant 2 (4-hour). However, Warrant 3 (peak hour) is expected to be satisfied for a single hour of the day (3 PM – 4 PM). It should be noted that the intersection would not meet any CA MUTCD signal warrant under the Opening Year (2026) baseline conditions. CA MUTCD signal warrant methodology summary and calculations are included in **Appendix G**.

Horizon Year (2046) Plus Project

The intersection of Houghton Road & Union Avenue (Intersection #6) would operate at LOS D during the PM peak hour under Horizon Year (2046) Plus Project conditions. Under these conditions, the intersection would not satisfy CA MUTCD Warrant 1 (8-hour) and Warrant 2 (4-hour). However, Warrant 3 (peak hour) is expected to be satisfied for a single hour of the day (3 PM – 4 PM). It should be noted that the intersection would meet the CA MUTCD Warrant 1 signal warrant under the Horizon Year (2046) baseline conditions. CA MUTCD signal warrant methodology summary and calculations are included in **Appendix G**.

QUEUING

Vehicle queuing that exceeds a turn pocket length can create potentially hazardous conditions by blocking or disrupting through traffic in adjacent travel lanes. Vehicle queuing at interchange locations has the potential safety hazard of causing backup onto the freeway's mainlines or within the exit ramps deceleration zones. The effects of vehicle queuing for all exclusive turn lanes and the Caltrans exit ramps were analyzed for the Opening Year (2026) Plus Project and Horizon Year (2042) Plus Project scenarios using *Synchro 11* software and *HCM* methodology. The 95th percentile is defined as the queue length that has only a 5-percent probability of being exceeded during the analysis time period. **Table 16** summarizes the queueing analysis results for each intersection turning movement and Caltrans ramp evaluated. The results show that all calculated 95th percentile queue lengths are less than available storage. Therefore, the proposed project is not expected to cause queueing deficiencies that would block adjacent through movements at intersections, or queues that would extend into ramp's deceleration areas or block the mainline traffic. Simtraffic queue length calculation sheets are provided in **Appendix F**.

TABLE 16: QUEUEING SUMMARY

#	Intersection	Movement	Available Storage (ft)	95th Percentile Queue Length[1]			
				Opening Year (2026) Plus Project Conditions		Horizon Year (2046) Plus Project Conditions	
				AM	PM	AM	PM
1	Houghton Road / Wible Road	NBR	150	60	77	58	75
		EBL	200	32	38	34	44
		WBL	300	80	67	87	67
3	SR 99 Southbound (SB) Ramps / Costajo Road / Houghton Road	SB Approach	363 [2]	201	175	197	214
4	SR 99 Northbound (NB) Ramps / Houghton Road	NB Approach	306 [3]	61	79	65	99
6	Houghton Road / Union Avenue	SBL	140	48	51	52	60
		WBR	100	21	35	22	59
7	Wible Road / South Private Road & Dirt Road	NBL	50	0	0	0	0
		SBL	200	50	47	56	43
8	Houghton Road / East Private Road	WBL	250	77	73	83	73

Source: Simtraffic Queueing and Blocking Report

Notes:

Project trips on this movement.

Queue lengths that exceed storage length by more than one vehicle (25 feet) are bolded and project deficiency are shaded.

[1]95th percentile queue length reported based on average of 10 SimTraffic Runs; Queue shown is maximum after two cycles.

[2]Approximately 1,420-foot exit ramp, measured as center lane distance from exit ramp gore point to stop bar. 306-feet storage capacity per HDM Figure 504.2B. See Appendix F for calculation.

[3]Approximately 1,365-foot exit ramp, measured as center lane distance from exit ramp gore point to stop bar. 306-feet storage capacity per HDM Figure 504.2B. See Appendix F for calculation.

\\Sndfp01\ca_snd1\RIV_LDEV\195170029 - Seefried Kern County\Traffic\Analysis\Excel\[Queue Summary.xlsx]Queue Analysis

6. ACCESS AND CIRCULATION (NON-CEQA)

This section discusses site access and the internal site circulation recommendations for the proposed project.

SITE ACCESS

Access to the proposed project would be established through the proposed construction of a private access road adjacent to the east and south sides of the site, East Private Road / South Private Road, and four (4) access driveways on the private access road along the south side of the site. The following summarizes the proposed access improvements:

- East Private Road
  - Construct a 50-foot-wide roadway along the eastern limits of the proposed project site, intersecting Houghton Road;
  - Construct limited-access (outbound left-turn restricted) intersection along the easter limits of the proposed project site, approximately 1,650-feet east of Wible Road;
  - Design intersection to accommodate inbound/outbound truck turning paths; and
  - Provide stop-control for northbound approach.
- South Private Road
  - Construct a 50-foot-wide roadway along the southern limits of the proposed project site, intersecting Wible Road;
  - Construct full-access intersection along the southern limits of the proposed project site, approximately 2,650-feet south of Houghton Road;
  - Design intersection to accommodate inbound/outbound truck turning paths; and
  - Provide stop-control for westbound approach.
- Outbound Truck Driveway
  - Construct driveway approximately 250-feet east of Wible Road, along the South Private Road;
  - Provide separate left-turn and right-turn lanes for the southbound approach;
  - Stripe two-way left-turn lane along South Private Road;
  - Provide a stop control at the southbound approach; and
  - Restrict inbound vehicles with signage.
- Passenger Vehicle Driveway 1
  - Construct full-access driveway approximately 375-feet east of Wible Road, along the South Private Road;
  - Provide separate left-turn and right-turn lanes for the southbound approach;
  - Stripe two-way left-turn lane along South Private Road; and
  - Provide a stop control at the southbound approach.
- Passenger Vehicle Driveway 2
  - Construct full-access driveway approximately 925-feet east of Wible Road, along the South Private Road;
  - Provide separate left-turn and right-turn lanes for the southbound approach;
  - Stripe two-way left-turn lane along South Private Road; and
  - Provide a stop control at the southbound approach.
- Inbound Truck Driveway
  - Construct driveway approximately 1,150-feet east of Wible Road, along the South Private Road;

- Provide two inbound travel lanes;
- Stripe two-way left-turn lane along South Private Road; and
- Restrict outbound vehicles with signage.

INTERNAL SITE CIRCULATION

The internal circulation would consist of delivery trucks entering the eastmost driveway, circulating around the permitter of site in counterclockwise direction while unloading and loading product, and exiting the site via the westernmost driveway. Guard station are present near the truck entrances and exits for logistics and security purposes. Any queuing of trucks due to the guard station would be contained within the site. Employees commuting in passenger vehicles would enter and exit the site via the two (2) middle driveways. Sufficient parking would be present within the proposed project site. Employees would not park within the County's right-of-way.

7. SUMMARY OF IMPACTS, DEFICIENCIES AND RECOMMENDATIONS

Based on the results of the traffic VMT and the non-CEQA LOS operational analysis of the proposed project, potential significant impacts and deficiencies were identified, as defined in TS Methodology (Section 1). This chapter summarizes these potential impacts and/or deficiencies caused by the expected trips generated by the proposed project and recommended mitigation and/or improvements.

PROJECT IMPACTS / RECOMMENDATIONS (CEQA)

Based on the quantitative VMT analysis and thresholds applied, the proposed project would result in a significant impact, requiring mitigation. Since a significant CEQA VMT transportation impact has been identified, feasible mitigation measures to avoid or reduce the impact have been identified. CEQA requires that the mitigation measures be included in the proposed project's environmental assessment. OPR provides a list of potential measures to reduce VMT but gives the lead agency full discretion in the selection of mitigation measures.

For an individual development project, VMT mitigations typically require the development of a Transportation Demand Management (TDM) program. A TDM program is a combination of strategies to reduce VMT. The program is created by an applicant for their land use project based on a list of strategies agreed to with the County. Prior to occupancy, the proposed project shall develop a TDM program to reduce VMTs associated with employee trips. The following TDM measures would be implemented by the proposed project as part of the TDM program:

9. Alternative-Mode Subsidies and Incentives: Provide subsidization of transit fares, carpool, or electric vanpool for employees of the project site. Provide monetary incentives for alternative-modes of transportation.
10. Travel Behavior Change Program: Provide a web site that allows employees to research alternate modes of transportation for commuting to the site.
11. Promotions & Marketing: Provide marketing and promotional tools to educate and inform travelers about site-specific transportation options and the effects of their travel choices with passive educational and promotional materials.
12. Commute Assistance Center: Provide a computer kiosk that allows employees to research other modes of transportation for commuting.
13. Preferential Carpool / Vanpool Parking Spaces: Provide reserved carpool/vanpool spaces closer to the building entrance.
14. Passenger Loading Zones: Provide passenger loading zones for easy access to carpools or vanpools.
15. Bike Share: Implement bike share to allow people to have on-demand access to a bicycle, as-needed.
16. Bike Parking and Facilities: Include dedicated bike route into facility and secure bike lockers/parking to support safe and comfortable bicycle travel. Provide on-site bicycle repair tools.

Combining the above-mentioned mitigation measures would reduce the proposed project's VMT per employee by 5.4 percent. However, since the proposed mitigations are not expected to reduce the proposed project's VMT per employee by more than 24.5 percent, the proposed project's VMT impact would be significant and unavoidable. **Appendix H** contains VMT calculations and information related to TDM measures selected.

PROJECT DEFICIENCIES / RECOMMENDATIONS (NON-CEQA)

Project-related deficiencies were determined based on criteria established in TS Methodology (Section 1).

INTERSECTION LEVEL OF SERVICE

Under the Opening Year (2026) Plus Project and Horizon Year (2046) Plus Project scenarios, the proposed project's traffic is expected to cause a LOS deficiency at Houghton Road & Union Avenue (Intersection #6).

ROADWAY SEGMENT LEVEL OF SERVICE

Under the Opening Year (2026) Plus Project and Horizon Year (2046) Plus Project scenarios, the proposed project's traffic is not expected to cause roadway segment LOS deficiencies.

SIGNAL WARRANT ANALYSIS

Under the Opening Year (2026) Plus Project and Horizon Year (2046) Plus Project scenarios, the intersection of Houghton Road & Union Avenue (Intersection #6) would not satisfy CA MUTCD Warrant 1 (8-hour) and Warrant 2 (4-hour). However, Warrant 3 (peak hour) would be satisfied for a single hour of the day (3 PM – 4 PM).

The CA MUTCD states the following:

> The Peak Hour signal warrant is intended for use at a location where traffic conditions are such that for a minimum of 1 hour of an average day, the minor-street traffic suffers undue delay when entering or crossing the major street. This signal warrant shall be applied only in unusual cases, such as office complexes, manufacturing plants, industrial complexes, or high-occupancy vehicle facilities that attract or discharge large numbers of vehicles over a short time.

It should be noted that the CA MUTCD suggests this warrant only be considered at intersections that provide direct access to proposed project site (Intersections 7 and 8). However, the County has elected to consider the Peak Hour signal warrant at Houghton Road & Union Avenue. Therefore, a traffic signal would be warranted.

QUEUEING ANALYSIS

Under the Opening Year (2026) Plus Project and Horizon Year (2046) Plus Project scenarios, the proposed project's traffic is not expected to cause queueing deficiencies that would block adjacent through movements at intersections, or queues that would extend into ramp's deceleration areas or block the mainline traffic.

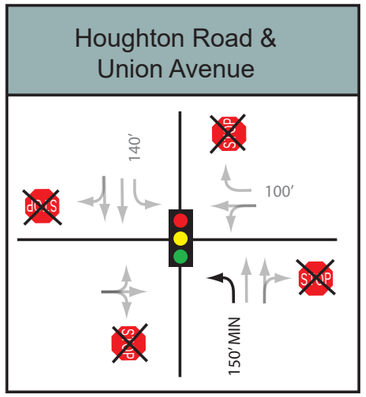
RECOMMENDED OFFSITE IMPROVEMENTS

The LOS analysis indicates that the proposed project's traffic is expected to cause a LOS deficiency at Houghton Road & Union Avenue (Intersection #6) since the addition of traffic would cause the intersection to begin operating at LOS D for the Opening Year (2026) Plus Project and Horizon Year (2026) Plus Project conditions. To alleviate the intersection LOS deficiency, it is recommended that the proposed project signalize the intersection and modify the raised median on Union Avenue to provide a northbound left-turn pocket (150-feet minimum). The following summarizes the recommended improvements and resulting lane geometry and control:

- Northbound: Modify raised median to provide left-turn pocket, thru lane and thru/right-turn lane;
- Southbound: Existing left-turn pocket (140-feet), thru lane and thru/right-turn lane;
- Eastbound: Existing shared left-turn/thru/right-turn lane;
- Westbound: Existing shared left-turn/thru lane and right-turn pocket (100-feet); and
- Signalize intersection, providing NB/SB protected left-turn phasing and EB/WB permissive phasing.

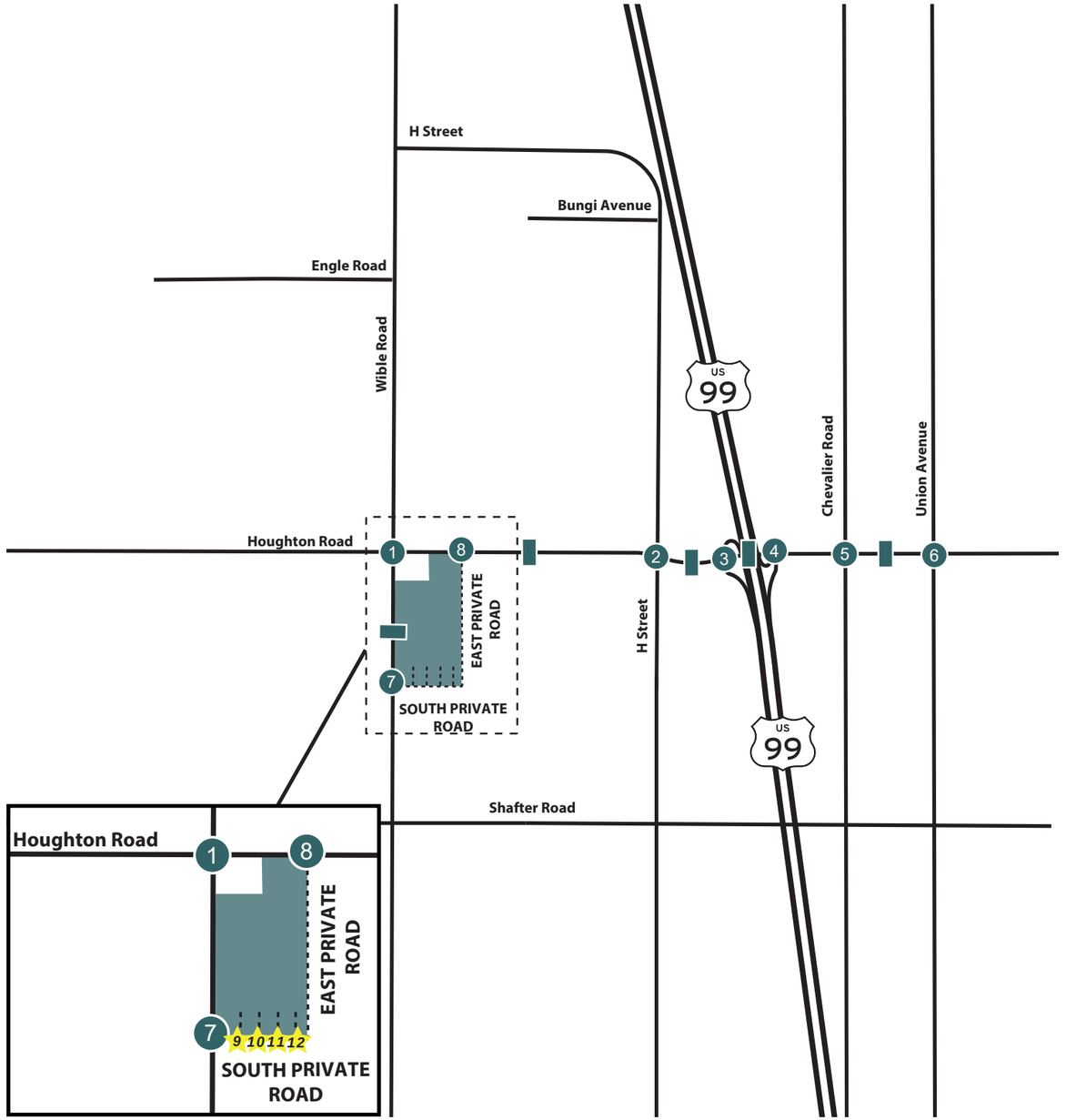
Figure 7-1 illustrates the proposed transportation improvements and resulting intersection conditions, detailed above. This improvement would enable the intersection to operate at LOS B for the AM and PM peak hours under both the Opening Year (2026) Plus Project and Horizon Year (2046) Plus Project conditions. **Tables 17** and **18** display the LOS analysis results with the recommended improvements at Houghton Road & Union Avenue (Intersection #6), under Opening Year (2026) Plus Project and Horizon Year (2046) Plus Project scenarios. **Appendix D** contains the intersection LOS calculation worksheets.

As stated above, the intersection satisfies only the CA MUTCD traffic signal Warrants 3 (peak hour) for a single hour of the day. Therefore, the recommendation for signalization is subject to the approval of the County, and acceptance of the Peak Hour Warrant as the basis for recommendation. These improvements would be constructed as an Opening Day (2026) feature, prior to occupancy since the proposed project traffic is expected to trigger the LOS deficiency.



LEGEND

- Project Site
- Signalized Study Intersection
- Unsignalized Study Intersection
- Study Area Roadway Segment
- Future Roadway
- Project Driveway
- XXX' Turn Pocket Length
- Proposed Signal



Mitigation Transportation Conditions

TABLE 17: OPENING YEAR (2026) INTERSECTION IMPROVEMENTS LOS SUMMARY

#	Intersection	Jurisdiction	Peak Hour	Improvement	After Opening Year Improvement	
					Delay (a)	LOS (b)
6	Houghton Rd & Union Ave	County	AM	Addition of NB LT pocket of 150 feet minimum. Signalize intersection control.	11.0	B
			PM		14.7	B

Notes:

Bold values indicate intersections operating at unacceptable LOS. **Bold and shaded** values indicate project significant impact.

ECL = Exceeds Calculable Limit. Reported when delay exceeds 180 seconds.

(a) Delay refers to the average control delay for the entire intersection, measured in seconds per vehicle. At a one- or two-way stop-controlled intersection, delay refers to the worst movement.

(b) LOS calculations are based on the methodology outlined in the *Highway Capacity Manual 6th Edition* and performed using Synchro 11.0

County - Kern County

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TABLE 18: HORIZON YEAR (2046) INTERSECTION IMPROVEMENTS LOS SUMMARY

#	Intersection	Jurisdiction	Peak Hour	Improvement	After Horizon Year Improvement	
					Delay (a)	LOS (b)
6	Houghton Rd & Union Ave	County	AM	Addition of NB LT pocket of 150 feet minimum. Signalize intersection control.	11.1	B
			PM		15.0	B

Notes:

Bold values indicate intersections operating at unacceptable LOS. **Bold and shaded** values indicate project significant impact.

ECL = Exceeds Calculable Limit. Reported when delay exceeds 180 seconds.

(a) Delay refers to the average control delay for the entire intersection, measured in seconds per vehicle. At a one- or two-way stop-controlled intersection, delay refers to the worst movement.

(b) LOS calculations are based on the methodology outlined in the *Highway Capacity Manual 6th Edition* and performed using Synchro 11.0

County - Kern County

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APPENDIX

A – EXISTING TRAFFIC DATA

B – PROJECT FRONTAGE IMPROVEMENTS

C – KERN COG MODEL PLOTS AND CALCULATIONS

D – LEVEL OF SERVICE CALCULATION SHEETS

E – FUTURE VOLUME METHODOLOGY & CALCULATION SHEETS

F – VEHICLE QUEUING CALCULATION STREETS

G – CA MUTCD TRAFFIC SIGNAL WARRANT SHEETS

H – VMT CALCULATONS AND INFORMATION

A – Existing Traffic Data

Prepared by National Data & Surveying Services

Wible Rd & Houghton Rd

Peak Hour Turning Movement Count

ID: 23-060024-001
City: Bakersfield

Day: Tuesday
Date: 5/2/2023

PEAK HOURS

AM	07:15 AM - 08:15 AM
NOON	11:45 AM - 12:45 PM
PM	03:00 PM - 04:00 PM

COUNT PERIODS

AM	6:00 AM - 10:00 AM
NOON	10:00 AM - 02:00 PM
PM	2:00 PM - 08:00 PM

CONTROL: 4-Way Stop

	AM	NOON	PM
TEV	252	192	328
PHF	0.97	0.89	0.93

SOUTHBOUND (Wible Rd)

	Left	Thru	Right	U-Turn	
AM	11	19	11	0	26
NOON	7	20	8	0	43
PM	19	13	12	0	95

EASTBOUND (Houghton Rd)

	Left	Thru	Right	U-Turn	
AM	0	0	0	0	0
NOON	7	11	14	0	32
PM	88	52	96	1	237
	12	5	0	0	17
	89	57	104		250

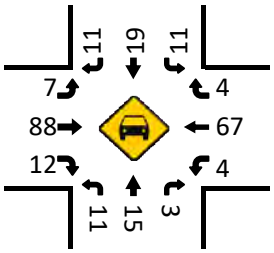
WESTBOUND (Houghton Rd)

	Left	Thru	Right	U-Turn	
	0	17	7	4	28
	1	81	44	67	193
	0	1	4	4	9
	0	0	0	0	0
		115	63	102	280

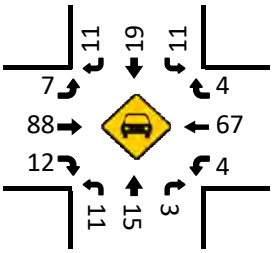
NORTHBOUND (Wible Rd)

	Left	Thru	Right	U-Turn	
PM	14	0	4	64	82
NOON	29	0	6	25	60
AM	35	0	11	15	61

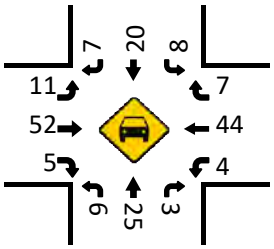
Totals (AM)



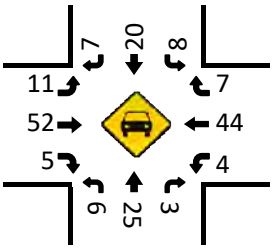
Totals (AM)



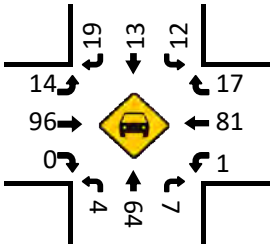
Totals (NOON)



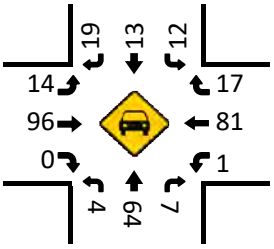
Totals (NOON)



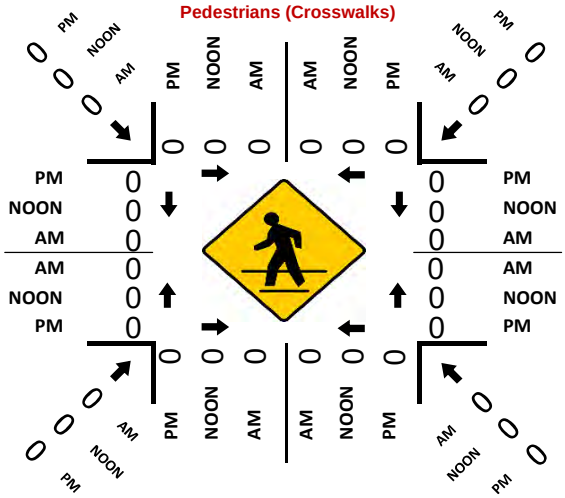
Totals (PM)



Totals (PM)



Pedestrians (Crosswalks)



Prepared by National Data & Surveying Services

H St & Houghton Rd

Peak Hour Turning Movement Count

ID: 23-060024-002
City: Bakersfield

Day: Tuesday
Date: 5/2/2023

PEAK HOURS		COUNT PERIODS
07:15 AM - 08:15 AM	AM	7:00 AM - 09:00 AM
NONE	NOON	NONE
04:00 PM - 05:00 PM	PM	4:00 PM - 06:00 PM

H St

SOUTHBOUND

AM	0	9	9	0	24	AM
NOON	0	0	0	0	0	NOON
PM	1	4	9	0	34	PM
	0	1	0	0		

EASTBOUND (Houghton Rd)

AM	NOON	PM	
80	0	111	
0	0	0	0
1	0	2	0
101	0	103	1
1	0	3	0
AM	NOON	PM	

WESTBOUND (Houghton Rd)

	PM	NOON	AM
0	25	0	9
1	108	0	78
0	21	0	31
0	1	0	0
	134	0	137
	PM	NOON	AM

CONTROL

4-Way Stop

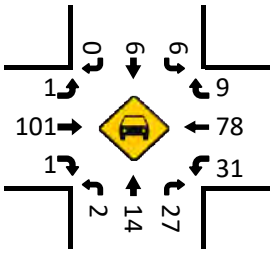
	AM	NOON	PM
TEV	282	0	307
PHF	0.83		0.86

		0	0	1	0	
PM	28	0	2	7	21	PM
NOON	0	0	0	0	0	NOON
AM	41	0	2	14	27	AM

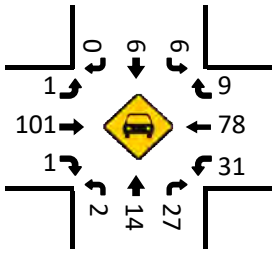
NORTHBOUND

H St

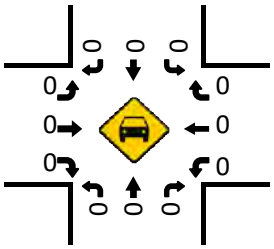
Totals (AM)



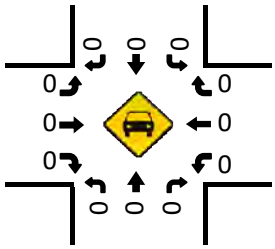
Totals (AM)



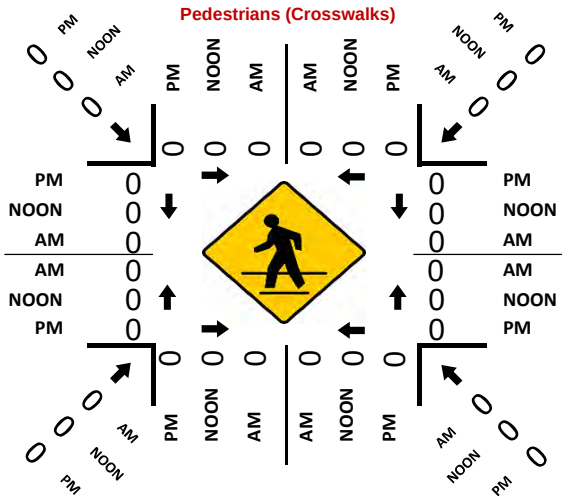
Totals (NOON)



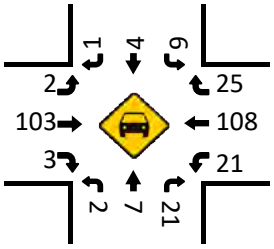
Totals (NOON)



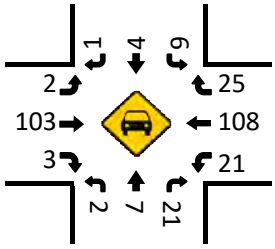
Pedestrians (Crosswalks)



Totals (PM)



Totals (PM)



Prepared by National Data & Surveying Services

SR-99 SB Ramp/Costajo Rd & Houghton Rd

Peak Hour Turning Movement Count

ID: 23-060024-003
City: Bakersfield

Day: Tuesday
Date: 5/2/2023

PEAK HOURS

AM	07:15 AM - 08:15 AM
NOON	12:00 PM - 01:00 PM
PM	03:30 PM - 04:30 PM

COUNT PERIODS

AM	6:00 AM - 10:00 AM
NOON	10:00 AM - 02:00 PM
PM	2:00 PM - 08:00 PM

CONTROL: 2-Way Stop (NB/SB)

	AM	NOON	PM
TEV	442	271	474
PHF	0.97	0.87	0.92

SR-99 SB Ramp/Costajo Rd — SOUTHBOUND

	Left	Thru	Right	U-Turn	
AM	58	18	130	0	11 AM
NOON	25	9	72	0	13 NOON
PM	55	12	86	0	20 PM
	0	1	0	0	

Houghton Rd — EASTBOUND

	AM	NOON	PM
Left	0	0	0
Thru	118	76	154
Right	5	4	6
U-Turn	3	1	4
	0	0	0
	1	0	0

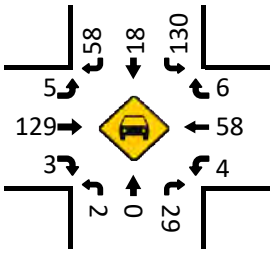
Houghton Rd — WESTBOUND

	PM	NOON	AM
Left	14	9	6
Thru	85	44	58
Right	4	4	4
U-Turn	0	0	0
	280	168	288
	0	0	0
	0	1	0

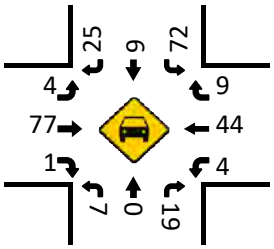
SR-99 SB Ramp/Costajo Rd — NORTHBOUND

	Left	Thru	Right	U-Turn	
PM	20	0	14	0	40 PM
NOON	14	0	7	0	19 NOON
AM	25	0	2	0	29 AM
	0	0	1	0	

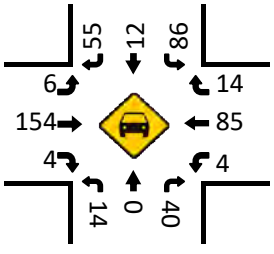
Totals (AM)



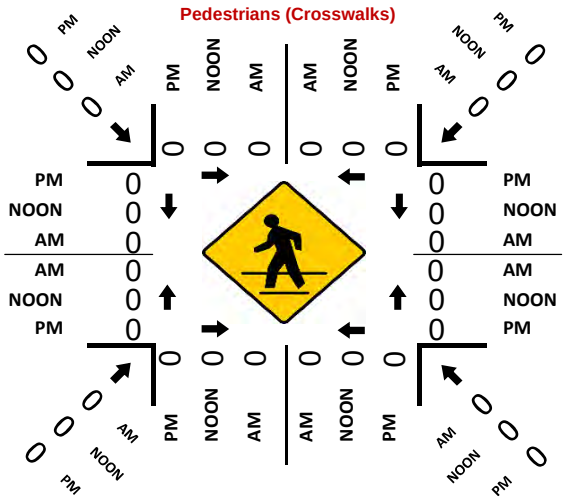
Totals (NOON)



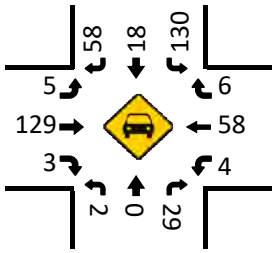
Totals (PM)



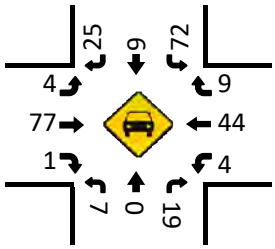
Pedestrians (Crosswalks)



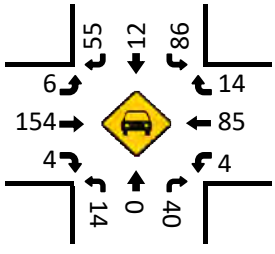
Totals (AM)



Totals (NOON)



Totals (PM)



Prepared by National Data & Surveying Services

SR-99 NB Ramps & Houghton Rd

Peak Hour Turning Movement Count

ID: 23-060024-004
City: Bakersfield

Day: Tuesday
Date: 5/2/2023

SR-99 NB Ramps

SOUTHBOUND

AM	0	0	0	0	0	AM	6:00 AM - 10:00 AM
NOON	0	0	0	0	0	NOON	10:00 AM - 02:00 PM
PM	0	0	0	0	0	PM	2:00 PM - 08:00 PM

PEAK HOURS: 07:15 AM - 08:15 AM; 12:00 PM - 01:00 PM; 03:00 PM - 04:00 PM

COUNT PERIODS

EASTBOUND

AM	NOON	PM	
67	57	101	
0	0	0	0
0	0	0	0
201	122	194	1
88	45	97	1
AM	NOON	PM	

Houghton Rd

WESTBOUND

	PM	NOON	AM
0	0	0	0
1	91	51	66
0	107	54	67
0	0	0	0
	214	136	207
	PM	NOON	AM

Houghton Rd

		0	0	0	0	
PM	204	0	10	0	20	PM
NOON	99	0	6	0	14	NOON
AM	155	0	1	0	6	AM

NORTHBOUND

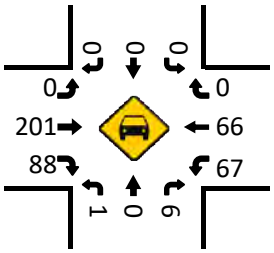
SR-99 NB Ramps

CONTROL

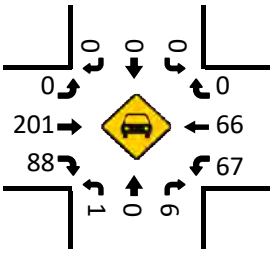
1-Way Stop (NB)

	AM	NOON	PM
TEV	429	292	519
PHF	0.92	0.89	0.91

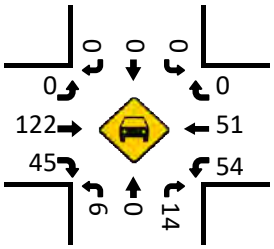
Totals (AM)



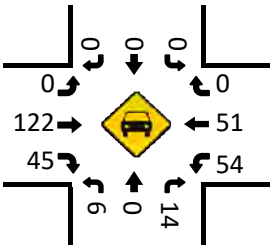
Totals (AM)



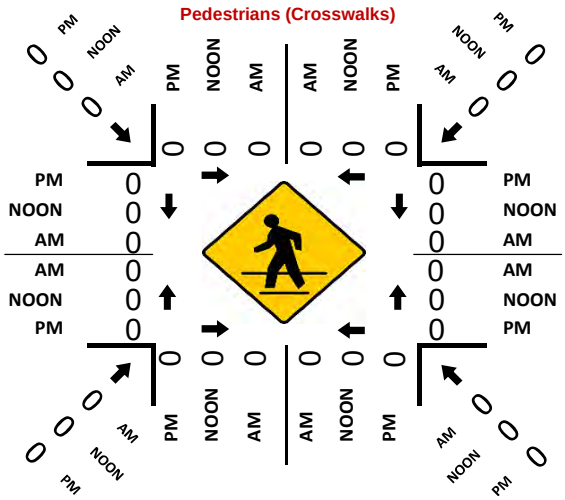
Totals (NOON)



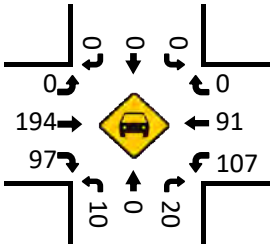
Totals (NOON)



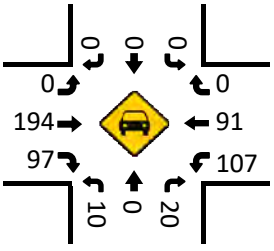
Pedestrians (Crosswalks)



Totals (PM)



Totals (PM)



Prepared by National Data & Surveying Services

Chevalier Rd & Houghton Rd

Peak Hour Turning Movement Count

ID: 23-060024-005
City: Bakersfield

Day: Tuesday
Date: 5/2/2023

PEAK HOURS		COUNT PERIODS
07:00 AM - 08:00 AM	AM	7:00 AM - 09:00 AM
NONE	NOON	NONE
04:15 PM - 05:15 PM	PM	4:00 PM - 06:00 PM

SOUTHBOUND

Chevalier Rd

AM	0	0	0	0	3	AM
NOON	0	0	0	0	0	NOON
PM	0	0	0	0	0	PM

0 0 0 0

EASTBOUND

Houghton Rd

AM	NOON	PM	
134	0	163	
0	0	0	0
3	0	0	0
195	0	155	1
12	0	11	0
AM	NOON	PM	

WESTBOUND

Houghton Rd

	PM	NOON	AM
0	0	0	0
1	157	0	126
0	6	0	3
0	0	0	0
	160	0	200
	PM	NOON	AM

CONTROL

1-Way Stop (NB)

	AM	NOON	PM
TEV	352	0	340
PHF	0.87		0.89

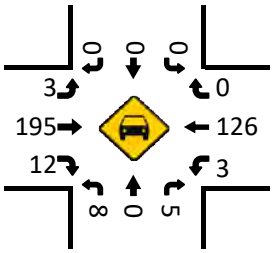
0 0 1 0

NORTHBOUND

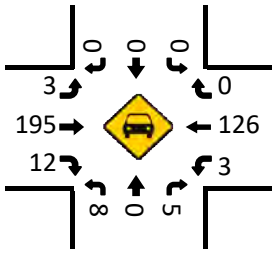
Chevalier Rd

PM	17	0	6	0	5	PM
NOON	0	0	0	0	0	NOON
AM	15	0	8	0	5	AM

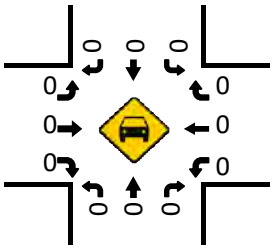
Totals (AM)



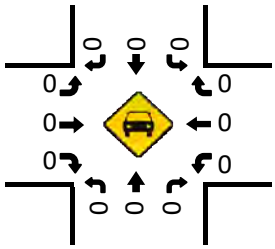
Totals (AM)



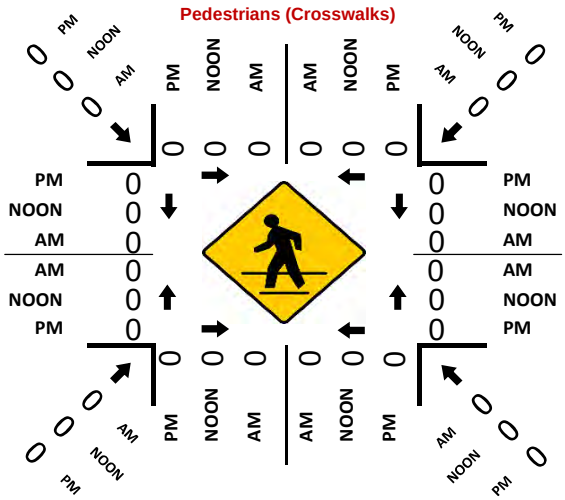
Totals (NOON)



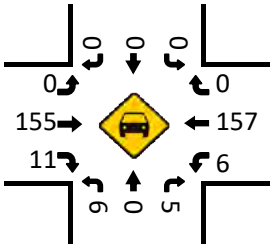
Totals (NOON)



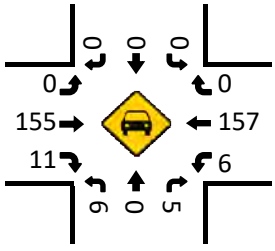
Pedestrians (Crosswalks)



Totals (PM)



Totals (PM)



Prepared by National Data & Surveying Services

S Union Ave & Houghton Rd

Peak Hour Turning Movement Count

ID: 23-060024-006
City: Bakersfield

Day: Tuesday
Date: 5/2/2023

S Union Ave

SOUTHBOUND

AM	26	91	28	1	99	AM	6:00 AM - 10:00 AM
NOON	19	79	37	11	178	NOON	10:00 AM - 02:00 PM
PM	22	85	29	7	437	PM	2:00 PM - 08:00 PM

PEAK HOURS: 07:00 AM - 08:00 AM; 01:00 PM - 02:00 PM; 03:00 PM - 04:00 PM

COUNT PERIODS

0 2 1 0

EASTBOUND

Houghton Rd

AM	NOON	PM	
132	89	177	
0	0	0	0
18	21	47	0
166	58	138	1
14	10	15	0
AM	NOON	PM	

WESTBOUND

Houghton Rd

	PM	NOON	AM
0	43	21	24
1	138	52	91
0	16	21	17
0	0	0	0
	250	116	214
	PM	NOON	AM

CONTROL

4-Way Stop

	AM	NOON	PM
TEV	567	494	980
PHF	0.84	0.94	0.81

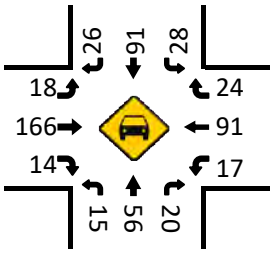
0 0 2 0

NORTHBOUND

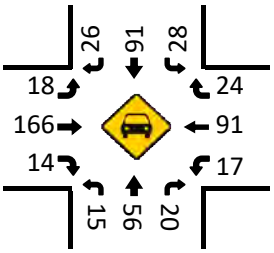
PM	116	0	17	340	83	PM
NOON	111	1	18	125	21	NOON
AM	122	0	15	56	20	AM

S Union Ave

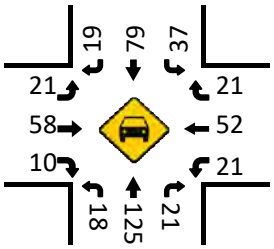
Totals (AM)



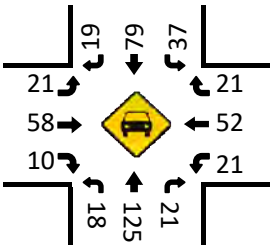
Totals (AM)



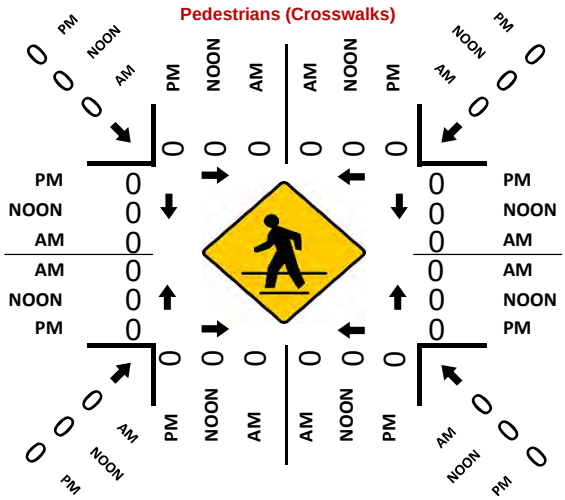
Totals (NOON)



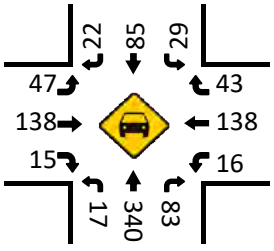
Totals (NOON)



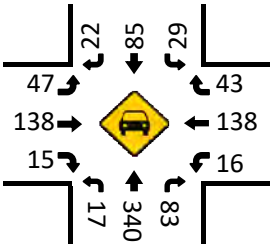
Pedestrians (Crosswalks)



Totals (PM)



Totals (PM)



Prepared by NDS/ATD

VOLUME

Houghton Rd Bet. Wible Rd & H St

Day: Tuesday
Date: 5/2/2023

City: Bakersfield
Project #: CA23_060025_001

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	1,079	1,032	2,111

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			1		0		1		12:00			12		14		26	
00:15			3		3		6		12:15			17		12		29	
00:30			3		2		5		12:30			11		10		21	
00:45			0	7	0	5	0	12	12:45			14	54	10	46	24	100
01:00			2		0		2		13:00			9		11		20	
01:15			1		0		1		13:15			7		12		19	
01:30			0		0		0		13:30			15		15		30	
01:45			1	4	3	3	4	7	13:45			14	45	17	55	31	100
02:00			1		0		1		14:00			18		13		31	
02:15			0		1		1		14:15			14		24		38	
02:30			0		1		1		14:30			24		17		41	
02:45			1	2	1	3	2	5	14:45			17	73	19	73	36	146
03:00			0		0		0		15:00			37		20		57	
03:15			2		2		4		15:15			22		23		45	
03:30			2		2		4		15:30			46		28		74	
03:45			4	8	3	7	7	15	15:45			28	133	31	102	59	235
04:00			2		0		2		16:00			21		28		49	
04:15			2		3		5		16:15			38		23		61	
04:30			4		2		6		16:30			29		21		50	
04:45			4	12	7	12	11	24	16:45			16	104	38	110	54	214
05:00			5		11		16		17:00			19		21		40	
05:15			4		16		20		17:15			23		14		37	
05:30			16		15		31		17:30			18		12		30	
05:45			13	38	20	62	33	100	17:45			21	81	17	64	38	145
06:00			10		20		30		18:00			16		16		32	
06:15			15		13		28		18:15			15		21		36	
06:30			19		6		25		18:30			12		12		24	
06:45			15	59	16	55	31	114	18:45			9	52	15	64	24	116
07:00			30		17		47		19:00			4		8		12	
07:15			32		16		48		19:15			11		7		18	
07:30			20		20		40		19:30			9		6		15	
07:45			21	103	23	76	44	179	19:45			7	31	6	27	13	58
08:00			24		19		43		20:00			1		4		5	
08:15			16		20		36		20:15			4		7		11	
08:30			22		15		37		20:30			2		7		9	
08:45			19	81	15	69	34	150	20:45			5	12	2	20	7	32
09:00			15		17		32		21:00			2		8		10	
09:15			12		6		18		21:15			4		3		7	
09:30			13		12		25		21:30			1		2		3	
09:45			20	60	12	47	32	107	21:45			2	9	5	18	7	27
10:00			11		17		28		22:00			0		1		1	
10:15			10		10		20		22:15			5		3		8	
10:30			22		17		39		22:30			2		2		4	
10:45			13	56	15	59	28	115	22:45			2	9	1	7	3	16
11:00			6		8		14		23:00			0		0		0	
11:15			9		19		28		23:15			0		2		2	
11:30			13		9		22		23:30			1		4		5	
11:45			16	44	5	41	21	85	23:45			1	2	1	7	2	9
TOTALS				474		439		913	TOTALS				605		593		1198
SPLIT %				51.9%		48.1%		43.2%	SPLIT %				50.5%		49.5%		56.8%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	1,079	1,032	2,111

AM Peak Hour			07:00	07:30	07:00	PM Peak Hour	15:00	15:15	15:30
AM Pk Volume			103	82	179	PM Pk Volume	133	110	243
Pk Hr Factor			0.805	0.891	0.932	Pk Hr Factor	0.723	0.887	0.821
7 - 9 Volume	0	0	184	145	329	4 - 6 Volume	0	0	185	174	359
7 - 9 Peak Hour			07:00	07:30	07:00	4 - 6 Peak Hour			16:00	16:00	16:00
7 - 9 Pk Volume	0	0	103	82	179	4 - 6 Pk Volume	0	0	104	110	214
Pk Hr Factor	0.000	0.000	0.805	0.891	0.932	Pk Hr Factor	0.000	0.000	0.684	0.724	0.877

Prepared by National Data & Surveying Services

CLASSIFICATION

Houghton Rd Bet. H St & SR-99 SB Ramp/Costajo Rd

Day: Tuesday
Date: 5/2/2023

City: Bakersfield
Project #: CA23_060025_002

Summary

Time	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	# 11	# 12	# 13	Total	
00:00 AM	0	1	4	0	0	0	0	1	0	0	1	0	0	7	
01:00	0	2	5	0	1	0	0	0	0	0	0	0	0	8	
02:00	0	6	1	0	0	0	0	0	1	0	0	0	0	8	
03:00	0	11	2	0	0	0	0	1	3	0	0	0	0	17	
04:00	0	15	11	0	3	0	0	1	3	0	0	0	0	33	
05:00	0	62	48	0	7	0	0	0	7	0	1	0	0	125	12%
06:00	0	77	66	1	6	2	0	2	3	0	1	0	0	158	9%
07:00	0	117	79	1	9	4	0	4	8	0	0	0	0	222	11%
08:00	0	115	76	3	11	6	0	3	8	0	1	0	0	223	13%
09:00	0	58	59	0	11	7	0	2	6	0	1	0	0	144	19%
10:00	1	74	46	1	9	6	0	2	8	0	0	0	0	147	17%
11:00	0	62	56	0	12	3	1	0	4	0	0	0	0	138	14%
12:00 PM	0	66	67	0	6	2	0	2	5	0	0	0	0	148	10%
13:00	0	69	55	0	8	7	0	3	5	0	1	0	0	148	16%
14:00	0	91	82	2	9	2	0	3	4	0	0	0	0	193	9%
15:00	0	156	110	2	17	3	0	3	4	0	0	0	0	295	9%
16:00	0	166	97	5	11	3	0	3	3	0	0	0	0	288	7%
17:00	0	109	69	0	8	5	0	0	3	0	0	0	0	194	8%
18:00	1	81	56	2	7	7	0	1	2	0	0	0	0	157	11%
19:00	1	50	28	0	5	5	0	1	1	0	0	0	0	91	
20:00	0	34	20	0	1	1	0	1	1	0	0	0	0	58	
21:00	0	21	16	0	2	2	0	1	1	0	0	0	0	43	
22:00	0	15	2	0	0	1	0	0	1	0	0	0	0	19	
23:00	0	6	2	0	0	0	0	0	0	0	0	0	0	8	
Totals	3	1464	1057	17	143	66	1	34	81		6			2872	
% of Totals	0%	51%	37%	1%	5%	2%	0%	1%	3%		0%			100%	

AM Volumes	1	600	453	6	69	28	1	16	51	0	5	0	0	1230
% AM	0%	21%	16%	0%	2%	1%	0%	1%	2%		0%			43%
AM Peak Hour	10:00	07:00	07:00	08:00	11:00	09:00	11:00	07:00	07:00					08:00
Volume	1	117	79	3	12	7	1	4	8		1			223
PM Volumes	2	864	604	11	74	38	0	18	30	0	1	0	0	1642
% PM	0%	30%	21%	0%	3%	1%		1%	1%		0%			57%
PM Peak Hour	18:00	16:00	15:00	16:00	15:00	13:00		13:00	12:00		13:00			15:00
Volume	1	166	110	5	17	7		3	5		1			295

Directional Peak Periods	AM 7-9			NOON 12-2			PM 4-6			Off Peak Volumes		
All Classes	Volume	↔	%	Volume	↔	%	Volume	↔	%	Volume	↔	%
	445		15%	296		10%	482		17%	1649		57%

Classification Definitions

1 Motorcycles	**4** Buses	**7** > =4-Axle Single Units	**10** >=6-Axle Single Trailers	**13** >=7-Axle Multi-Trailers
2 Passenger Cars	**5** 2-Axle, 6-Tire Single Units	**8** <=4-Axle Single Trailers	**11** <=5-Axle Multi-Trailers	
3 2-Axle, 4-Tire Single Units	**6** 3-Axle Single Units	**9** 5-Axle Single Trailers	**12** 6-Axle Multi-Trailers	

Prepared by NDS/ATD

VOLUME

Houghton Rd Bet. SR-99 SB Ramp/Costajo Rd & SR-99 NB Ramps

Day: Tuesday
Date: 5/2/2023

City: Bakersfield
Project #: CA23_060025_003

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	2,859	1,205	4,064

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
0:00			5		3		8		12:00			39		15		54	
0:15			5		0		5		12:15			45		16		61	
0:30			4		3		7		12:30			35		12		47	
0:45			2	16	1	7	3	23	12:45			49	168	14	57	63	225
1:00			3		1		4		13:00			33		10		43	
1:15			4		1		5		13:15			32		12		44	
1:30			0		1		1		13:30			39		14		53	
1:45			2	9	3	6	5	15	13:45			38	142	14	50	52	192
2:00			3		6		9		14:00			36		14		50	
2:15			1		4		5		14:15			56		37		93	
2:30			5		2		7		14:30			49		15		64	
2:45			3	12	0	12	3	24	14:45			45	186	20	86	65	272
3:00			5		2		7		15:00			64		22		86	
3:15			5		1		6		15:15			62		31		93	
3:30			8		5		13		15:30			80		23		103	
3:45			5	23	4	12	9	35	15:45			85	291	24	100	109	391
4:00			9		5		14		16:00			54		25		79	
4:15			9		10		19		16:15			61		31		92	
4:30			15		11		26		16:30			55		15		70	
4:45			11	44	14	40	25	84	16:45			42	212	21	92	63	304
5:00			11		19		30		17:00			62		20		82	
5:15			19		23		42		17:15			50		20		70	
5:30			42		33		75		17:30			37		12		49	
5:45			39	111	34	109	73	220	17:45			45	194	15	67	60	261
6:00			26		25		51		18:00			46		13		59	
6:15			31		24		55		18:15			52		20		72	
6:30			49		16		65		18:30			30		11		41	
6:45			50	156	12	77	62	233	18:45			25	153	11	55	36	208
7:00			60		15		75		19:00			19		9		28	
7:15			84		11		95		19:15			28		8		36	
7:30			70		17		87		19:30			29		8		37	
7:45			54	268	21	64	75	332	19:45			21	97	10	35	31	132
8:00			73		16		89		20:00			15		7		22	
8:15			52		19		71		20:15			13		8		21	
8:30			51		24		75		20:30			20		5		25	
8:45			45	221	21	80	66	301	20:45			30	78	2	22	32	100
9:00			36		14		50		21:00			11		8		19	
9:15			32		11		43		21:15			18		4		22	
9:30			25		13		38		21:30			9		3		12	
9:45			46	139	10	48	56	187	21:45			5	43	5	20	10	63
10:00			30		20		50		22:00			7		6		13	
10:15			30		18		48		22:15			8		8		16	
10:30			36		17		53		22:30			6		4		10	
10:45			27	123	14	69	41	192	22:45			8	29	1	19	9	48
11:00			18		20		38		23:00			3		2		5	
11:15			27		16		43		23:15			5		5		10	
11:30			46		15		61		23:30			3		5		8	
11:45			39	130	12	63	51	193	23:45			3	14	3	15	6	29
TOTALS				1252		587		**1839**	**TOTALS**				1607		618		**2225**
SPLIT %				68.1%		31.9%		**45.3%**	**SPLIT %**				72.2%		27.8%		**54.7%**

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	2,859	1,205	4,064

AM Peak Hour			7:15	5:30	**7:15**	**PM Peak Hour**	15:00	15:15	**15:00**
AM Pk Volume			281	116	**346**	**PM Pk Volume**	291	103	**391**
Pk Hr Factor			0.836	0.853	**0.911**	**Pk Hr Factor**	0.856	0.831	**0.897**
7 - 9 Volume	0	0	489	144	**633**	**4 - 6 Volume**	0	0	406	159	**565**
7 - 9 Peak Hour			7:15	7:45	**7:15**	**4 - 6 Peak Hour**			16:15	16:00	**16:15**
7 - 9 Pk Volume	0	0	281	80	**346**	**4 - 6 Pk Volume**	0	0	220	92	**307**
Pk Hr Factor	0.000	0.000	0.836	0.833	**0.911**	**Pk Hr Factor**	0.000	0.000	0.887	0.742	**0.834**

Prepared by NDS/ATD

VOLUME

Houghton Rd Bet. Chevalier Rd & S Union Ave

Day: Tuesday
Date: 5/2/2023

City: Bakersfield
Project #: CA23_060025_004

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	1,952	1,939	3,891

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			4		3		7		12:00			31		22		53	
00:15			5		1		6		12:15			28		19		47	
00:30			2		3		5		12:30			26		25		51	
00:45			3	14	1	8	4	22	12:45			33	118	28	94	61	212
01:00			2		2		4		13:00			23		23		46	
01:15			1		1		2		13:15			20		18		38	
01:30			0		2		2		13:30			30		26		56	
01:45			1	4	2	7	3	11	13:45			19	92	21	88	40	180
02:00			1		6		7		14:00			27		24		51	
02:15			0		6		6		14:15			34		51		85	
02:30			3		1		4		14:30			32		30		62	
02:45			3	7	2	15	5	22	14:45			33	126	33	138	66	264
03:00			4		6		10		15:00			50		41		91	
03:15			4		3		7		15:15			39		52		91	
03:30			2		8		10		15:30			59		52		111	
03:45			9	19	6	23	15	42	15:45			54	202	39	184	93	386
04:00			4		4		8		16:00			42		50		92	
04:15			5		12		17		16:15			39		48		87	
04:30			7		16		23		16:30			41		34		75	
04:45			10	26	15	47	25	73	16:45			36	158	31	163	67	321
05:00			5		23		28		17:00			41		47		88	
05:15			14		34		48		17:15			34		37		71	
05:30			24		45		69		17:30			31		25		56	
05:45			27	70	42	144	69	214	17:45			36	142	33	142	69	284
06:00			17		23		40		18:00			38		18		56	
06:15			22		36		58		18:15			28		31		59	
06:30			39		26		65		18:30			13		20		33	
06:45			34	112	24	109	58	221	18:45			19	98	17	86	36	184
07:00			41		25		66		19:00			13		15		28	
07:15			65		23		88		19:15			20		15		35	
07:30			54		41		95		19:30			16		15		31	
07:45			37	197	38	127	75	324	19:45			18	67	15	60	33	127
08:00			35		21		56		20:00			14		9		23	
08:15			33		28		61		20:15			10		12		22	
08:30			31		31		62		20:30			10		9		19	
08:45			25	124	32	112	57	236	20:45			19	53	6	36	25	89
09:00			20		31		51		21:00			11		14		25	
09:15			21		14		35		21:15			9		8		17	
09:30			14		21		35		21:30			5		7		12	
09:45			30	85	23	89	53	174	21:45			4	29	6	35	10	64
10:00			22		28		50		22:00			5		4		9	
10:15			15		23		38		22:15			6		5		11	
10:30			29		29		58		22:30			5		3		8	
10:45			13	79	23	103	36	182	22:45			5	21	1	13	6	34
11:00			17		30		47		23:00			2		3		5	
11:15			19		32		51		23:15			5		4		9	
11:30			29		23		52		23:30			3		4		7	
11:45			29	94	16	101	45	195	23:45			5	15	4	15	9	30
TOTALS				831		885		1716	TOTALS				1121		1054		2175
SPLIT %				48.4%		51.6%		44.1%	SPLIT %				51.5%		48.5%		55.9%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	1,952	1,939	3,891

AM Peak Hour			07:00	05:30	07:00	PM Peak Hour	15:00	15:15	15:15
AM Pk Volume			197	146	324	PM Pk Volume	202	193	387
Pk Hr Factor			0.758	0.811	0.853	Pk Hr Factor	0.856	0.928	0.872
7 - 9 Volume	0	0	321	239	560	4 - 6 Volume	0	0	300	305	605
7 - 9 Peak Hour			07:00	07:30	07:00	4 - 6 Peak Hour			16:00	16:00	16:00
7 - 9 Pk Volume	0	0	197	128	324	4 - 6 Pk Volume	0	0	158	163	321
Pk Hr Factor	0.000	0.000	0.758	0.780	0.853	Pk Hr Factor	0.000	0.000	0.940	0.815	0.872

Prepared by NDS/ATD

VOLUME

Wible Rd S/O Houghton Rd

Day: Tuesday
Date: 5/2/2023

City: Bakersfield
Project #: CA23_060025_005

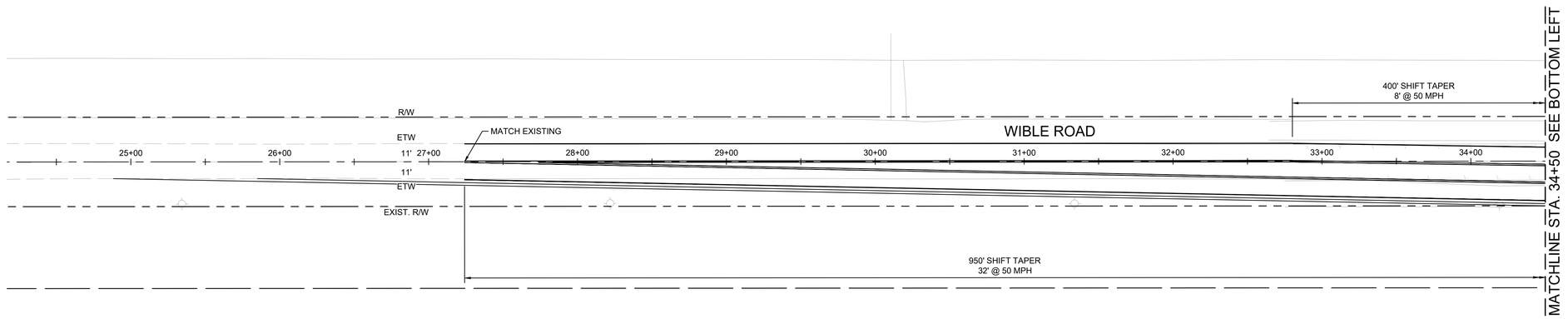
DAILY TOTALS	NB	SB	EB	WB	Total
	485	374	0	0	859

AM Period	NB		SB		EB		WB		TOTAL		PM Period	NB		SB		EB		WB		TOTAL	
00:00	0		0						0		12:00	8		5						13	
00:15	3		0						3		12:15	11		6						17	
00:30	0		0						0		12:30	11		7						18	
00:45	0	3	0						0	3	12:45	9	39	4	22					13	61
01:00	0		1						1		13:00	4		4						8	
01:15	1		1						2		13:15	4		5						9	
01:30	0		0						0		13:30	12		7						19	
01:45	0	1	0	2					0	3	13:45	6	26	7	23					13	49
02:00	0		0						0		14:00	4		6						10	
02:15	1		1						2		14:15	15		8						23	
02:30	0		0						0		14:30	10		7						17	
02:45	0	1	0	1					0	2	14:45	7	36	3	24					10	60
03:00	1		0						1		15:00	17		5						22	
03:15	1		1						2		15:15	19		3						22	
03:30	0		2						2		15:30	19		2						21	
03:45	2	4	2	5					4	9	15:45	25	80	6	16					31	96
04:00	1		2						3		16:00	8		8						16	
04:15	0		3						3		16:15	8		7						15	
04:30	0		1						1		16:30	8		9						17	
04:45	2	3	2	8					4	11	16:45	14	38	7	31					21	69
05:00	0		5						5		17:00	19		4						23	
05:15	2		5						7		17:15	12		4						16	
05:30	2		6						8		17:30	10		3						13	
05:45	1	5	9	25					10	30	17:45	5	46	6	17					11	63
06:00	4		6						10		18:00	11		10						21	
06:15	2		2						4		18:15	9		5						14	
06:30	7		4						11		18:30	5		7						12	
06:45	5	18	2	14					7	32	18:45	2	27	7	29					9	56
07:00	4		6						10		19:00	3		3						6	
07:15	6		0						6		19:15	2		7						9	
07:30	6		9						15		19:30	1		1						2	
07:45	9	25	15	30					24	55	19:45	4	10	3	14					7	24
08:00	9		11						20		20:00	4		3						7	
08:15	11		6						17		20:15	1		1						2	
08:30	7		4						11		20:30	1		2						3	
08:45	4	31	7	28					11	59	20:45	3	9	3	9					6	18
09:00	7		3						10		21:00	2		2						4	
09:15	3		5						8		21:15	0		1						1	
09:30	6		4						10		21:30	1		0						1	
09:45	8	24	3	15					11	39	21:45	2	5	1	4					3	9
10:00	5		5						10		22:00	0		1						1	
10:15	6		7						13		22:15	2		1						3	
10:30	2		5						7		22:30	0		0						0	
10:45	8	21	7	24					15	45	22:45	0	2	0	2					0	4
11:00	5		4						9		23:00	0		0						0	
11:15	8		8						16		23:15	2		1						3	
11:30	8		6						14		23:30	0		0						0	
11:45	7	28	11	29					18	57	23:45	1	3	1	2					2	5
TOTALS		164		181						345	TOTALS		321		193						514
SPLIT %		47.5%		52.5%						40.2%	SPLIT %		62.5%		37.5%						59.8%

DAILY TOTALS	NB	SB	EB	WB	Total
	485	374	0	0	859

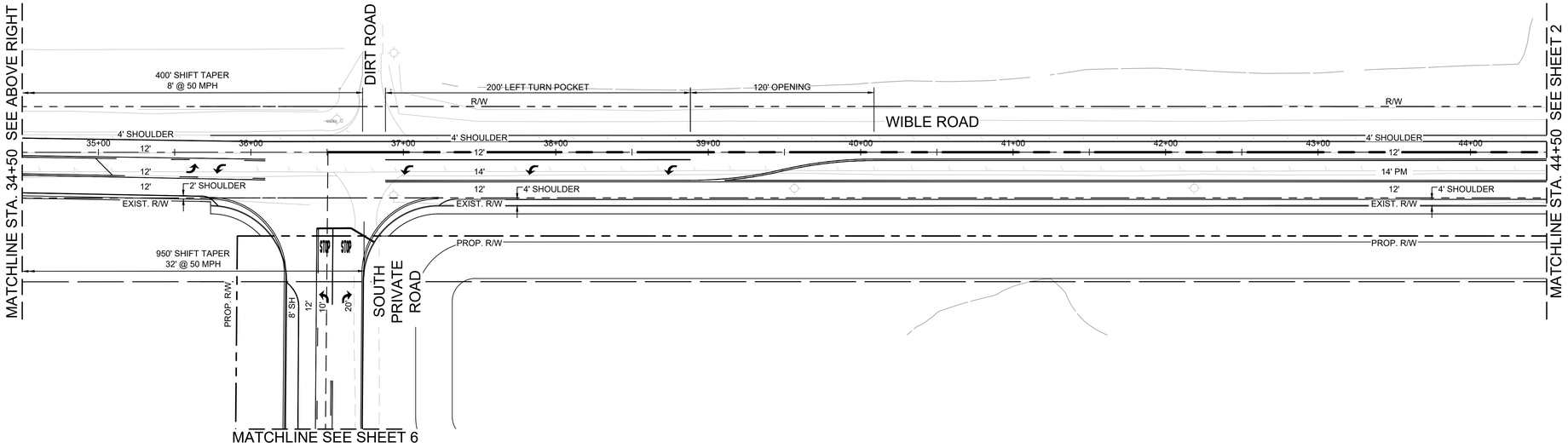
AM Peak Hour	11:45	07:30			07:30	PM Peak Hour	15:00	16:00			15:00
AM Pk Volume	37	41			76	PM Pk Volume	80	31			96
Pk Hr Factor	0.841	0.683			0.792	Pk Hr Factor	0.800	0.861			0.774
7 - 9 Volume	56	58	0	0	114	4 - 6 Volume	84	48	0	0	132
7 - 9 Peak Hour	07:45	07:30			07:30	4 - 6 Peak Hour	16:45	16:00			16:30
7 - 9 Pk Volume	36	41	0	0	76	4 - 6 Pk Volume	55	31	0	0	77
Pk Hr Factor	0.818	0.683	0.000	0.000	0.792	Pk Hr Factor	0.724	0.861	0.000	0.000	0.837

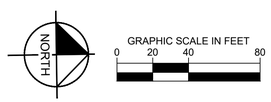
B – Project Frontage Improvements



LEGEND

XX'	LANE WIDTH
TS	TRAFFIC SIGNAL
	PROPOSED TYPE IV ARROW PAVEMENT MARKING PER 2018 CALTRANS STANDARD PLAN A24A
	PROPOSED TYPE VI ARROW PAVEMENT MARKING PER 2018 CALTRANS STANDARD PLAN A24A





DEVELOPER:

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PHONE: 310-536-7900

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PREPARED BY:

Kimley»Horn

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KERN COUNTY

STRIPING CONCEPT PLAN

PROJECT WARE MALCOMB

DESIGNED: JS
DRAWN: MZ
CHECKED: JS
SCALE: AS SHOWN

1

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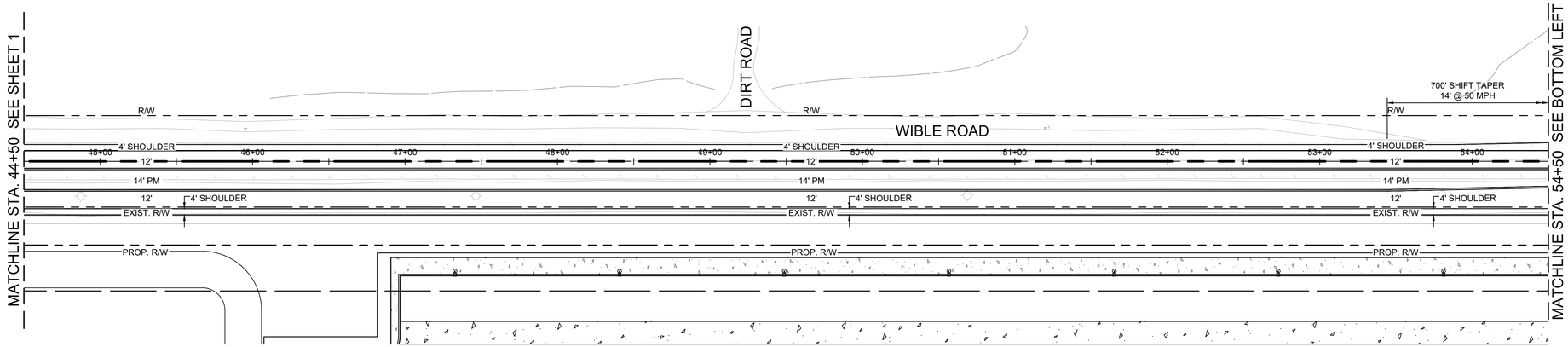
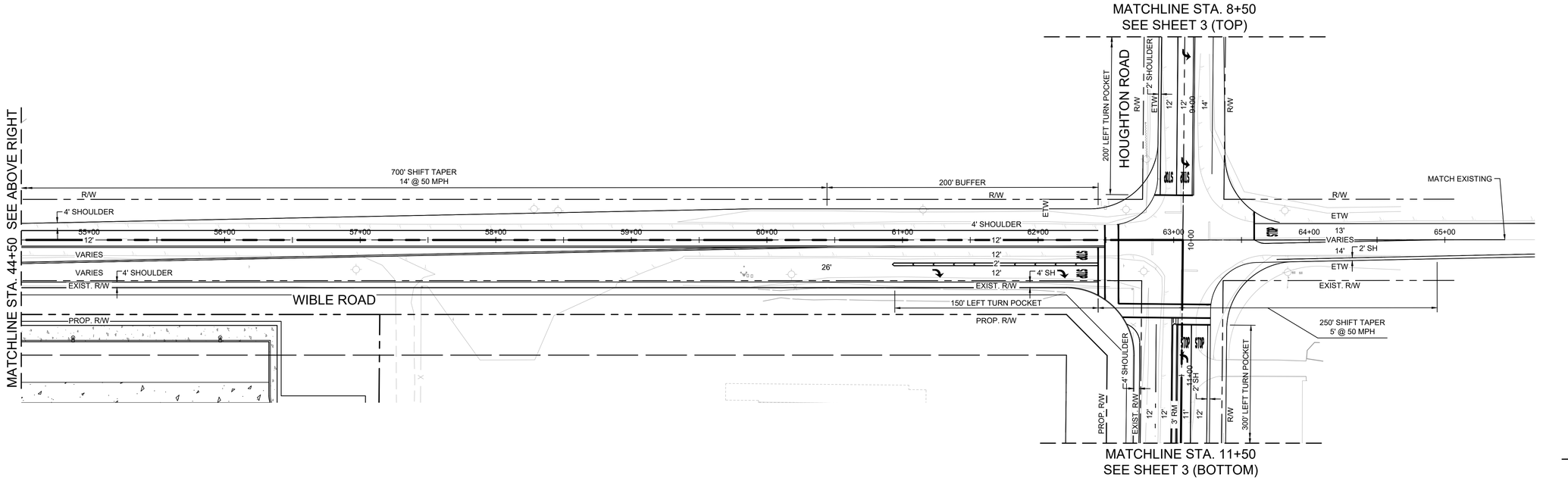


LEGEND

XX'	LANE WIDTH
TS	TRAFFIC SIGNAL
	PROPOSED TYPE IV ARROW PAVEMENT MARKING PER 2018 CALTRANS STANDARD PLAN A24A
	PROPOSED TYPE VI ARROW PAVEMENT MARKING PER 2018 CALTRANS STANDARD PLAN A24A



NORTH

GRAPHIC SCALE IN FEET
0 20 40 80

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SCALE:
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2

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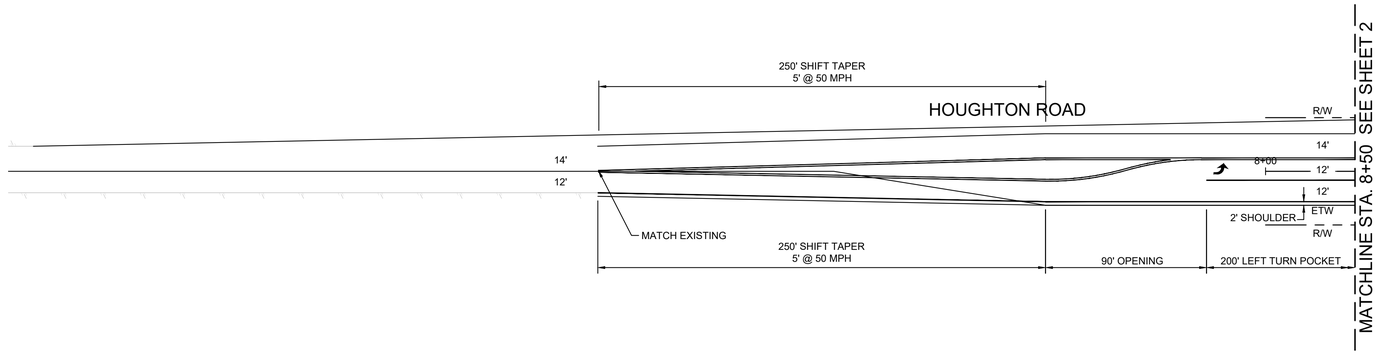
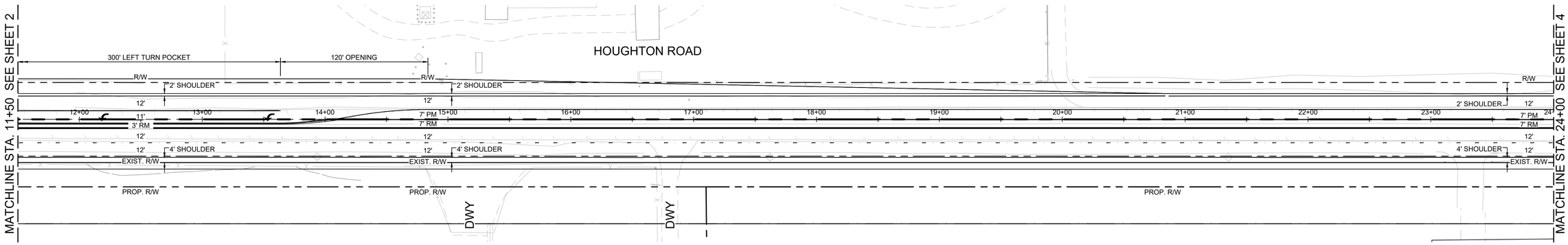


LEGEND

XX'	LANE WIDTH
TS	TRAFFIC SIGNAL
	PROPOSED TYPE IV ARROW PAVEMENT MARKING PER 2018 CALTRANS STANDARD PLAN A24A
	PROPOSED TYPE VI ARROW PAVEMENT MARKING PER 2018 CALTRANS STANDARD PLAN A24A



NORTH

GRAPHIC SCALE IN FEET
0 20 40 80

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3

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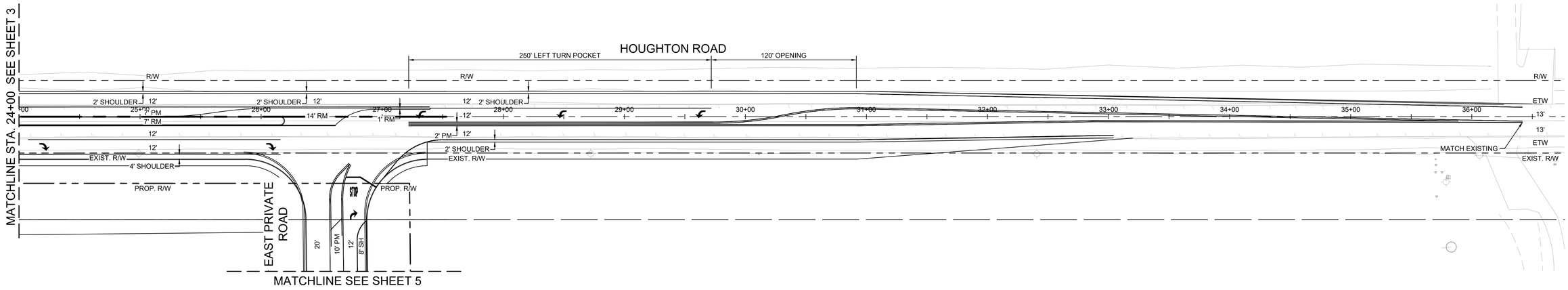

LEGEND

XX'	LANE WIDTH
TS	TRAFFIC SIGNAL
	PROPOSED TYPE IV ARROW PAVEMENT MARKING PER 2018 CALTRANS STANDARD PLAN A24A
	PROPOSED TYPE VI ARROW PAVEMENT MARKING PER 2018 CALTRANS STANDARD PLAN A24A

NORTH

GRAPHIC SCALE IN FEET
0 20 40 80

DEVELOPER:

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4

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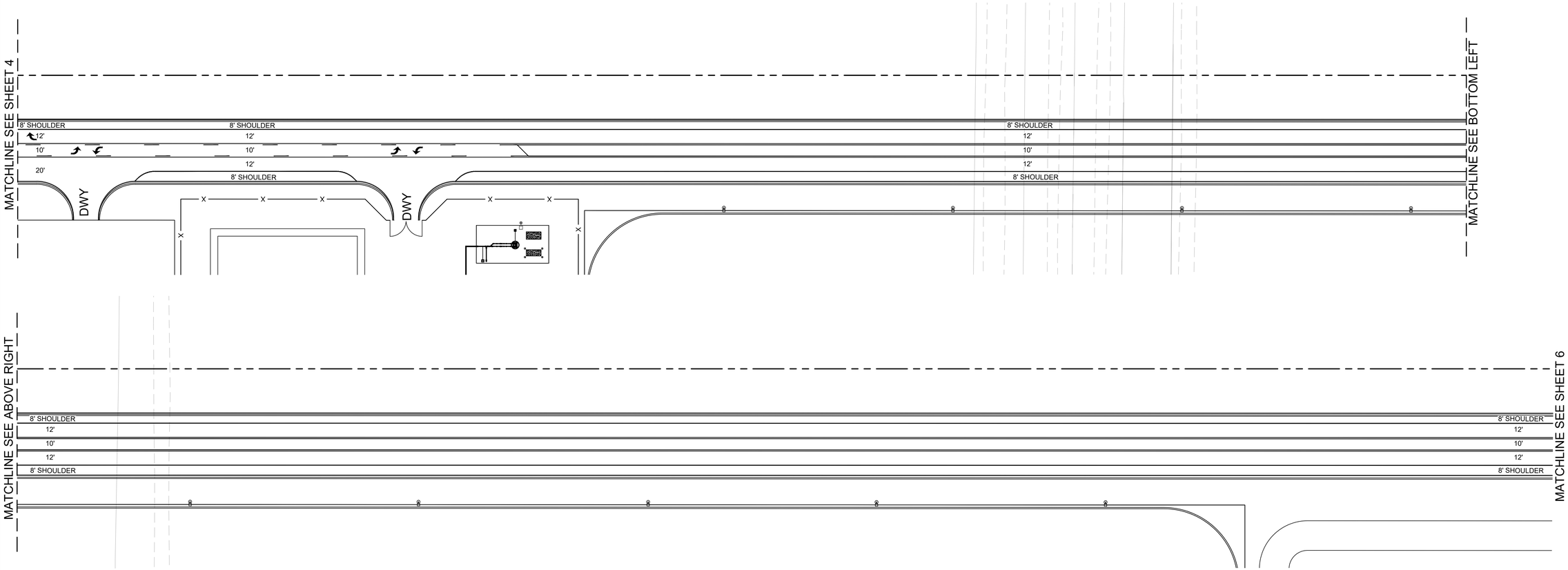

LEGEND

XX'	LANE WIDTH
TS	TRAFFIC SIGNAL
	PROPOSED TYPE IV ARROW PAVEMENT MARKING PER 2018 CALTRANS STANDARD PLAN A24A
	PROPOSED TYPE VI ARROW PAVEMENT MARKING PER 2018 CALTRANS STANDARD PLAN A24A

NORTH

GRAPHIC SCALE IN FEET
0 ## ## ##

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KERN COUNTY
STRIPING CONCEPT PLAN

PROJECT WARE MALCOMB

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5

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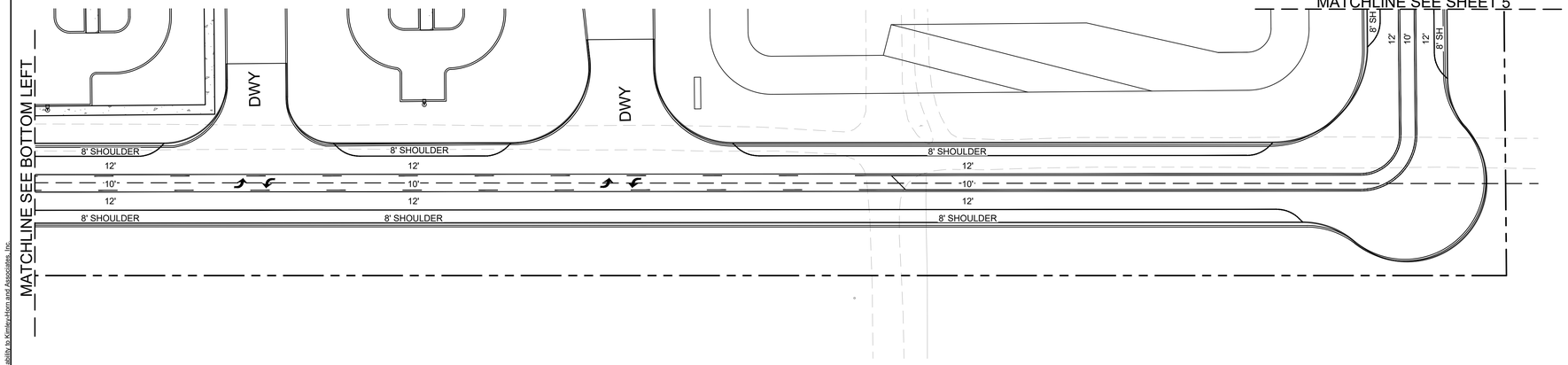

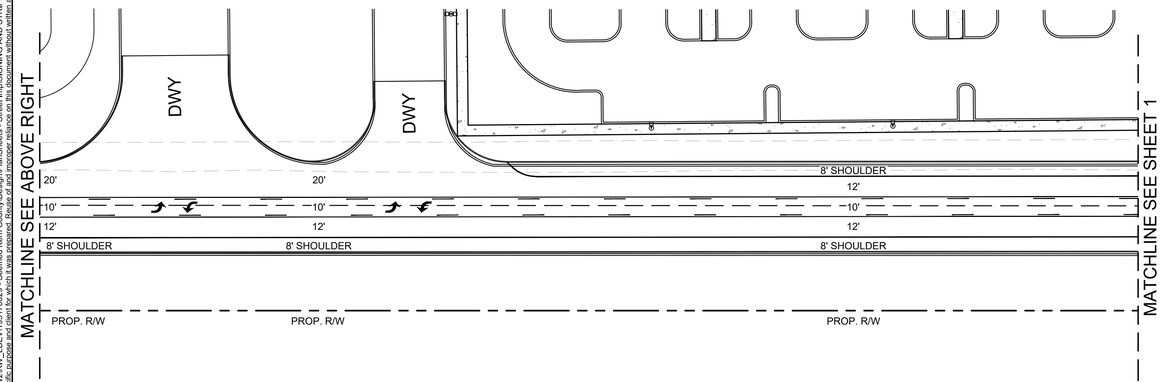

LEGEND

XX'	LANE WIDTH
(TS)	TRAFFIC SIGNAL
	PROPOSED TYPE IV ARROW PAVEMENT MARKING PER 2018 CALTRANS STANDARD PLAN A24A
	PROPOSED TYPE VI ARROW PAVEMENT MARKING PER 2018 CALTRANS STANDARD PLAN A24A

NORTH

GRAPHIC SCALE IN FEET
0 ## ## ##

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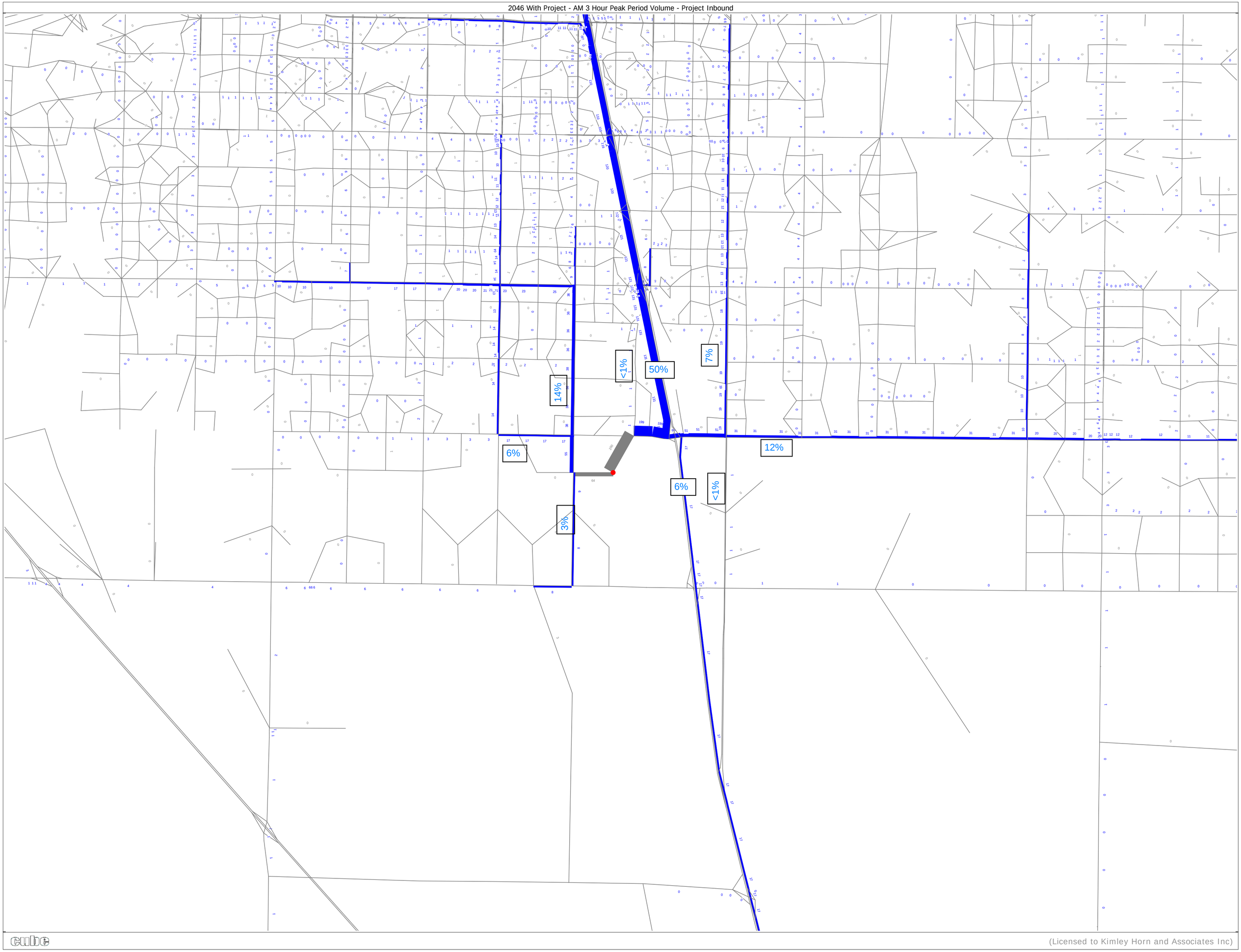
C – Kern COG Model Plots and Calculations

2046 With Project - AM 3 Hour Peak Period Volume - Project Inbound



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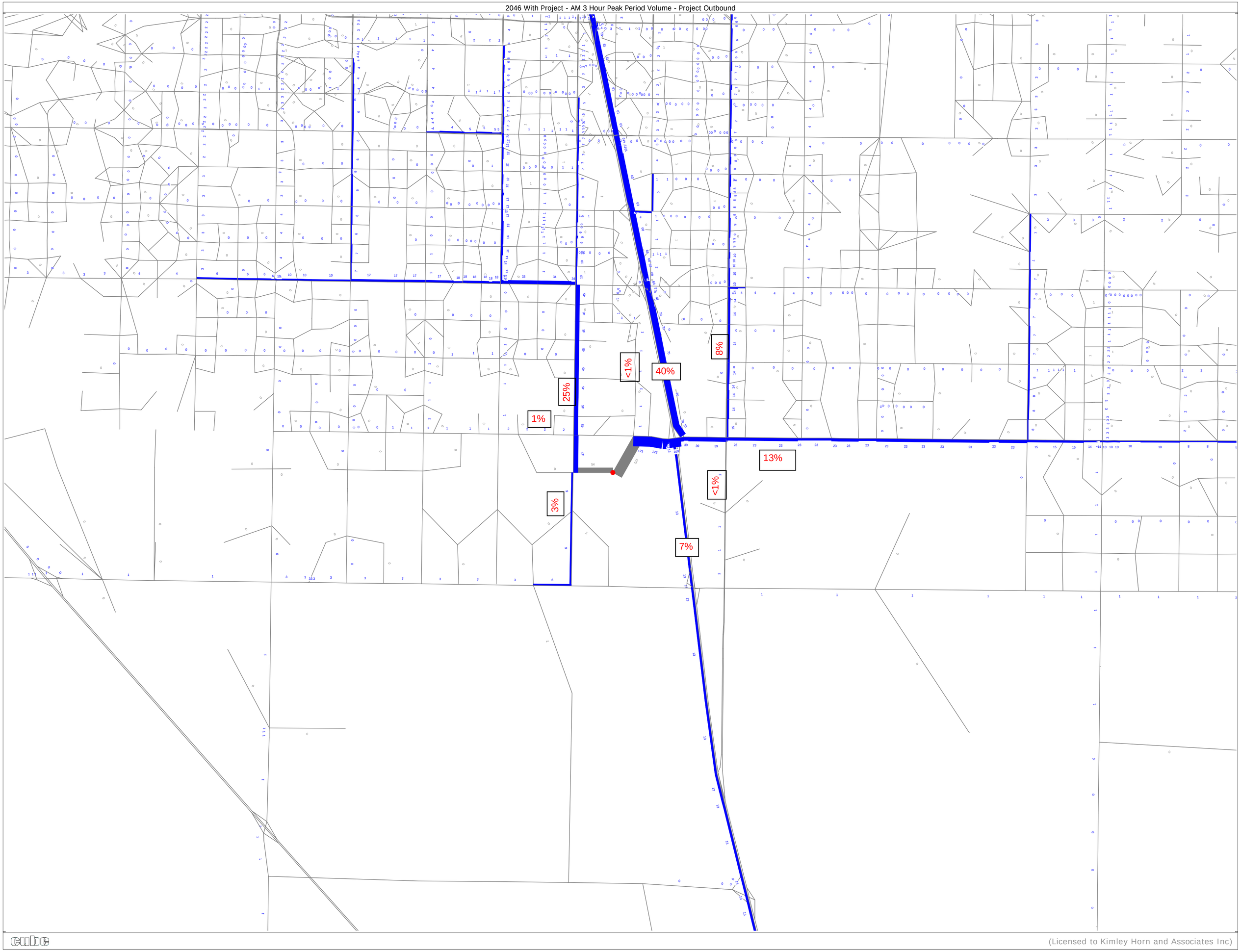
2046 With Project - AM 3 Hour Peak Period Volume - Project Outbound



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D – Level of Service Calculation Sheets

Intersection	
Intersection Delay, s/veh	8.2
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	88	12	4	67	4	11	15	3	11	19	11
Future Vol, veh/h	7	88	12	4	67	4	11	15	3	11	19	11
Peak Hour Factor	0.74	0.74	0.74	0.72	0.72	0.72	0.81	0.81	0.81	0.68	0.68	0.68
Heavy Vehicles, %	12	12	12	12	12	12	12	12	12	12	12	12
Mvmt Flow	9	119	16	6	93	6	14	19	4	16	28	16
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.4	8.1	8	8
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	38%	7%	5%	27%
Vol Thru, %	52%	82%	89%	46%
Vol Right, %	10%	11%	5%	27%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	29	107	75	41
LT Vol	11	7	4	11
Through Vol	15	88	67	19
RT Vol	3	12	4	11
Lane Flow Rate	36	145	104	60
Geometry Grp	1	1	1	1
Degree of Util (X)	0.047	0.177	0.129	0.077
Departure Headway (Hd)	4.764	4.406	4.472	4.613
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	754	820	805	779
Service Time	2.779	2.406	2.481	2.628
HCM Lane V/C Ratio	0.048	0.177	0.129	0.077
HCM Control Delay	8	8.4	8.1	8
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.6	0.4	0.2

Intersection	
Intersection Delay, s/veh	8.4
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	101	1	31	78	9	2	14	27	9	9	0
Future Vol, veh/h	1	101	1	31	78	9	2	14	27	9	9	0
Peak Hour Factor	0.72	0.72	0.72	0.84	0.84	0.84	0.43	0.43	0.43	0.64	0.64	0.64
Heavy Vehicles, %	12	12	12	12	12	12	2	2	2	2	2	2
Mvmt Flow	1	140	1	37	93	11	5	33	63	14	14	0
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.6	8.6	7.9	8
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	5%	1%	26%	50%
Vol Thru, %	33%	98%	66%	50%
Vol Right, %	63%	1%	8%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	43	103	118	18
LT Vol	2	1	31	9
Through Vol	14	101	78	9
RT Vol	27	1	9	0
Lane Flow Rate	100	143	140	28
Geometry Grp	1	1	1	1
Degree of Util (X)	0.118	0.181	0.178	0.038
Departure Headway (Hd)	4.264	4.546	4.56	4.813
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	842	791	788	745
Service Time	2.285	2.565	2.578	2.837
HCM Lane V/C Ratio	0.119	0.181	0.178	0.038
HCM Control Delay	7.9	8.6	8.6	8
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.4	0.7	0.6	0.1

Intersection	
Int Delay, s/veh	6.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	129	3	4	58	6	2	0	29	130	18	58
Future Vol, veh/h	5	129	3	4	58	6	2	0	29	130	18	58
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	40	-	-	40	-	-	40	-	-	40
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	71	71	71	65	65	65	90	90	90
Heavy Vehicles, %	12	12	12	12	12	12	12	12	12	12	12	12
Mvmt Flow	6	154	4	6	82	8	3	0	45	144	20	64

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	90	0	0	158	0	0	306	268	154	285	264	82
Stage 1	-	-	-	-	-	-	166	166	-	94	94	-
Stage 2	-	-	-	-	-	-	140	102	-	191	170	-
Critical Hdwy	4.22	-	-	4.22	-	-	7.22	6.62	6.32	7.22	6.62	6.32
Critical Hdwy Stg 1	-	-	-	-	-	-	6.22	5.62	-	6.22	5.62	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.22	5.62	-	6.22	5.62	-
Follow-up Hdwy	2.308	-	-	2.308	-	-	3.608	4.108	3.408	3.608	4.108	3.408
Pot Cap-1 Maneuver	1445	-	-	1363	-	-	627	621	866	648	625	951
Stage 1	-	-	-	-	-	-	813	742	-	889	798	-
Stage 2	-	-	-	-	-	-	840	792	-	788	739	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1445	-	-	1363	-	-	566	615	866	610	619	951
Mov Cap-2 Maneuver	-	-	-	-	-	-	566	615	-	610	619	-
Stage 1	-	-	-	-	-	-	809	738	-	885	794	-
Stage 2	-	-	-	-	-	-	760	788	-	744	735	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.5	9.5	11.9
HCM LOS			A	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	566	866	1445	-	-	1363	-	-	611	951
HCM Lane V/C Ratio	0.005	0.052	0.004	-	-	0.004	-	-	0.269	0.068
HCM Control Delay (s)	11.4	9.4	7.5	0	-	7.7	0	-	13	9.1
HCM Lane LOS	B	A	A	A	-	A	A	-	B	A
HCM 95th %tile Q(veh)	0	0.2	0	-	-	0	-	-	1.1	0.2

Intersection	
Int Delay, s/veh	1.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	201	88	67	66	1	6
Future Vol, veh/h	201	88	67	66	1	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	40	-	-	0	40
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	81	81	72	72	58	58
Heavy Vehicles, %	12	12	12	12	12	12
Mvmt Flow	248	109	93	92	2	10

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	357	0	526	248
Stage 1	-	-	-	-	248	-
Stage 2	-	-	-	-	278	-
Critical Hdwy	-	-	4.22	-	6.52	6.32
Critical Hdwy Stg 1	-	-	-	-	5.52	-
Critical Hdwy Stg 2	-	-	-	-	5.52	-
Follow-up Hdwy	-	-	2.308	-	3.608	3.408
Pot Cap-1 Maneuver	-	-	1148	-	495	767
Stage 1	-	-	-	-	770	-
Stage 2	-	-	-	-	746	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1148	-	453	767
Mov Cap-2 Maneuver	-	-	-	-	453	-
Stage 1	-	-	-	-	770	-
Stage 2	-	-	-	-	683	-

Approach	EB	WB	NB
HCM Control Delay, s	0	4.2	10.3
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	453	767	-	-	1148	-
HCM Lane V/C Ratio	0.004	0.013	-	-	0.081	-
HCM Control Delay (s)	13	9.8	-	-	8.4	0
HCM Lane LOS	B	A	-	-	A	A
HCM 95th %tile Q(veh)	0	0	-	-	0.3	-

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	3	195	12	3	126	0	8	0	5	0	0	0
Future Vol, veh/h	3	195	12	3	126	0	8	0	5	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	73	73	77	77	92	54	92	54	92	92	92
Heavy Vehicles, %	12	12	12	12	12	12	12	12	12	12	12	12
Mvmt Flow	3	267	16	4	164	0	15	0	9	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	164	0	0	283	0	0	453	453	275	458	461	164
Stage 1	-	-	-	-	-	-	281	281	-	172	172	-
Stage 2	-	-	-	-	-	-	172	172	-	286	289	-
Critical Hdwy	4.22	-	-	4.22	-	-	7.22	6.62	6.32	7.22	6.62	6.32
Critical Hdwy Stg 1	-	-	-	-	-	-	6.22	5.62	-	6.22	5.62	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.22	5.62	-	6.22	5.62	-
Follow-up Hdwy	2.308	-	-	2.308	-	-	3.608	4.108	3.408	3.608	4.108	3.408
Pot Cap-1 Maneuver	1356	-	-	1224	-	-	500	488	740	497	483	855
Stage 1	-	-	-	-	-	-	705	661	-	807	738	-
Stage 2	-	-	-	-	-	-	807	738	-	700	655	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1356	-	-	1224	-	-	498	485	740	488	480	855
Mov Cap-2 Maneuver	-	-	-	-	-	-	498	485	-	488	480	-
Stage 1	-	-	-	-	-	-	703	659	-	805	735	-
Stage 2	-	-	-	-	-	-	804	735	-	689	653	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.2	11.6	0
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	570	1356	-	-	1224	-	-	-
HCM Lane V/C Ratio	0.042	0.002	-	-	0.003	-	-	-
HCM Control Delay (s)	11.6	7.7	0	-	8	0	-	0
HCM Lane LOS	B	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	-

Intersection	
Intersection Delay, s/veh	11.6
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	18	166	14	17	91	24	15	56	20	29	91	26
Future Vol, veh/h	18	166	14	17	91	24	15	56	20	29	91	26
Peak Hour Factor	0.75	0.75	0.75	0.79	0.79	0.79	0.78	0.78	0.78	0.81	0.81	0.81
Heavy Vehicles, %	12	12	12	12	12	12	12	12	12	12	12	12
Mvmt Flow	24	221	19	22	115	30	19	72	26	36	112	32
Number of Lanes	0	1	0	0	1	1	0	2	0	1	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	3	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	2	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	3	2	1
HCM Control Delay	13.8	11	10.1	10.1
HCM LOS	B	B	B	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	35%	0%	9%	15%	0%	100%	0%	0%
Vol Thru, %	65%	58%	84%	82%	0%	0%	100%	54%
Vol Right, %	0%	42%	7%	2%	100%	0%	0%	46%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	43	48	198	110	22	29	61	56
LT Vol	15	0	18	17	0	29	0	0
Through Vol	28	28	166	91	0	0	61	30
RT Vol	0	20	14	2	22	0	0	26
Lane Flow Rate	55	62	264	140	27	36	75	70
Geometry Grp	8	8	8	8	8	8	8	8
Degree of Util (X)	0.105	0.109	0.45	0.251	0.043	0.07	0.136	0.12
Departure Headway (Hd)	6.867	6.392	6.141	6.467	5.698	7.023	6.516	6.188
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	521	559	586	555	627	510	550	579
Service Time	4.62	4.145	3.881	4.213	3.445	4.77	4.263	3.935
HCM Lane V/C Ratio	0.106	0.111	0.451	0.252	0.043	0.071	0.136	0.121
HCM Control Delay	10.4	9.9	13.8	11.4	8.7	10.3	10.3	9.8
HCM Lane LOS	B	A	B	B	A	B	B	A
HCM 95th-tile Q	0.3	0.4	2.3	1	0.1	0.2	0.5	0.4

Intersection	
Intersection Delay, s/veh	8.5
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	14	96	0	1	81	17	4	64	7	12	13	19
Future Vol, veh/h	14	96	0	1	81	17	4	64	7	12	13	19
Peak Hour Factor	0.86	0.86	0.86	0.67	0.67	0.67	0.78	0.78	0.78	0.92	0.92	0.92
Heavy Vehicles, %	12	12	12	12	12	12	12	12	12	12	12	12
Mvmt Flow	16	112	0	1	121	25	5	82	9	13	14	21
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.6	8.5	8.5	8
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	5%	13%	1%	27%
Vol Thru, %	85%	87%	82%	30%
Vol Right, %	9%	0%	17%	43%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	75	110	99	44
LT Vol	4	14	1	12
Through Vol	64	96	81	13
RT Vol	7	0	17	19
Lane Flow Rate	96	128	148	48
Geometry Grp	1	1	1	1
Degree of Util (X)	0.127	0.165	0.185	0.062
Departure Headway (Hd)	4.764	4.645	4.5	4.667
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	753	774	798	768
Service Time	2.788	2.666	2.521	2.693
HCM Lane V/C Ratio	0.127	0.165	0.185	0.063
HCM Control Delay	8.5	8.6	8.5	8
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.4	0.6	0.7	0.2

Intersection	
Intersection Delay, s/veh	8.3
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	103	3	22	108	25	2	7	21	9	4	1
Future Vol, veh/h	2	103	3	22	108	25	2	7	21	9	4	1
Peak Hour Factor	0.75	0.75	0.75	0.86	0.86	0.86	0.75	0.75	0.75	0.70	0.70	0.70
Heavy Vehicles, %	12	12	12	12	12	12	2	2	2	2	2	2
Mvmt Flow	3	137	4	26	126	29	3	9	28	13	6	1
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.3	8.5	7.5	7.9
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	7%	2%	14%	64%
Vol Thru, %	23%	95%	70%	29%
Vol Right, %	70%	3%	16%	7%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	30	108	155	14
LT Vol	2	2	22	9
Through Vol	7	103	108	4
RT Vol	21	3	25	1
Lane Flow Rate	40	144	180	20
Geometry Grp	1	1	1	1
Degree of Util (X)	0.048	0.173	0.213	0.027
Departure Headway (Hd)	4.283	4.334	4.251	4.798
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	841	816	834	750
Service Time	2.284	2.422	2.332	2.801
HCM Lane V/C Ratio	0.048	0.176	0.216	0.027
HCM Control Delay	7.5	8.3	8.5	7.9
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.2	0.6	0.8	0.1

Intersection	
Int Delay, s/veh	5.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↱		↑	↱		↑	↱		↑	↱
Traffic Vol, veh/h	6	154	4	4	85	14	14	0	40	86	12	55
Future Vol, veh/h	6	154	4	4	85	14	14	0	40	86	12	55
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	40	-	-	40	-	-	40	-	-	40
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	83	83	83	61	61	61	83	83	83
Heavy Vehicles, %	12	12	12	12	12	12	12	12	12	12	12	12
Mvmt Flow	7	173	4	5	102	17	23	0	66	104	14	66

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	119	0	0	177	0	0	348	316	173	334	303	102
Stage 1	-	-	-	-	-	-	187	187	-	112	112	-
Stage 2	-	-	-	-	-	-	161	129	-	222	191	-
Critical Hdwy	4.22	-	-	4.22	-	-	7.22	6.62	6.32	7.22	6.62	6.32
Critical Hdwy Stg 1	-	-	-	-	-	-	6.22	5.62	-	6.22	5.62	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.22	5.62	-	6.22	5.62	-
Follow-up Hdwy	2.308	-	-	2.308	-	-	3.608	4.108	3.408	3.608	4.108	3.408
Pot Cap-1 Maneuver	1409	-	-	1341	-	-	588	584	845	601	594	926
Stage 1	-	-	-	-	-	-	792	727	-	869	784	-
Stage 2	-	-	-	-	-	-	818	771	-	758	724	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1409	-	-	1341	-	-	532	578	845	550	588	926
Mov Cap-2 Maneuver	-	-	-	-	-	-	532	578	-	550	588	-
Stage 1	-	-	-	-	-	-	787	723	-	864	781	-
Stage 2	-	-	-	-	-	-	742	768	-	695	720	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.3	10.2	11.8
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	532	845	1409	-	-	1341	-	-	554	926
HCM Lane V/C Ratio	0.043	0.078	0.005	-	-	0.004	-	-	0.213	0.072
HCM Control Delay (s)	12.1	9.6	7.6	0	-	7.7	0	-	13.3	9.2
HCM Lane LOS	B	A	A	A	-	A	A	-	B	A
HCM 95th %tile Q(veh)	0.1	0.3	0	-	-	0	-	-	0.8	0.2

Intersection	
Int Delay, s/veh	2.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	194	97	107	91	10	20
Future Vol, veh/h	194	97	107	91	10	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	40	-	-	0	40
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	85	85	75	75
Heavy Vehicles, %	12	12	12	12	12	12
Mvmt Flow	223	111	126	107	13	27

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	334	0	582	223
Stage 1	-	-	-	-	223	-
Stage 2	-	-	-	-	359	-
Critical Hdwy	-	-	4.22	-	6.52	6.32
Critical Hdwy Stg 1	-	-	-	-	5.52	-
Critical Hdwy Stg 2	-	-	-	-	5.52	-
Follow-up Hdwy	-	-	2.308	-	3.608	3.408
Pot Cap-1 Maneuver	-	-	1171	-	459	792
Stage 1	-	-	-	-	791	-
Stage 2	-	-	-	-	685	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1171	-	407	792
Mov Cap-2 Maneuver	-	-	-	-	407	-
Stage 1	-	-	-	-	791	-
Stage 2	-	-	-	-	607	-

Approach	EB	WB	NB
HCM Control Delay, s	0	4.6	11.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	407	792	-	-	1171	-
HCM Lane V/C Ratio	0.033	0.034	-	-	0.107	-
HCM Control Delay (s)	14.1	9.7	-	-	8.4	0
HCM Lane LOS	B	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0.4	-

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	0	155	11	6	157	0	6	0	5	0	0	0
Future Vol, veh/h	0	155	11	6	157	0	6	0	5	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	82	82	92	69	92	69	92	92	92
Heavy Vehicles, %	12	12	12	12	12	12	12	12	12	12	12	12
Mvmt Flow	0	168	12	7	191	0	9	0	7	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	191	0	0	180	0	0	379	379	174	383	385	191
Stage 1	-	-	-	-	-	-	174	174	-	205	205	-
Stage 2	-	-	-	-	-	-	205	205	-	178	180	-
Critical Hdwy	4.22	-	-	4.22	-	-	7.22	6.62	6.32	7.22	6.62	6.32
Critical Hdwy Stg 1	-	-	-	-	-	-	6.22	5.62	-	6.22	5.62	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.22	5.62	-	6.22	5.62	-
Follow-up Hdwy	2.308	-	-	2.308	-	-	3.608	4.108	3.408	3.608	4.108	3.408
Pot Cap-1 Maneuver	1325	-	-	1337	-	-	561	538	844	557	533	826
Stage 1	-	-	-	-	-	-	805	736	-	775	714	-
Stage 2	-	-	-	-	-	-	775	714	-	801	732	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1325	-	-	1337	-	-	558	535	844	550	530	826
Mov Cap-2 Maneuver	-	-	-	-	-	-	558	535	-	550	530	-
Stage 1	-	-	-	-	-	-	805	736	-	775	710	-
Stage 2	-	-	-	-	-	-	770	710	-	794	732	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.3	10.6	0
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	660	1325	-	-	1337	-	-	-
HCM Lane V/C Ratio	0.024	-	-	-	0.005	-	-	-
HCM Control Delay (s)	10.6	0	-	-	7.7	0	-	0
HCM Lane LOS	B	A	-	-	A	A	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	-

Intersection	
Intersection Delay, s/veh	19.5
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	47	138	15	16	138	43	17	340	83	36	85	22
Future Vol, veh/h	47	138	15	16	138	43	17	340	83	36	85	22
Peak Hour Factor	0.88	0.88	0.88	0.91	0.91	0.91	0.70	0.70	0.70	0.79	0.79	0.79
Heavy Vehicles, %	12	12	12	12	12	12	12	12	12	12	12	12
Mvmt Flow	53	157	17	18	152	47	24	486	119	46	108	28
Number of Lanes	0	1	0	0	1	1	0	2	0	1	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	3	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	2	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	3	2	1
HCM Control Delay	19.7	15.5	22.8	12.6
HCM LOS	C	C	C	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	9%	0%	23%	10%	0%	100%	0%	0%
Vol Thru, %	91%	67%	69%	87%	0%	0%	100%	56%
Vol Right, %	0%	33%	7%	3%	100%	0%	0%	44%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	187	253	200	158	39	36	57	50
LT Vol	17	0	47	16	0	36	0	0
Through Vol	170	170	138	138	0	0	57	28
RT Vol	0	83	15	4	39	0	0	22
Lane Flow Rate	267	361	227	174	43	46	72	64
Geometry Grp	8	8	8	8	8	8	8	8
Degree of Util (X)	0.548	0.713	0.521	0.402	0.09	0.113	0.167	0.143
Departure Headway (Hd)	7.38	7.098	8.247	8.324	7.577	8.913	8.398	8.083
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	489	510	436	431	472	401	426	442
Service Time	5.138	4.856	6.014	6.093	5.345	6.689	6.174	5.858
HCM Lane V/C Ratio	0.546	0.708	0.521	0.404	0.091	0.115	0.169	0.145
HCM Control Delay	18.8	25.7	19.7	16.6	11.1	12.8	12.9	12.2
HCM Lane LOS	C	D	C	C	B	B	B	B
HCM 95th-tile Q	3.3	5.7	2.9	1.9	0.3	0.4	0.6	0.5

Intersection	
Intersection Delay, s/veh	8.3
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	91	14	6	70	6	13	18	5	13	22	13
Future Vol, veh/h	8	91	14	6	70	6	13	18	5	13	22	13
Peak Hour Factor	0.74	0.74	0.74	0.72	0.72	0.72	0.81	0.81	0.81	0.68	0.68	0.68
Heavy Vehicles, %	12	12	12	12	12	12	12	12	12	12	12	12
Mvmt Flow	11	123	19	8	97	8	16	22	6	19	32	19
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.5	8.3	8.1	8.2
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	36%	7%	7%	27%
Vol Thru, %	50%	81%	85%	46%
Vol Right, %	14%	12%	7%	27%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	36	113	82	48
LT Vol	13	8	6	13
Through Vol	18	91	70	22
RT Vol	5	14	6	13
Lane Flow Rate	44	153	114	71
Geometry Grp	1	1	1	1
Degree of Util (X)	0.059	0.189	0.143	0.092
Departure Headway (Hd)	4.797	4.45	4.522	4.669
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	748	808	795	769
Service Time	2.819	2.466	2.538	2.688
HCM Lane V/C Ratio	0.059	0.189	0.143	0.092
HCM Control Delay	8.1	8.5	8.3	8.2
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.2	0.7	0.5	0.3

Intersection	
Intersection Delay, s/veh	8.5
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	105	3	33	81	10	4	16	28	12	12	0
Future Vol, veh/h	3	105	3	33	81	10	4	16	28	12	12	0
Peak Hour Factor	0.72	0.72	0.72	0.84	0.84	0.84	0.43	0.43	0.43	0.64	0.64	0.64
Heavy Vehicles, %	12	12	12	12	12	12	2	2	2	2	2	2
Mvmt Flow	4	146	4	39	96	12	9	37	65	19	19	0
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.8	8.7	8.1	8.2
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	8%	3%	27%	50%
Vol Thru, %	33%	95%	65%	50%
Vol Right, %	58%	3%	8%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	48	111	124	24
LT Vol	4	3	33	12
Through Vol	16	105	81	12
RT Vol	28	3	10	0
Lane Flow Rate	112	154	148	38
Geometry Grp	1	1	1	1
Degree of Util (X)	0.135	0.197	0.19	0.051
Departure Headway (Hd)	4.359	4.603	4.625	4.878
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	823	780	776	734
Service Time	2.384	2.629	2.651	2.908
HCM Lane V/C Ratio	0.136	0.197	0.191	0.052
HCM Control Delay	8.1	8.8	8.7	8.2
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.5	0.7	0.7	0.2

Intersection	
Int Delay, s/veh	6.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↱		↑	↱		↑	↱		↑	↱
Traffic Vol, veh/h	6	132	5	6	63	7	4	0	32	132	19	61
Future Vol, veh/h	6	132	5	6	63	7	4	0	32	132	19	61
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	40	-	-	40	-	-	40	-	-	40
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	71	71	71	65	65	65	90	90	90
Heavy Vehicles, %	12	12	12	12	12	12	12	12	12	12	12	12
Mvmt Flow	7	157	6	8	89	10	6	0	49	147	21	68

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	99	0	0	163	0	0	326	286	157	304	282	89
Stage 1	-	-	-	-	-	-	171	171	-	105	105	-
Stage 2	-	-	-	-	-	-	155	115	-	199	177	-
Critical Hdwy	4.22	-	-	4.22	-	-	7.22	6.62	6.32	7.22	6.62	6.32
Critical Hdwy Stg 1	-	-	-	-	-	-	6.22	5.62	-	6.22	5.62	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.22	5.62	-	6.22	5.62	-
Follow-up Hdwy	2.308	-	-	2.308	-	-	3.608	4.108	3.408	3.608	4.108	3.408
Pot Cap-1 Maneuver	1433	-	-	1357	-	-	608	607	863	629	610	942
Stage 1	-	-	-	-	-	-	808	739	-	877	789	-
Stage 2	-	-	-	-	-	-	824	781	-	780	734	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1433	-	-	1357	-	-	545	600	863	588	603	942
Mov Cap-2 Maneuver	-	-	-	-	-	-	545	600	-	588	603	-
Stage 1	-	-	-	-	-	-	804	735	-	873	784	-
Stage 2	-	-	-	-	-	-	740	776	-	732	730	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.6	9.7	12.2
HCM LOS			A	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	545	863	1433	-	-	1357	-	-	590	942
HCM Lane V/C Ratio	0.011	0.057	0.005	-	-	0.006	-	-	0.284	0.072
HCM Control Delay (s)	11.7	9.4	7.5	0	-	7.7	0	-	13.5	9.1
HCM Lane LOS	B	A	A	A	-	A	A	-	B	A
HCM 95th %tile Q(veh)	0	0.2	0	-	-	0	-	-	1.2	0.2

Intersection	
Int Delay, s/veh	1.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	203	91	70	69	3	9
Future Vol, veh/h	203	91	70	69	3	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	40	-	-	0	40
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	81	81	72	72	58	58
Heavy Vehicles, %	12	12	12	12	12	12
Mvmt Flow	251	112	97	96	5	16

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	363	0	541	251
Stage 1	-	-	-	-	251	-
Stage 2	-	-	-	-	290	-
Critical Hdwy	-	-	4.22	-	6.52	6.32
Critical Hdwy Stg 1	-	-	-	-	5.52	-
Critical Hdwy Stg 2	-	-	-	-	5.52	-
Follow-up Hdwy	-	-	2.308	-	3.608	3.408
Pot Cap-1 Maneuver	-	-	1142	-	485	764
Stage 1	-	-	-	-	768	-
Stage 2	-	-	-	-	737	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1142	-	441	764
Mov Cap-2 Maneuver	-	-	-	-	441	-
Stage 1	-	-	-	-	768	-
Stage 2	-	-	-	-	671	-

Approach	EB	WB	NB
HCM Control Delay, s	0	4.3	10.7
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	441	764	-	-	1142	-
HCM Lane V/C Ratio	0.012	0.02	-	-	0.085	-
HCM Control Delay (s)	13.3	9.8	-	-	8.4	0
HCM Lane LOS	B	A	-	-	A	A
HCM 95th %tile Q(veh)	0	0.1	-	-	0.3	-

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	5	198	14	5	129	0	11	0	6	0	0	0
Future Vol, veh/h	5	198	14	5	129	0	11	0	6	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	73	73	77	77	92	54	92	54	92	92	92
Heavy Vehicles, %	12	12	12	12	12	12	12	12	12	12	12	12
Mvmt Flow	5	271	19	6	168	0	20	0	11	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	168	0	0	290	0	0	471	471	281	476	480	168
Stage 1	-	-	-	-	-	-	291	291	-	180	180	-
Stage 2	-	-	-	-	-	-	180	180	-	296	300	-
Critical Hdwy	4.22	-	-	4.22	-	-	7.22	6.62	6.32	7.22	6.62	6.32
Critical Hdwy Stg 1	-	-	-	-	-	-	6.22	5.62	-	6.22	5.62	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.22	5.62	-	6.22	5.62	-
Follow-up Hdwy	2.308	-	-	2.308	-	-	3.608	4.108	3.408	3.608	4.108	3.408
Pot Cap-1 Maneuver	1351	-	-	1217	-	-	487	476	735	483	471	851
Stage 1	-	-	-	-	-	-	696	654	-	799	732	-
Stage 2	-	-	-	-	-	-	799	732	-	691	648	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1351	-	-	1217	-	-	484	472	735	472	467	851
Mov Cap-2 Maneuver	-	-	-	-	-	-	484	472	-	472	467	-
Stage 1	-	-	-	-	-	-	693	651	-	796	728	-
Stage 2	-	-	-	-	-	-	795	728	-	678	645	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.3	11.9	0
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	550	1351	-	-	1217	-	-	-
HCM Lane V/C Ratio	0.057	0.004	-	-	0.005	-	-	-
HCM Control Delay (s)	11.9	7.7	0	-	8	0	-	0
HCM Lane LOS	B	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	-

Intersection	
Intersection Delay, s/veh	12
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	19	169	16	18	93	26	16	59	22	32	95	27
Future Vol, veh/h	19	169	16	18	93	26	16	59	22	32	95	27
Peak Hour Factor	0.75	0.75	0.75	0.79	0.79	0.79	0.78	0.78	0.78	0.81	0.81	0.81
Heavy Vehicles, %	12	12	12	12	12	12	12	12	12	12	12	12
Mvmt Flow	25	225	21	23	118	33	21	76	28	40	117	33
Number of Lanes	0	1	0	0	1	1	0	2	0	1	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	3	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	2	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	3	2	1
HCM Control Delay	14.4	11.2	10.3	10.3
HCM LOS	B	B	B	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	35%	0%	9%	16%	0%	100%	0%	0%
Vol Thru, %	65%	57%	83%	82%	0%	0%	100%	54%
Vol Right, %	0%	43%	8%	2%	100%	0%	0%	46%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	46	52	204	114	23	32	63	59
LT Vol	16	0	19	18	0	32	0	0
Through Vol	30	30	169	93	0	0	63	32
RT Vol	0	22	16	3	23	0	0	27
Lane Flow Rate	58	66	272	144	30	40	78	72
Geometry Grp	8	8	8	8	8	8	8	8
Degree of Util (X)	0.113	0.119	0.471	0.262	0.048	0.078	0.144	0.126
Departure Headway (Hd)	6.968	6.484	6.228	6.57	5.799	7.116	6.608	6.281
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	513	551	579	546	616	503	542	569
Service Time	4.726	4.242	3.972	4.321	3.551	4.87	4.362	4.035
HCM Lane V/C Ratio	0.113	0.12	0.47	0.264	0.049	0.08	0.144	0.127
HCM Control Delay	10.6	10.1	14.4	11.7	8.8	10.5	10.5	9.9
HCM Lane LOS	B	B	B	B	A	B	B	A
HCM 95th-tile Q	0.4	0.4	2.5	1	0.2	0.3	0.5	0.4

Intersection	
Intersection Delay, s/veh	8.6
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	16	99	0	3	85	18	6	68	8	14	15	20
Future Vol, veh/h	16	99	0	3	85	18	6	68	8	14	15	20
Peak Hour Factor	0.86	0.86	0.86	0.67	0.67	0.67	0.78	0.78	0.78	0.92	0.92	0.92
Heavy Vehicles, %	12	12	12	12	12	12	12	12	12	12	12	12
Mvmt Flow	19	115	0	4	127	27	8	87	10	15	16	22
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.7	8.7	8.6	8.1
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	7%	14%	3%	29%
Vol Thru, %	83%	86%	80%	31%
Vol Right, %	10%	0%	17%	41%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	82	115	106	49
LT Vol	6	16	3	14
Through Vol	68	99	85	15
RT Vol	8	0	18	20
Lane Flow Rate	105	134	158	53
Geometry Grp	1	1	1	1
Degree of Util (X)	0.141	0.175	0.2	0.07
Departure Headway (Hd)	4.815	4.7	4.552	4.738
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	744	764	788	755
Service Time	2.844	2.727	2.579	2.772
HCM Lane V/C Ratio	0.141	0.175	0.201	0.07
HCM Control Delay	8.6	8.7	8.7	8.1
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.5	0.6	0.7	0.2

Intersection	
Intersection Delay, s/veh	8.5
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	107	5	24	111	26	4	8	23	12	6	3
Future Vol, veh/h	4	107	5	24	111	26	4	8	23	12	6	3
Peak Hour Factor	0.75	0.75	0.75	0.86	0.86	0.86	0.75	0.75	0.75	0.70	0.70	0.70
Heavy Vehicles, %	12	12	12	12	12	12	2	2	2	2	2	2
Mvmt Flow	5	143	7	28	129	30	5	11	31	17	9	4
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.5	8.7	7.7	8
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	11%	3%	15%	57%
Vol Thru, %	23%	92%	69%	29%
Vol Right, %	66%	4%	16%	14%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	35	116	161	21
LT Vol	4	4	24	12
Through Vol	8	107	111	6
RT Vol	23	5	26	3
Lane Flow Rate	47	155	187	30
Geometry Grp	1	1	1	1
Degree of Util (X)	0.057	0.192	0.228	0.04
Departure Headway (Hd)	4.375	4.47	4.39	4.795
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	820	807	822	748
Service Time	2.395	2.474	2.394	2.816
HCM Lane V/C Ratio	0.057	0.192	0.227	0.04
HCM Control Delay	7.7	8.5	8.7	8
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.2	0.7	0.9	0.1

Intersection	
Int Delay, s/veh	5.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↱		↑	↱		↑	↱		↑	↱
Traffic Vol, veh/h	7	158	6	6	90	16	16	0	42	89	14	56
Future Vol, veh/h	7	158	6	6	90	16	16	0	42	89	14	56
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	40	-	-	40	-	-	40	-	-	40
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	83	83	83	61	61	61	83	83	83
Heavy Vehicles, %	12	12	12	12	12	12	12	12	12	12	12	12
Mvmt Flow	8	178	7	7	108	19	26	0	69	107	17	67

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	127	0	0	185	0	0	368	335	178	354	323	108
Stage 1	-	-	-	-	-	-	194	194	-	122	122	-
Stage 2	-	-	-	-	-	-	174	141	-	232	201	-
Critical Hdwy	4.22	-	-	4.22	-	-	7.22	6.62	6.32	7.22	6.62	6.32
Critical Hdwy Stg 1	-	-	-	-	-	-	6.22	5.62	-	6.22	5.62	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.22	5.62	-	6.22	5.62	-
Follow-up Hdwy	2.308	-	-	2.308	-	-	3.608	4.108	3.408	3.608	4.108	3.408
Pot Cap-1 Maneuver	1399	-	-	1332	-	-	570	570	840	583	578	919
Stage 1	-	-	-	-	-	-	785	722	-	859	776	-
Stage 2	-	-	-	-	-	-	805	761	-	749	717	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1399	-	-	1332	-	-	511	563	840	531	571	919
Mov Cap-2 Maneuver	-	-	-	-	-	-	511	563	-	531	571	-
Stage 1	-	-	-	-	-	-	780	718	-	854	771	-
Stage 2	-	-	-	-	-	-	725	756	-	683	713	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.4	10.4	12.1
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	511	840	1399	-	-	1332	-	-	536	919
HCM Lane V/C Ratio	0.051	0.082	0.006	-	-	0.005	-	-	0.232	0.073
HCM Control Delay (s)	12.4	9.7	7.6	0	-	7.7	0	-	13.7	9.2
HCM Lane LOS	B	A	A	A	-	A	A	-	B	A
HCM 95th %tile Q(veh)	0.2	0.3	0	-	-	0	-	-	0.9	0.2

Intersection	
Int Delay, s/veh	2.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	198	100	110	93	12	24
Future Vol, veh/h	198	100	110	93	12	24
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	40	-	-	0	40
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	85	85	75	75
Heavy Vehicles, %	12	12	12	12	12	12
Mvmt Flow	228	115	129	109	16	32

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	343	0	595	228
Stage 1	-	-	-	-	228	-
Stage 2	-	-	-	-	367	-
Critical Hdwy	-	-	4.22	-	6.52	6.32
Critical Hdwy Stg 1	-	-	-	-	5.52	-
Critical Hdwy Stg 2	-	-	-	-	5.52	-
Follow-up Hdwy	-	-	2.308	-	3.608	3.408
Pot Cap-1 Maneuver	-	-	1162	-	451	787
Stage 1	-	-	-	-	787	-
Stage 2	-	-	-	-	679	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1162	-	398	787
Mov Cap-2 Maneuver	-	-	-	-	398	-
Stage 1	-	-	-	-	787	-
Stage 2	-	-	-	-	599	-

Approach	EB	WB	NB
HCM Control Delay, s	0	4.6	11.3
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	398	787	-	-	1162	-
HCM Lane V/C Ratio	0.04	0.041	-	-	0.111	-
HCM Control Delay (s)	14.4	9.8	-	-	8.5	0
HCM Lane LOS	B	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0.4	-

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	0	158	13	7	160	0	9	0	6	0	0	0
Future Vol, veh/h	0	158	13	7	160	0	9	0	6	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	82	82	92	69	92	69	92	92	92
Heavy Vehicles, %	12	12	12	12	12	12	12	12	12	12	12	12
Mvmt Flow	0	172	14	9	195	0	13	0	9	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	195	0	0	186	0	0	392	392	179	397	399	195
Stage 1	-	-	-	-	-	-	179	179	-	213	213	-
Stage 2	-	-	-	-	-	-	213	213	-	184	186	-
Critical Hdwy	4.22	-	-	4.22	-	-	7.22	6.62	6.32	7.22	6.62	6.32
Critical Hdwy Stg 1	-	-	-	-	-	-	6.22	5.62	-	6.22	5.62	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.22	5.62	-	6.22	5.62	-
Follow-up Hdwy	2.308	-	-	2.308	-	-	3.608	4.108	3.408	3.608	4.108	3.408
Pot Cap-1 Maneuver	1320	-	-	1330	-	-	550	529	839	545	524	821
Stage 1	-	-	-	-	-	-	800	733	-	767	708	-
Stage 2	-	-	-	-	-	-	767	708	-	795	728	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1320	-	-	1330	-	-	547	525	839	536	520	821
Mov Cap-2 Maneuver	-	-	-	-	-	-	547	525	-	536	520	-
Stage 1	-	-	-	-	-	-	800	733	-	767	702	-
Stage 2	-	-	-	-	-	-	761	702	-	787	728	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.3	10.9	0
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	635	1320	-	-	1330	-	-	-
HCM Lane V/C Ratio	0.034	-	-	-	0.006	-	-	-
HCM Control Delay (s)	10.9	0	-	-	7.7	0	-	0
HCM Lane LOS	B	A	-	-	A	A	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	-

Intersection	
Intersection Delay, s/veh	20.9
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	48	141	16	17	141	45	18	348	87	39	90	24
Future Vol, veh/h	48	141	16	17	141	45	18	348	87	39	90	24
Peak Hour Factor	0.88	0.88	0.88	0.91	0.91	0.91	0.70	0.70	0.70	0.79	0.79	0.79
Heavy Vehicles, %	12	12	12	12	12	12	12	12	12	12	12	12
Mvmt Flow	55	160	18	19	155	49	26	497	124	49	114	30
Number of Lanes	0	1	0	0	1	1	0	2	0	1	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	3	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	2	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	3	2	1
HCM Control Delay	20.9	16.2	25	12.9
HCM LOS	C	C	C	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	9%	0%	23%	10%	0%	100%	0%	0%
Vol Thru, %	91%	67%	69%	87%	0%	0%	100%	56%
Vol Right, %	0%	33%	8%	3%	100%	0%	0%	44%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	192	261	205	163	41	39	60	54
LT Vol	18	0	48	17	0	39	0	0
Through Vol	174	174	141	141	0	0	60	30
RT Vol	0	87	16	5	41	0	0	24
Lane Flow Rate	274	373	233	179	45	49	76	68
Geometry Grp	8	8	8	8	8	8	8	8
Degree of Util (X)	0.573	0.749	0.544	0.421	0.096	0.124	0.181	0.156
Departure Headway (Hd)	7.523	7.235	8.412	8.496	7.747	9.074	8.558	8.237
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	480	500	429	423	461	394	418	434
Service Time	5.286	4.998	6.185	6.273	5.523	6.855	6.339	6.018
HCM Lane V/C Ratio	0.571	0.746	0.543	0.423	0.098	0.124	0.182	0.157
HCM Control Delay	20	28.7	20.9	17.4	11.4	13.1	13.2	12.5
HCM Lane LOS	C	D	C	C	B	B	B	B
HCM 95th-tile Q	3.5	6.3	3.2	2	0.3	0.4	0.7	0.5

Intersection	
Intersection Delay, s/veh	10
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	91	36	139	70	6	18	33	45	13	88	13
Future Vol, veh/h	8	91	36	139	70	6	18	33	45	13	88	13
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles, %	12	12	12	12	12	12	12	12	12	12	12	12
Mvmt Flow	9	102	40	156	79	7	20	37	51	15	99	15
Number of Lanes	1	1	0	1	1	0	0	1	1	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	2	2
HCM Control Delay	9.8	10.3	9	10.5
HCM LOS	A	B	A	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	35%	0%	100%	0%	100%	0%	11%
Vol Thru, %	65%	0%	0%	72%	0%	92%	77%
Vol Right, %	0%	100%	0%	28%	0%	8%	11%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	51	45	8	127	139	76	114
LT Vol	18	0	8	0	139	0	13
Through Vol	33	0	0	91	0	70	88
RT Vol	0	45	0	36	0	6	13
Lane Flow Rate	57	51	9	143	156	85	128
Geometry Grp	7	7	7	7	7	7	6
Degree of Util (X)	0.097	0.073	0.015	0.216	0.262	0.13	0.208
Departure Headway (Hd)	6.099	5.215	6.156	5.452	6.031	5.471	5.847
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	583	680	577	652	592	651	608
Service Time	3.885	3	3.938	3.233	3.805	3.245	3.93
HCM Lane V/C Ratio	0.098	0.075	0.016	0.219	0.264	0.131	0.211
HCM Control Delay	9.5	8.4	9	9.8	11	9.1	10.5
HCM Lane LOS	A	A	A	A	B	A	B
HCM 95th-tile Q	0.3	0.2	0	0.8	1	0.4	0.8

Intersection	
Intersection Delay, s/veh	13.7
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	199	3	33	427	10	4	16	28	12	12	0
Future Vol, veh/h	3	199	3	33	427	10	4	16	28	12	12	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	12	12	12	12	12	12	2	2	2	2	2	2
Mvmt Flow	3	219	3	36	469	11	4	18	31	13	13	0
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	10.1	16	8.9	9.2
HCM LOS	B	C	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	8%	1%	7%	50%
Vol Thru, %	33%	97%	91%	50%
Vol Right, %	58%	1%	2%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	48	205	470	24
LT Vol	4	3	33	12
Through Vol	16	199	427	12
RT Vol	28	3	10	0
Lane Flow Rate	53	225	516	26
Geometry Grp	1	1	1	1
Degree of Util (X)	0.078	0.305	0.657	0.043
Departure Headway (Hd)	5.333	4.872	4.576	5.819
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	667	734	790	611
Service Time	3.405	2.918	2.612	3.896
HCM Lane V/C Ratio	0.079	0.307	0.653	0.043
HCM Control Delay	8.9	10.1	16	9.2
HCM Lane LOS	A	B	C	A
HCM 95th-tile Q	0.3	1.3	5	0.1

Intersection	
Int Delay, s/veh	8.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↓	↱		↑↓	↱		↑↓	↱		↑↓	↱
Traffic Vol, veh/h	24	208	5	6	201	7	4	0	32	132	19	269
Future Vol, veh/h	24	208	5	6	201	7	4	0	32	132	19	269
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	40	-	-	40	-	-	40	-	-	40
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	12	12	12	12	12	12	12	12	12	12	12	12
Mvmt Flow	29	248	6	7	239	8	5	0	38	157	23	320

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	247	0	0	254	0	0	735	567	248	581	565	239
Stage 1	-	-	-	-	-	-	306	306	-	253	253	-
Stage 2	-	-	-	-	-	-	429	261	-	328	312	-
Critical Hdwy	4.22	-	-	4.22	-	-	7.22	6.62	6.32	7.22	6.62	6.32
Critical Hdwy Stg 1	-	-	-	-	-	-	6.22	5.62	-	6.22	5.62	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.22	5.62	-	6.22	5.62	-
Follow-up Hdwy	2.308	-	-	2.308	-	-	3.608	4.108	3.408	3.608	4.108	3.408
Pot Cap-1 Maneuver	1263	-	-	1255	-	-	323	420	767	410	421	776
Stage 1	-	-	-	-	-	-	683	644	-	730	680	-
Stage 2	-	-	-	-	-	-	585	674	-	664	640	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1263	-	-	1255	-	-	177	406	767	380	407	776
Mov Cap-2 Maneuver	-	-	-	-	-	-	177	406	-	380	407	-
Stage 1	-	-	-	-	-	-	665	627	-	710	676	-
Stage 2	-	-	-	-	-	-	330	670	-	614	623	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.8	0.2	11.7	16.3
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	177	767	1263	-	-	1255	-	-	383	776
HCM Lane V/C Ratio	0.027	0.05	0.023	-	-	0.006	-	-	0.469	0.413
HCM Control Delay (s)	25.9	9.9	7.9	0	-	7.9	0	-	22.4	12.9
HCM Lane LOS	D	A	A	A	-	A	A	-	C	B
HCM 95th %tile Q(veh)	0.1	0.2	0.1	-	-	0	-	-	2.4	2

Intersection	
Int Delay, s/veh	2.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	222	148	70	156	54	9
Future Vol, veh/h	222	148	70	156	54	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	40	-	-	0	40
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	12	12	12	12	12	12
Mvmt Flow	252	168	80	177	61	10

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	420	0	589	252
Stage 1	-	-	-	-	252	-
Stage 2	-	-	-	-	337	-
Critical Hdwy	-	-	4.22	-	6.52	6.32
Critical Hdwy Stg 1	-	-	-	-	5.52	-
Critical Hdwy Stg 2	-	-	-	-	5.52	-
Follow-up Hdwy	-	-	2.308	-	3.608	3.408
Pot Cap-1 Maneuver	-	-	1087	-	455	763
Stage 1	-	-	-	-	767	-
Stage 2	-	-	-	-	701	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1087	-	418	763
Mov Cap-2 Maneuver	-	-	-	-	418	-
Stage 1	-	-	-	-	767	-
Stage 2	-	-	-	-	644	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.7	14.3
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	418	763	-	-	1087	-
HCM Lane V/C Ratio	0.147	0.013	-	-	0.073	-
HCM Control Delay (s)	15.1	9.8	-	-	8.6	0
HCM Lane LOS	C	A	-	-	A	A
HCM 95th %tile Q(veh)	0.5	0	-	-	0.2	-

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	5	217	14	5	216	0	11	0	6	0	0	0
Future Vol, veh/h	5	217	14	5	216	0	11	0	6	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	83	83	83	83	92	83	92	83	92	92	92
Heavy Vehicles, %	12	12	12	12	12	12	12	12	12	12	12	12
Mvmt Flow	5	261	17	6	260	0	13	0	7	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	260	0	0	278	0	0	552	552	270	555	560	260
Stage 1	-	-	-	-	-	-	280	280	-	272	272	-
Stage 2	-	-	-	-	-	-	272	272	-	283	288	-
Critical Hdwy	4.22	-	-	4.22	-	-	7.22	6.62	6.32	7.22	6.62	6.32
Critical Hdwy Stg 1	-	-	-	-	-	-	6.22	5.62	-	6.22	5.62	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.22	5.62	-	6.22	5.62	-
Follow-up Hdwy	2.308	-	-	2.308	-	-	3.608	4.108	3.408	3.608	4.108	3.408
Pot Cap-1 Maneuver	1249	-	-	1229	-	-	429	428	745	427	423	755
Stage 1	-	-	-	-	-	-	705	661	-	713	667	-
Stage 2	-	-	-	-	-	-	713	667	-	703	656	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1249	-	-	1229	-	-	426	423	745	419	418	755
Mov Cap-2 Maneuver	-	-	-	-	-	-	426	423	-	419	418	-
Stage 1	-	-	-	-	-	-	701	658	-	709	663	-
Stage 2	-	-	-	-	-	-	709	663	-	693	653	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.2	12.5	0
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	502	1249	-	-	1229	-	-	-
HCM Lane V/C Ratio	0.041	0.004	-	-	0.005	-	-	-
HCM Control Delay (s)	12.5	7.9	0	-	7.9	0	-	0
HCM Lane LOS	B	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	-

Intersection	
Intersection Delay, s/veh	12.4
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	26	179	19	18	137	26	29	59	22	32	95	58
Future Vol, veh/h	26	179	19	18	137	26	29	59	22	32	95	58
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles, %	12	12	12	12	12	12	12	12	12	12	12	12
Mvmt Flow	30	208	22	21	159	30	34	69	26	37	110	67
Number of Lanes	0	1	0	0	1	1	0	2	0	1	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	3	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	2	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	3	2	1
HCM Control Delay	14.8	12.3	10.8	10.6
HCM LOS	B	B	B	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	50%	0%	12%	11%	0%	100%	0%	0%
Vol Thru, %	50%	57%	80%	87%	0%	0%	100%	35%
Vol Right, %	0%	43%	8%	2%	100%	0%	0%	65%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	59	52	224	158	23	32	63	90
LT Vol	29	0	26	18	0	32	0	0
Through Vol	30	30	179	137	0	0	63	32
RT Vol	0	22	19	3	23	0	0	58
Lane Flow Rate	68	60	260	183	27	37	74	104
Geometry Grp	8	8	8	8	8	8	8	8
Degree of Util (X)	0.137	0.111	0.467	0.338	0.045	0.075	0.138	0.182
Departure Headway (Hd)	7.231	6.672	6.448	6.648	5.895	7.258	6.75	6.29
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	494	535	557	539	605	492	529	568
Service Time	5.004	4.445	4.204	4.411	3.657	5.027	4.518	4.057
HCM Lane V/C Ratio	0.138	0.112	0.467	0.34	0.045	0.075	0.14	0.183
HCM Control Delay	11.2	10.3	14.8	12.8	8.9	10.6	10.6	10.5
HCM Lane LOS	B	B	B	B	A	B	B	B
HCM 95th-tile Q	0.5	0.4	2.5	1.5	0.1	0.2	0.5	0.7

Intersection	
Int Delay, s/veh	6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	5	0	60	0	38	22	221	45	0
Future Vol, veh/h	0	0	0	5	0	60	0	38	22	221	45	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	100	-	-	50	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	12	12	12	2	12	2	12	12	12	12	12	12
Mvmt Flow	0	0	0	5	0	65	0	41	24	240	49	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	615	594	49	582	582	53	49	0	0	65	0	0
Stage 1	529	529	-	53	53	-	-	-	-	-	-	-
Stage 2	86	65	-	529	529	-	-	-	-	-	-	-
Critical Hdwy	7.22	6.62	6.32	7.12	6.62	6.22	4.22	-	-	4.22	-	-
Critical Hdwy Stg 1	6.22	5.62	-	6.12	5.62	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.22	5.62	-	6.12	5.62	-	-	-	-	-	-	-
Follow-up Hdwy	3.608	4.108	3.408	3.518	4.108	3.318	2.308	-	-	2.308	-	-
Pot Cap-1 Maneuver	389	405	992	424	411	1014	1496	-	-	1476	-	-
Stage 1	515	511	-	960	831	-	-	-	-	-	-	-
Stage 2	898	822	-	533	511	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	319	339	992	371	344	1014	1496	-	-	1476	-	-
Mov Cap-2 Maneuver	319	339	-	371	344	-	-	-	-	-	-	-
Stage 1	515	428	-	960	831	-	-	-	-	-	-	-
Stage 2	840	822	-	446	428	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	9.3	0	6.6
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1496	-	-	-	371	1014	1476	-	-
HCM Lane V/C Ratio	-	-	-	-	0.015	0.064	0.163	-	-
HCM Control Delay (s)	0	-	-	0	14.8	8.8	7.9	-	-
HCM Lane LOS	A	-	-	A	B	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	0	0.2	0.6	-	-

Intersection	
Int Delay, s/veh	3.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	147	0	213	212	0	55
Future Vol, veh/h	147	0	213	212	0	55
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	250	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	12	12	12	12	2	2
Mvmt Flow	160	0	232	230	0	60

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	160	0	-	160
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	4.22	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	2.308	-	-	3.318
Pot Cap-1 Maneuver	-	-	1360	-	0	885
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1360	-	-	885
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	4.1	9.4
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	885	-	-	1360	-
HCM Lane V/C Ratio	0.068	-	-	0.17	-
HCM Control Delay (s)	9.4	-	-	8.2	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0.6	-

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		↰	↱
Traffic Vol, veh/h	0	242	53	0	11	11
Future Vol, veh/h	0	242	53	0	11	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	263	58	0	12	12

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	321	58
Stage 1	-	-	-	-	58	-
Stage 2	-	-	-	-	263	-
Critical Hdwy	-	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	0	-	-	0	673	1008
Stage 1	0	-	-	0	965	-
Stage 2	0	-	-	0	781	-
Platoon blocked, %		-	-			
Mov Cap-1 Maneuver	-	-	-	-	673	1008
Mov Cap-2 Maneuver	-	-	-	-	686	-
Stage 1	-	-	-	-	965	-
Stage 2	-	-	-	-	781	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	9.5
HCM LOS			A

Minor Lane/Major Mvmt	EBT	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	-	686	1008
HCM Lane V/C Ratio	-	-	0.017	0.012
HCM Control Delay (s)	-	-	10.3	8.6
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.1	0

Intersection	
Int Delay, s/veh	4.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	153	99	19	66	15	34
Future Vol, veh/h	153	99	19	66	15	34
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	166	108	21	72	16	37

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	93	0	-	0	497	57
Stage 1	-	-	-	-	57	-
Stage 2	-	-	-	-	440	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1501	-	-	-	532	1009
Stage 1	-	-	-	-	966	-
Stage 2	-	-	-	-	649	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1501	-	-	-	473	1009
Mov Cap-2 Maneuver	-	-	-	-	542	-
Stage 1	-	-	-	-	859	-
Stage 2	-	-	-	-	649	-

Approach	EB	WB	SB
HCM Control Delay, s	4.7	0	9.6
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1501	-	-	-	542	1009
HCM Lane V/C Ratio	0.111	-	-	-	0.03	0.037
HCM Control Delay (s)	7.7	-	-	-	11.8	8.7
HCM Lane LOS	A	-	-	-	B	A
HCM 95th %tile Q(veh)	0.4	-	-	-	0.1	0.1

Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	87	27	66	131	29	19
Future Vol, veh/h	87	27	66	131	29	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	95	29	72	142	32	21

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	214	0	-	0	362	143
Stage 1	-	-	-	-	143	-
Stage 2	-	-	-	-	219	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1356	-	-	-	637	905
Stage 1	-	-	-	-	884	-
Stage 2	-	-	-	-	817	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1356	-	-	-	592	905
Mov Cap-2 Maneuver	-	-	-	-	644	-
Stage 1	-	-	-	-	822	-
Stage 2	-	-	-	-	817	-

Approach	EB	WB	SB
HCM Control Delay, s	6	0	10.2
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1356	-	-	-	644	905
HCM Lane V/C Ratio	0.07	-	-	-	0.049	0.023
HCM Control Delay (s)	7.9	-	-	-	10.9	9.1
HCM Lane LOS	A	-	-	-	B	A
HCM 95th %tile Q(veh)	0.2	-	-	-	0.2	0.1

Intersection	
Intersection Delay, s/veh	10.7
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	16	99	15	91	85	18	29	137	150	14	59	20
Future Vol, veh/h	16	99	15	91	85	18	29	137	150	14	59	20
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles, %	12	12	12	12	12	12	12	12	12	12	12	12
Mvmt Flow	18	111	17	102	96	20	33	154	169	16	66	22
Number of Lanes	1	1	0	1	1	0	0	1	1	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	2	2
HCM Control Delay	10.7	10.7	10.7	10.7
HCM LOS	B	B	B	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	17%	0%	100%	0%	100%	0%	15%
Vol Thru, %	83%	0%	0%	87%	0%	83%	63%
Vol Right, %	0%	100%	0%	13%	0%	17%	22%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	166	150	16	114	91	103	93
LT Vol	29	0	16	0	91	0	14
Through Vol	137	0	0	99	0	85	59
RT Vol	0	150	0	15	0	18	20
Lane Flow Rate	187	169	18	128	102	116	104
Geometry Grp	7	7	7	7	7	7	6
Degree of Util (X)	0.314	0.247	0.034	0.223	0.191	0.196	0.181
Departure Headway (Hd)	6.067	5.272	6.857	6.256	6.736	6.105	6.245
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	593	681	523	575	534	589	575
Service Time	3.796	3.002	4.588	3.987	4.466	3.835	4.281
HCM Lane V/C Ratio	0.315	0.248	0.034	0.223	0.191	0.197	0.181
HCM Control Delay	11.6	9.7	9.8	10.8	11.1	10.3	10.7
HCM Lane LOS	B	A	A	B	B	B	B
HCM 95th-tile Q	1.3	1	0.1	0.8	0.7	0.7	0.7

Intersection	
Intersection Delay, s/veh	15.5
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	460	5	24	338	26	4	8	23	12	6	3
Future Vol, veh/h	4	460	5	24	338	26	4	8	23	12	6	3
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	12	12	12	12	12	12	2	2	2	2	2	2
Mvmt Flow	4	505	5	26	371	29	4	9	25	13	7	3
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	17.4	14.2	9.2	9.5
HCM LOS	C	B	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	11%	1%	6%	57%
Vol Thru, %	23%	98%	87%	29%
Vol Right, %	66%	1%	7%	14%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	35	469	388	21
LT Vol	4	4	24	12
Through Vol	8	460	338	6
RT Vol	23	5	26	3
Lane Flow Rate	38	515	426	23
Geometry Grp	1	1	1	1
Degree of Util (X)	0.062	0.68	0.571	0.04
Departure Headway (Hd)	5.808	4.749	4.819	6.255
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	620	758	746	576
Service Time	3.809	2.801	2.874	4.256
HCM Lane V/C Ratio	0.061	0.679	0.571	0.04
HCM Control Delay	9.2	17.4	14.2	9.5
HCM Lane LOS	A	C	B	A
HCM 95th-tile Q	0.2	5.4	3.7	0.1

Intersection	
Int Delay, s/veh	8.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↱		↑	↱		↑	↱		↑	↱
Traffic Vol, veh/h	57	461	6	6	181	16	16	0	42	89	14	192
Future Vol, veh/h	57	461	6	6	181	16	16	0	42	89	14	192
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	40	-	-	40	-	-	40	-	-	40
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	12	12	12	12	12	12	12	12	12	12	12	12
Mvmt Flow	68	549	7	7	215	19	19	0	50	106	17	229

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	234	0	0	556	0	0	1047	933	549	943	921	215
Stage 1	-	-	-	-	-	-	685	685	-	229	229	-
Stage 2	-	-	-	-	-	-	362	248	-	714	692	-
Critical Hdwy	4.22	-	-	4.22	-	-	7.22	6.62	6.32	7.22	6.62	6.32
Critical Hdwy Stg 1	-	-	-	-	-	-	6.22	5.62	-	6.22	5.62	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.22	5.62	-	6.22	5.62	-
Follow-up Hdwy	2.308	-	-	2.308	-	-	3.608	4.108	3.408	3.608	4.108	3.408
Pot Cap-1 Maneuver	1277	-	-	966	-	-	197	256	517	233	260	800
Stage 1	-	-	-	-	-	-	422	434	-	752	697	-
Stage 2	-	-	-	-	-	-	637	683	-	407	430	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1277	-	-	966	-	-	125	234	517	197	238	800
Mov Cap-2 Maneuver	-	-	-	-	-	-	125	234	-	197	238	-
Stage 1	-	-	-	-	-	-	390	401	-	694	691	-
Stage 2	-	-	-	-	-	-	440	678	-	339	397	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.9	0.3	19.9	23.8
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	125	517	1277	-	-	966	-	-	202	800
HCM Lane V/C Ratio	0.152	0.097	0.053	-	-	0.007	-	-	0.607	0.286
HCM Control Delay (s)	38.9	12.7	8	0	-	8.8	0	-	47	11.3
HCM Lane LOS	E	B	A	A	-	A	A	-	E	B
HCM 95th %tile Q(veh)	0.5	0.3	0.2	-	-	0	-	-	3.4	1.2

Intersection	
Int Delay, s/veh	2.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	290	311	110	151	45	24
Future Vol, veh/h	290	311	110	151	45	24
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	40	-	-	0	40
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	12	12	12	12	12	12
Mvmt Flow	330	353	125	172	51	27

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	683	0	752	330
Stage 1	-	-	-	-	330	-
Stage 2	-	-	-	-	422	-
Critical Hdwy	-	-	4.22	-	6.52	6.32
Critical Hdwy Stg 1	-	-	-	-	5.52	-
Critical Hdwy Stg 2	-	-	-	-	5.52	-
Follow-up Hdwy	-	-	2.308	-	3.608	3.408
Pot Cap-1 Maneuver	-	-	865	-	364	689
Stage 1	-	-	-	-	707	-
Stage 2	-	-	-	-	641	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	865	-	306	689
Mov Cap-2 Maneuver	-	-	-	-	306	-
Stage 1	-	-	-	-	707	-
Stage 2	-	-	-	-	538	-

Approach	EB	WB	NB
HCM Control Delay, s	0	4.2	16.1
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	306	689	-	-	865	-
HCM Lane V/C Ratio	0.167	0.04	-	-	0.145	-
HCM Control Delay (s)	19.1	10.4	-	-	9.9	0
HCM Lane LOS	C	B	-	-	A	A
HCM 95th %tile Q(veh)	0.6	0.1	-	-	0.5	-

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	0	250	13	7	218	0	9	0	6	0	0	0
Future Vol, veh/h	0	250	13	7	218	0	9	0	6	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	83	83	83	83	92	83	92	83	92	92	92
Heavy Vehicles, %	12	12	12	12	12	12	12	12	12	12	12	12
Mvmt Flow	0	301	16	8	263	0	11	0	7	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	263	0	0	317	0	0	588	588	309	592	596	263
Stage 1	-	-	-	-	-	-	309	309	-	279	279	-
Stage 2	-	-	-	-	-	-	279	279	-	313	317	-
Critical Hdwy	4.22	-	-	4.22	-	-	7.22	6.62	6.32	7.22	6.62	6.32
Critical Hdwy Stg 1	-	-	-	-	-	-	6.22	5.62	-	6.22	5.62	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.22	5.62	-	6.22	5.62	-
Follow-up Hdwy	2.308	-	-	2.308	-	-	3.608	4.108	3.408	3.608	4.108	3.408
Pot Cap-1 Maneuver	1245	-	-	1189	-	-	406	408	708	404	404	752
Stage 1	-	-	-	-	-	-	680	642	-	706	662	-
Stage 2	-	-	-	-	-	-	706	662	-	677	637	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1245	-	-	1189	-	-	404	405	708	398	401	752
Mov Cap-2 Maneuver	-	-	-	-	-	-	404	405	-	398	401	-
Stage 1	-	-	-	-	-	-	680	642	-	706	657	-
Stage 2	-	-	-	-	-	-	700	657	-	670	637	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.3	12.7	0
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	488	1245	-	-	1189	-	-	-
HCM Lane V/C Ratio	0.037	-	-	-	0.007	-	-	-
HCM Control Delay (s)	12.7	0	-	-	8	0	-	0
HCM Lane LOS	B	A	-	-	A	A	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	-

Intersection	
Intersection Delay, s/veh	26.9
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	80	187	30	17	170	45	27	348	87	39	90	44
Future Vol, veh/h	80	187	30	17	170	45	27	348	87	39	90	44
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles, %	12	12	12	12	12	12	12	12	12	12	12	12
Mvmt Flow	93	217	35	20	198	52	31	405	101	45	105	51
Number of Lanes	0	1	0	0	1	1	0	2	0	1	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	3	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	2	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	3	2	1
HCM Control Delay	42.5	20.9	24.7	14.2
HCM LOS	E	C	C	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	13%	0%	27%	9%	0%	100%	0%	0%
Vol Thru, %	87%	67%	63%	89%	0%	0%	100%	41%
Vol Right, %	0%	33%	10%	2%	100%	0%	0%	59%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	201	261	297	192	41	39	60	74
LT Vol	27	0	80	17	0	39	0	0
Through Vol	174	174	187	170	0	0	60	30
RT Vol	0	87	30	5	41	0	0	44
Lane Flow Rate	234	303	345	223	47	45	70	86
Geometry Grp	8	8	8	8	8	8	8	8
Degree of Util (X)	0.552	0.691	0.834	0.56	0.109	0.125	0.182	0.215
Departure Headway (Hd)	8.504	8.192	8.69	9.052	8.302	9.93	9.409	8.976
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	425	440	418	399	431	361	381	399
Service Time	6.256	5.943	6.441	6.81	6.058	7.695	7.174	6.74
HCM Lane V/C Ratio	0.551	0.689	0.825	0.559	0.109	0.125	0.184	0.216
HCM Control Delay	21.3	27.4	42.5	22.8	12.1	14.1	14.3	14.2
HCM Lane LOS	C	D	E	C	B	B	B	B
HCM 95th-tile Q	3.2	5.1	7.9	3.3	0.4	0.4	0.7	0.8

Intersection	
Int Delay, s/veh	7.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	23	0	234	0	57	15	147	28	0
Future Vol, veh/h	0	0	0	23	0	234	0	57	15	147	28	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	100	-	-	50	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	12	12	12	2	12	2	12	12	12	12	12	12
Mvmt Flow	0	0	0	25	0	254	0	62	16	160	30	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	547	428	30	420	420	70	30	0	0	78	0	0
Stage 1	350	350	-	70	70	-	-	-	-	-	-	-
Stage 2	197	78	-	350	350	-	-	-	-	-	-	-
Critical Hdwy	7.22	6.62	6.32	7.12	6.62	6.22	4.22	-	-	4.22	-	-
Critical Hdwy Stg 1	6.22	5.62	-	6.12	5.62	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.22	5.62	-	6.12	5.62	-	-	-	-	-	-	-
Follow-up Hdwy	3.608	4.108	3.408	3.518	4.108	3.318	2.308	-	-	2.308	-	-
Pot Cap-1 Maneuver	433	504	1016	544	510	993	1520	-	-	1459	-	-
Stage 1	646	615	-	940	817	-	-	-	-	-	-	-
Stage 2	782	811	-	666	615	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	295	449	1016	498	454	993	1520	-	-	1459	-	-
Mov Cap-2 Maneuver	295	449	-	498	454	-	-	-	-	-	-	-
Stage 1	646	547	-	940	817	-	-	-	-	-	-	-
Stage 2	582	811	-	593	547	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	10.1	0	6.5
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1520	-	-	-	498	993	1459	-	-
HCM Lane V/C Ratio	-	-	-	-	0.05	0.256	0.11	-	-
HCM Control Delay (s)	0	-	-	0	12.6	9.9	7.8	-	-
HCM Lane LOS	A	-	-	A	B	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	0.2	1	0.4	-	-

Intersection	
Int Delay, s/veh	4.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	250	0	139	200	0	211
Future Vol, veh/h	250	0	139	200	0	211
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	250	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	12	12	12	12	2	2
Mvmt Flow	272	0	151	217	0	229

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	272	0	-	272
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	4.22	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	2.308	-	-	3.318
Pot Cap-1 Maneuver	-	-	1236	-	0	767
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1236	-	-	767
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	3.4	11.7
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	767	-	-	1236	-
HCM Lane V/C Ratio	0.299	-	-	0.122	-
HCM Control Delay (s)	11.7	-	-	8.3	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	1.3	-	-	0.4	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		↰	↱
Traffic Vol, veh/h	0	161	252	0	5	5
Future Vol, veh/h	0	161	252	0	5	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	175	274	0	5	5

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	449	274
Stage 1	-	-	-	-	274	-
Stage 2	-	-	-	-	175	-
Critical Hdwy	-	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	0	-	-	0	568	765
Stage 1	0	-	-	0	772	-
Stage 2	0	-	-	0	855	-
Platoon blocked, %		-	-			
Mov Cap-1 Maneuver	-	-	-	-	568	765
Mov Cap-2 Maneuver	-	-	-	-	627	-
Stage 1	-	-	-	-	772	-
Stage 2	-	-	-	-	855	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	10.3
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	-	627	765
HCM Lane V/C Ratio	-	-	0.009	0.007
HCM Control Delay (s)	-	-	10.8	9.7
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0	0

Intersection	
Int Delay, s/veh	6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	102	63	92	44	69	160
Future Vol, veh/h	102	63	92	44	69	160
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	111	68	100	48	75	174

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	148	0	-	0	414	124
Stage 1	-	-	-	-	124	-
Stage 2	-	-	-	-	290	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1434	-	-	-	595	927
Stage 1	-	-	-	-	902	-
Stage 2	-	-	-	-	759	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1434	-	-	-	549	927
Mov Cap-2 Maneuver	-	-	-	-	611	-
Stage 1	-	-	-	-	833	-
Stage 2	-	-	-	-	759	-

Approach	EB	WB	SB
HCM Control Delay, s	4.8	0	10.4
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1434	-	-	-	611	927
HCM Lane V/C Ratio	0.077	-	-	-	0.123	0.188
HCM Control Delay (s)	7.7	-	-	-	11.7	9.8
HCM Lane LOS	A	-	-	-	B	A
HCM 95th %tile Q(veh)	0.3	-	-	-	0.4	0.7

Intersection	
Int Delay, s/veh	5.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	58	74	44	87	137	92
Future Vol, veh/h	58	74	44	87	137	92
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	63	80	48	95	149	100

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	143	0	-	0	302	96
Stage 1	-	-	-	-	96	-
Stage 2	-	-	-	-	206	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1440	-	-	-	690	960
Stage 1	-	-	-	-	928	-
Stage 2	-	-	-	-	829	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1440	-	-	-	660	960
Mov Cap-2 Maneuver	-	-	-	-	691	-
Stage 1	-	-	-	-	887	-
Stage 2	-	-	-	-	829	-

Approach	EB	WB	SB
HCM Control Delay, s	3.3	0	10.6
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1440	-	-	-	691	960
HCM Lane V/C Ratio	0.044	-	-	-	0.216	0.104
HCM Control Delay (s)	7.6	-	-	-	11.6	9.2
HCM Lane LOS	A	-	-	-	B	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.8	0.3

Intersection	
Intersection Delay, s/veh	8.3
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	100	20	10	80	10	20	30	10	20	30	20
Future Vol, veh/h	10	100	20	10	80	10	20	30	10	20	30	20
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	12	12	12	12	12	12	12	12	12	12	12	12
Mvmt Flow	11	109	22	11	87	11	22	33	11	22	33	22
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.5	8.3	8.2	8.2
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	33%	8%	10%	29%
Vol Thru, %	50%	77%	80%	43%
Vol Right, %	17%	15%	10%	29%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	60	130	100	70
LT Vol	20	10	10	20
Through Vol	30	100	80	30
RT Vol	10	20	10	20
Lane Flow Rate	65	141	109	76
Geometry Grp	1	1	1	1
Degree of Util (X)	0.086	0.176	0.138	0.098
Departure Headway (Hd)	4.746	4.493	4.565	4.652
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	756	800	787	772
Service Time	2.768	2.51	2.582	2.674
HCM Lane V/C Ratio	0.086	0.176	0.139	0.098
HCM Control Delay	8.2	8.5	8.3	8.2
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.3	0.6	0.5	0.3

Intersection	
Intersection Delay, s/veh	8.4
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	120	10	40	90	10	10	20	30	20	20	0
Future Vol, veh/h	10	120	10	40	90	10	10	20	30	20	20	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	12	12	12	12	12	12	2	2	2	2	2	2
Mvmt Flow	11	130	11	43	98	11	11	22	33	22	22	0
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.6	8.6	7.8	8.1
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	17%	7%	29%	50%
Vol Thru, %	33%	86%	64%	50%
Vol Right, %	50%	7%	7%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	60	140	140	40
LT Vol	10	10	40	20
Through Vol	20	120	90	20
RT Vol	30	10	10	0
Lane Flow Rate	65	152	152	43
Geometry Grp	1	1	1	1
Degree of Util (X)	0.08	0.19	0.192	0.058
Departure Headway (Hd)	4.429	4.499	4.54	4.818
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	810	799	793	744
Service Time	2.449	2.516	2.557	2.841
HCM Lane V/C Ratio	0.08	0.19	0.192	0.058
HCM Control Delay	7.8	8.6	8.6	8.1
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.3	0.7	0.7	0.2

Intersection	
Int Delay, s/veh	6.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↱		↑	↱		↑	↱		↑	↱
Traffic Vol, veh/h	10	140	10	10	80	10	10	0	40	140	20	70
Future Vol, veh/h	10	140	10	10	80	10	10	0	40	140	20	70
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	40	-	-	40	-	-	40	-	-	40
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	12	12	12	12	12	12	12	12	12	12	12	12
Mvmt Flow	11	152	11	11	87	11	11	0	43	152	22	76

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	98	0	0	163	0	0	338	294	152	310	294	87
Stage 1	-	-	-	-	-	-	174	174	-	109	109	-
Stage 2	-	-	-	-	-	-	164	120	-	201	185	-
Critical Hdwy	4.22	-	-	4.22	-	-	7.22	6.62	6.32	7.22	6.62	6.32
Critical Hdwy Stg 1	-	-	-	-	-	-	6.22	5.62	-	6.22	5.62	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.22	5.62	-	6.22	5.62	-
Follow-up Hdwy	2.308	-	-	2.308	-	-	3.608	4.108	3.408	3.608	4.108	3.408
Pot Cap-1 Maneuver	1435	-	-	1357	-	-	597	601	869	623	601	945
Stage 1	-	-	-	-	-	-	805	736	-	872	786	-
Stage 2	-	-	-	-	-	-	815	778	-	778	728	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1435	-	-	1357	-	-	527	591	869	584	591	945
Mov Cap-2 Maneuver	-	-	-	-	-	-	527	591	-	584	591	-
Stage 1	-	-	-	-	-	-	799	730	-	865	779	-
Stage 2	-	-	-	-	-	-	722	771	-	733	722	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	0.8	9.9	12.3
HCM LOS			A	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	527	869	1435	-	-	1357	-	-	585	945
HCM Lane V/C Ratio	0.021	0.05	0.008	-	-	0.008	-	-	0.297	0.081
HCM Control Delay (s)	12	9.4	7.5	0	-	7.7	0	-	13.7	9.1
HCM Lane LOS	B	A	A	A	-	A	A	-	B	A
HCM 95th %tile Q(veh)	0.1	0.2	0	-	-	0	-	-	1.2	0.3

Intersection	
Int Delay, s/veh	2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	210	100	80	80	10	20
Future Vol, veh/h	210	100	80	80	10	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	40	-	-	0	40
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	12	12	12	12	12	12
Mvmt Flow	228	109	87	87	11	22

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	337	0	489	228
Stage 1	-	-	-	-	228	-
Stage 2	-	-	-	-	261	-
Critical Hdwy	-	-	4.22	-	6.52	6.32
Critical Hdwy Stg 1	-	-	-	-	5.52	-
Critical Hdwy Stg 2	-	-	-	-	5.52	-
Follow-up Hdwy	-	-	2.308	-	3.608	3.408
Pot Cap-1 Maneuver	-	-	1168	-	521	787
Stage 1	-	-	-	-	787	-
Stage 2	-	-	-	-	760	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1168	-	480	787
Mov Cap-2 Maneuver	-	-	-	-	480	-
Stage 1	-	-	-	-	787	-
Stage 2	-	-	-	-	701	-

Approach	EB	WB	NB
HCM Control Delay, s	0	4.2	10.7
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	480	787	-	-	1168	-
HCM Lane V/C Ratio	0.023	0.028	-	-	0.074	-
HCM Control Delay (s)	12.7	9.7	-	-	8.3	0
HCM Lane LOS	B	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0.2	-

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	10	210	20	10	140	0	20	0	10	0	0	0
Future Vol, veh/h	10	210	20	10	140	0	20	0	10	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	12	12	12	12	12	12	12	12	12	12	12	12
Mvmt Flow	11	228	22	11	152	0	22	0	11	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	152	0	0	250	0	0	435	435	239	441	446	152
Stage 1	-	-	-	-	-	-	261	261	-	174	174	-
Stage 2	-	-	-	-	-	-	174	174	-	267	272	-
Critical Hdwy	4.22	-	-	4.22	-	-	7.22	6.62	6.32	7.22	6.62	6.32
Critical Hdwy Stg 1	-	-	-	-	-	-	6.22	5.62	-	6.22	5.62	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.22	5.62	-	6.22	5.62	-
Follow-up Hdwy	2.308	-	-	2.308	-	-	3.608	4.108	3.408	3.608	4.108	3.408
Pot Cap-1 Maneuver	1370	-	-	1259	-	-	514	500	776	510	492	869
Stage 1	-	-	-	-	-	-	722	674	-	805	736	-
Stage 2	-	-	-	-	-	-	805	736	-	717	667	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1370	-	-	1259	-	-	507	491	776	496	483	869
Mov Cap-2 Maneuver	-	-	-	-	-	-	507	491	-	496	483	-
Stage 1	-	-	-	-	-	-	716	668	-	798	729	-
Stage 2	-	-	-	-	-	-	797	729	-	701	661	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.5	11.7	0
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	573	1370	-	-	1259	-	-	-
HCM Lane V/C Ratio	0.057	0.008	-	-	0.009	-	-	-
HCM Control Delay (s)	11.7	7.6	0	-	7.9	0	-	0
HCM Lane LOS	B	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	-

Intersection	
Intersection Delay, s/veh	11.3
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	180	20	20	100	30	20	70	30	40	110	30
Future Vol, veh/h	20	180	20	20	100	30	20	70	30	40	110	30
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	12	12	12	12	12	12	12	12	12	12	12	12
Mvmt Flow	22	196	22	22	109	33	22	76	33	43	120	33
Number of Lanes	0	1	0	0	1	1	0	2	0	1	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	3	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	2	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	3	2	1
HCM Control Delay	13.2	10.8	10.2	10.1
HCM LOS	B	B	B	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	36%	0%	9%	16%	0%	100%	0%	0%
Vol Thru, %	64%	54%	82%	81%	0%	0%	100%	55%
Vol Right, %	0%	46%	9%	2%	100%	0%	0%	45%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	55	65	220	123	27	40	73	67
LT Vol	20	0	20	20	0	40	0	0
Through Vol	35	35	180	100	0	0	73	37
RT Vol	0	30	20	3	27	0	0	30
Lane Flow Rate	60	71	239	134	29	43	80	72
Geometry Grp	8	8	8	8	8	8	8	8
Degree of Util (X)	0.113	0.124	0.412	0.241	0.047	0.084	0.143	0.124
Departure Headway (Hd)	6.819	6.306	6.2	6.494	5.723	6.968	6.461	6.142
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	525	567	581	552	624	514	555	583
Service Time	4.57	4.056	3.942	4.241	3.47	4.715	4.207	3.888
HCM Lane V/C Ratio	0.114	0.125	0.411	0.243	0.046	0.084	0.144	0.123
HCM Control Delay	10.4	10	13.2	11.3	8.8	10.4	10.3	9.8
HCM Lane LOS	B	A	B	B	A	B	B	A
HCM 95th-tile Q	0.4	0.4	2	0.9	0.1	0.3	0.5	0.4

Intersection	
Intersection Delay, s/veh	8.7
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	110	0	10	100	20	10	80	10	20	20	20
Future Vol, veh/h	20	110	0	10	100	20	10	80	10	20	20	20
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	12	12	12	12	12	12	12	12	12	12	12	12
Mvmt Flow	22	120	0	11	109	22	11	87	11	22	22	22
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.8	8.7	8.7	8.3
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	10%	15%	8%	33%
Vol Thru, %	80%	85%	77%	33%
Vol Right, %	10%	0%	15%	33%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	100	130	130	60
LT Vol	10	20	10	20
Through Vol	80	110	100	20
RT Vol	10	0	20	20
Lane Flow Rate	109	141	141	65
Geometry Grp	1	1	1	1
Degree of Util (X)	0.146	0.185	0.181	0.087
Departure Headway (Hd)	4.819	4.725	4.621	4.783
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	745	759	776	749
Service Time	2.849	2.755	2.651	2.815
HCM Lane V/C Ratio	0.146	0.186	0.182	0.087
HCM Control Delay	8.7	8.8	8.7	8.3
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.5	0.7	0.7	0.3

Intersection	
Intersection Delay, s/veh	8.6
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	120	10	30	120	30	10	10	30	20	10	10
Future Vol, veh/h	10	120	10	30	120	30	10	10	30	20	10	10
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	12	12	12	12	12	12	2	2	2	2	2	2
Mvmt Flow	11	130	11	33	130	33	11	11	33	22	11	11
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.6	8.9	7.8	8.1
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	20%	7%	17%	50%
Vol Thru, %	20%	86%	67%	25%
Vol Right, %	60%	7%	17%	25%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	50	140	180	40
LT Vol	10	10	30	20
Through Vol	10	120	120	10
RT Vol	30	10	30	10
Lane Flow Rate	54	152	196	43
Geometry Grp	1	1	1	1
Degree of Util (X)	0.067	0.191	0.241	0.057
Departure Headway (Hd)	4.465	4.516	4.434	4.747
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	803	797	812	755
Service Time	2.487	2.531	2.448	2.77
HCM Lane V/C Ratio	0.067	0.191	0.241	0.057
HCM Control Delay	7.8	8.6	8.9	8.1
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.2	0.7	0.9	0.2

Intersection	
Int Delay, s/veh	5.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↱		↑	↱		↑	↱		↑	↱
Traffic Vol, veh/h	10	170	10	10	110	20	20	0	50	100	20	60
Future Vol, veh/h	10	170	10	10	110	20	20	0	50	100	20	60
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	40	-	-	40	-	-	40	-	-	40
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	12	12	12	12	12	12	12	12	12	12	12	12
Mvmt Flow	11	185	11	11	120	22	22	0	54	109	22	65

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	142	0	0	196	0	0	404	371	185	382	360	120
Stage 1	-	-	-	-	-	-	207	207	-	142	142	-
Stage 2	-	-	-	-	-	-	197	164	-	240	218	-
Critical Hdwy	4.22	-	-	4.22	-	-	7.22	6.62	6.32	7.22	6.62	6.32
Critical Hdwy Stg 1	-	-	-	-	-	-	6.22	5.62	-	6.22	5.62	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.22	5.62	-	6.22	5.62	-
Follow-up Hdwy	2.308	-	-	2.308	-	-	3.608	4.108	3.408	3.608	4.108	3.408
Pot Cap-1 Maneuver	1382	-	-	1319	-	-	540	543	832	558	551	905
Stage 1	-	-	-	-	-	-	773	712	-	838	761	-
Stage 2	-	-	-	-	-	-	782	744	-	742	704	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1382	-	-	1319	-	-	479	533	832	514	541	905
Mov Cap-2 Maneuver	-	-	-	-	-	-	479	533	-	514	541	-
Stage 1	-	-	-	-	-	-	766	706	-	830	754	-
Stage 2	-	-	-	-	-	-	698	737	-	687	698	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	0.6	10.5	12.6
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	479	832	1382	-	-	1319	-	-	518	905
HCM Lane V/C Ratio	0.045	0.065	0.008	-	-	0.008	-	-	0.252	0.072
HCM Control Delay (s)	12.9	9.6	7.6	0	-	7.8	0	-	14.3	9.3
HCM Lane LOS	B	A	A	A	-	A	A	-	B	A
HCM 95th %tile Q(veh)	0.1	0.2	0	-	-	0	-	-	1	0.2

Intersection	
Int Delay, s/veh	2.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	210	110	120	100	20	40
Future Vol, veh/h	210	110	120	100	20	40
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	40	-	-	0	40
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	12	12	12	12	12	12
Mvmt Flow	228	120	130	109	22	43

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	348	0	597	228
Stage 1	-	-	-	-	228	-
Stage 2	-	-	-	-	369	-
Critical Hdwy	-	-	4.22	-	6.52	6.32
Critical Hdwy Stg 1	-	-	-	-	5.52	-
Critical Hdwy Stg 2	-	-	-	-	5.52	-
Follow-up Hdwy	-	-	2.308	-	3.608	3.408
Pot Cap-1 Maneuver	-	-	1157	-	450	787
Stage 1	-	-	-	-	787	-
Stage 2	-	-	-	-	678	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1157	-	396	787
Mov Cap-2 Maneuver	-	-	-	-	396	-
Stage 1	-	-	-	-	787	-
Stage 2	-	-	-	-	597	-

Approach	EB	WB	NB
HCM Control Delay, s	0	4.6	11.4
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	396	787	-	-	1157	-
HCM Lane V/C Ratio	0.055	0.055	-	-	0.113	-
HCM Control Delay (s)	14.6	9.8	-	-	8.5	0
HCM Lane LOS	B	A	-	-	A	A
HCM 95th %tile Q(veh)	0.2	0.2	-	-	0.4	-

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	170	20	10	170	0	20	0	10	0	0	0
Future Vol, veh/h	0	170	20	10	170	0	20	0	10	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	12	12	12	12	12	12	12	12	12	12	12	12
Mvmt Flow	0	185	22	11	185	0	22	0	11	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	185	0	0	207	0	0	403	403	196	409	414	185
Stage 1	-	-	-	-	-	-	196	196	-	207	207	-
Stage 2	-	-	-	-	-	-	207	207	-	202	207	-
Critical Hdwy	4.22	-	-	4.22	-	-	7.22	6.62	6.32	7.22	6.62	6.32
Critical Hdwy Stg 1	-	-	-	-	-	-	6.22	5.62	-	6.22	5.62	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.22	5.62	-	6.22	5.62	-
Follow-up Hdwy	2.308	-	-	2.308	-	-	3.608	4.108	3.408	3.608	4.108	3.408
Pot Cap-1 Maneuver	1332	-	-	1307	-	-	540	521	820	536	514	832
Stage 1	-	-	-	-	-	-	783	720	-	773	712	-
Stage 2	-	-	-	-	-	-	773	712	-	777	712	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1332	-	-	1307	-	-	536	516	820	525	509	832
Mov Cap-2 Maneuver	-	-	-	-	-	-	536	516	-	525	509	-
Stage 1	-	-	-	-	-	-	783	720	-	773	706	-
Stage 2	-	-	-	-	-	-	766	706	-	767	712	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.4	11.3	0
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	606	1332	-	-	1307	-	-	-
HCM Lane V/C Ratio	0.054	-	-	-	0.008	-	-	-
HCM Control Delay (s)	11.3	0	-	-	7.8	0	-	0
HCM Lane LOS	B	A	-	-	A	A	-	A
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	-

Intersection	
Intersection Delay, s/veh	18.2
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	50	150	20	20	150	50	20	380	100	50	110	30
Future Vol, veh/h	50	150	20	20	150	50	20	380	100	50	110	30
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	12	12	12	12	12	12	12	12	12	12	12	12
Mvmt Flow	54	163	22	22	163	54	22	413	109	54	120	33
Number of Lanes	0	1	0	0	1	1	0	2	0	1	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	3	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	2	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	3	2	1
HCM Control Delay	20.5	16.1	20.1	12.9
HCM LOS	C	C	C	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	10%	0%	23%	11%	0%	100%	0%	0%
Vol Thru, %	90%	66%	68%	86%	0%	0%	100%	55%
Vol Right, %	0%	34%	9%	3%	100%	0%	0%	45%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	210	290	220	175	45	50	73	67
LT Vol	20	0	50	20	0	50	0	0
Through Vol	190	190	150	150	0	0	73	37
RT Vol	0	100	20	5	45	0	0	30
Lane Flow Rate	228	315	239	190	49	54	80	72
Geometry Grp	8	8	8	8	8	8	8	8
Degree of Util (X)	0.482	0.639	0.546	0.438	0.102	0.134	0.186	0.162
Departure Headway (Hd)	7.598	7.301	8.223	8.29	7.536	8.893	8.378	8.054
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	473	495	438	434	474	402	426	443
Service Time	5.361	5.064	5.996	6.065	5.311	6.673	6.158	5.833
HCM Lane V/C Ratio	0.482	0.636	0.546	0.438	0.103	0.134	0.188	0.163
HCM Control Delay	17.3	22.2	20.5	17.4	11.2	13.1	13.1	12.4
HCM Lane LOS	C	C	C	C	B	B	B	B
HCM 95th-tile Q	2.6	4.4	3.2	2.2	0.3	0.5	0.7	0.6

Intersection	
Intersection Delay, s/veh	10.4
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	100	42	143	80	10	25	45	50	20	96	20
Future Vol, veh/h	10	100	42	143	80	10	25	45	50	20	96	20
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	12	12	12	12	12	12	12	12	12	12	12	12
Mvmt Flow	11	109	46	155	87	11	27	49	54	22	104	22
Number of Lanes	1	1	0	1	1	0	0	1	1	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	2	2
HCM Control Delay	10.2	10.6	9.4	11.1
HCM LOS	B	B	A	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	36%	0%	100%	0%	100%	0%	15%
Vol Thru, %	64%	0%	0%	70%	0%	89%	71%
Vol Right, %	0%	100%	0%	30%	0%	11%	15%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	70	50	10	142	143	90	136
LT Vol	25	0	10	0	143	0	20
Through Vol	45	0	0	100	0	80	96
RT Vol	0	50	0	42	0	10	20
Lane Flow Rate	76	54	11	154	155	98	148
Geometry Grp	7	7	7	7	7	7	6
Degree of Util (X)	0.134	0.082	0.019	0.244	0.272	0.155	0.248
Departure Headway (Hd)	6.317	5.429	6.417	5.702	6.301	5.717	6.05
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	569	661	559	631	574	631	594
Service Time	4.042	3.154	4.142	3.427	4.001	3.417	4.075
HCM Lane V/C Ratio	0.134	0.082	0.02	0.244	0.27	0.155	0.249
HCM Control Delay	10	8.6	9.3	10.3	11.3	9.5	11.1
HCM Lane LOS	A	A	A	B	B	A	B
HCM 95th-tile Q	0.5	0.3	0.1	1	1.1	0.5	1

Intersection	
Intersection Delay, s/veh	14.7
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	214	10	40	436	10	10	20	30	20	20	0
Future Vol, veh/h	10	214	10	40	436	10	10	20	30	20	20	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	12	12	12	12	12	12	2	2	2	2	2	2
Mvmt Flow	11	233	11	43	474	11	11	22	33	22	22	0
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	10.8	17.7	9.3	9.5
HCM LOS	B	C	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	17%	4%	8%	50%
Vol Thru, %	33%	91%	90%	50%
Vol Right, %	50%	4%	2%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	60	234	486	40
LT Vol	10	10	40	20
Through Vol	20	214	436	20
RT Vol	30	10	10	0
Lane Flow Rate	65	254	528	43
Geometry Grp	1	1	1	1
Degree of Util (X)	0.101	0.352	0.691	0.073
Departure Headway (Hd)	5.551	4.988	4.711	6.067
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	638	715	761	594
Service Time	3.65	3.057	2.768	4.067
HCM Lane V/C Ratio	0.102	0.355	0.694	0.072
HCM Control Delay	9.3	10.8	17.7	9.5
HCM Lane LOS	A	B	C	A
HCM 95th-tile Q	0.3	1.6	5.6	0.2

Intersection	
Int Delay, s/veh	8.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↱		↑	↱		↑	↱		↑	↱
Traffic Vol, veh/h	28	216	10	10	218	10	10	0	40	140	20	278
Future Vol, veh/h	28	216	10	10	218	10	10	0	40	140	20	278
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	40	-	-	40	-	-	40	-	-	40
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	12	12	12	12	12	12	12	12	12	12	12	12
Mvmt Flow	30	235	11	11	237	11	11	0	43	152	22	302

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	248	0	0	246	0	0	722	565	235	581	565	237
Stage 1	-	-	-	-	-	-	295	295	-	259	259	-
Stage 2	-	-	-	-	-	-	427	270	-	322	306	-
Critical Hdwy	4.22	-	-	4.22	-	-	7.22	6.62	6.32	7.22	6.62	6.32
Critical Hdwy Stg 1	-	-	-	-	-	-	6.22	5.62	-	6.22	5.62	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.22	5.62	-	6.22	5.62	-
Follow-up Hdwy	2.308	-	-	2.308	-	-	3.608	4.108	3.408	3.608	4.108	3.408
Pot Cap-1 Maneuver	1261	-	-	1264	-	-	330	421	780	410	421	778
Stage 1	-	-	-	-	-	-	692	651	-	724	676	-
Stage 2	-	-	-	-	-	-	586	668	-	669	644	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1261	-	-	1264	-	-	188	405	780	376	405	778
Mov Cap-2 Maneuver	-	-	-	-	-	-	188	405	-	376	405	-
Stage 1	-	-	-	-	-	-	673	633	-	704	669	-
Stage 2	-	-	-	-	-	-	343	661	-	614	626	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.9	0.3	13	16.1
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	188	780	1261	-	-	1264	-	-	379	778
HCM Lane V/C Ratio	0.058	0.056	0.024	-	-	0.009	-	-	0.459	0.388
HCM Control Delay (s)	25.3	9.9	7.9	0	-	7.9	0	-	22.3	12.5
HCM Lane LOS	D	A	A	A	-	A	A	-	C	B
HCM 95th %tile Q(veh)	0.2	0.2	0.1	-	-	0	-	-	2.3	1.8

Intersection	
Int Delay, s/veh	2.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	229	157	80	167	61	20
Future Vol, veh/h	229	157	80	167	61	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	40	-	-	0	40
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	12	12	12	12	12	12
Mvmt Flow	249	171	87	182	66	22

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	420	0	605	249
Stage 1	-	-	-	-	249	-
Stage 2	-	-	-	-	356	-
Critical Hdwy	-	-	4.22	-	6.52	6.32
Critical Hdwy Stg 1	-	-	-	-	5.52	-
Critical Hdwy Stg 2	-	-	-	-	5.52	-
Follow-up Hdwy	-	-	2.308	-	3.608	3.408
Pot Cap-1 Maneuver	-	-	1087	-	445	766
Stage 1	-	-	-	-	770	-
Stage 2	-	-	-	-	687	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1087	-	405	766
Mov Cap-2 Maneuver	-	-	-	-	405	-
Stage 1	-	-	-	-	770	-
Stage 2	-	-	-	-	626	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.8	14.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	405	766	-	-	1087	-
HCM Lane V/C Ratio	0.164	0.028	-	-	0.08	-
HCM Control Delay (s)	15.6	9.8	-	-	8.6	0
HCM Lane LOS	C	A	-	-	A	A
HCM 95th %tile Q(veh)	0.6	0.1	-	-	0.3	-

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	10	229	20	10	227	0	20	0	10	0	0	0
Future Vol, veh/h	10	229	20	10	227	0	20	0	10	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	12	12	12	12	12	12	12	12	12	12	12	12
Mvmt Flow	11	249	22	11	247	0	22	0	11	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	247	0	0	271	0	0	551	551	260	557	562	247
Stage 1	-	-	-	-	-	-	282	282	-	269	269	-
Stage 2	-	-	-	-	-	-	269	269	-	288	293	-
Critical Hdwy	4.22	-	-	4.22	-	-	7.22	6.62	6.32	7.22	6.62	6.32
Critical Hdwy Stg 1	-	-	-	-	-	-	6.22	5.62	-	6.22	5.62	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.22	5.62	-	6.22	5.62	-
Follow-up Hdwy	2.308	-	-	2.308	-	-	3.608	4.108	3.408	3.608	4.108	3.408
Pot Cap-1 Maneuver	1263	-	-	1237	-	-	430	429	755	426	422	768
Stage 1	-	-	-	-	-	-	704	660	-	715	669	-
Stage 2	-	-	-	-	-	-	715	669	-	698	653	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1263	-	-	1237	-	-	424	420	755	414	414	768
Mov Cap-2 Maneuver	-	-	-	-	-	-	424	420	-	414	414	-
Stage 1	-	-	-	-	-	-	697	653	-	708	662	-
Stage 2	-	-	-	-	-	-	708	662	-	681	646	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.3	12.8	0
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	497	1263	-	-	1237	-	-	-
HCM Lane V/C Ratio	0.066	0.009	-	-	0.009	-	-	-
HCM Control Delay (s)	12.8	7.9	0	-	7.9	0	-	0
HCM Lane LOS	B	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	-

Intersection	
Intersection Delay, s/veh	12.6
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	27	190	23	20	144	30	33	70	30	40	110	61
Future Vol, veh/h	27	190	23	20	144	30	33	70	30	40	110	61
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	12	12	12	12	12	12	12	12	12	12	12	12
Mvmt Flow	29	207	25	22	157	33	36	76	33	43	120	66
Number of Lanes	0	1	0	0	1	1	0	2	0	1	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	3	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	2	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	3	2	1
HCM Control Delay	15.2	12.5	11	10.7
HCM LOS	C	B	B	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	49%	0%	11%	12%	0%	100%	0%	0%
Vol Thru, %	51%	54%	79%	86%	0%	0%	100%	38%
Vol Right, %	0%	46%	10%	2%	100%	0%	0%	62%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	68	65	240	167	27	40	73	98
LT Vol	33	0	27	20	0	40	0	0
Through Vol	35	35	190	144	0	0	73	37
RT Vol	0	30	23	3	27	0	0	61
Lane Flow Rate	74	71	261	182	29	43	80	106
Geometry Grp	8	8	8	8	8	8	8	8
Degree of Util (X)	0.15	0.132	0.475	0.341	0.049	0.089	0.151	0.188
Departure Headway (Hd)	7.292	6.714	6.555	6.772	6.016	7.332	6.823	6.378
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	489	531	548	528	592	487	523	559
Service Time	5.074	4.495	4.321	4.544	3.788	5.107	4.598	4.153
HCM Lane V/C Ratio	0.151	0.134	0.476	0.345	0.049	0.088	0.153	0.19
HCM Control Delay	11.4	10.5	15.2	13	9.1	10.8	10.8	10.6
HCM Lane LOS	B	B	C	B	A	B	B	B
HCM 95th-tile Q	0.5	0.5	2.5	1.5	0.2	0.3	0.5	0.7

Intersection	
Int Delay, s/veh	5.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	5	0	60	0	50	22	221	60	0
Future Vol, veh/h	0	0	0	5	0	60	0	50	22	221	60	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	100	-	-	50	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	12	12	12	2	12	2	12	12	12	12	12	12
Mvmt Flow	0	0	0	5	0	65	0	54	24	240	65	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	644	623	65	611	611	66	65	0	0	78	0	0
Stage 1	545	545	-	66	66	-	-	-	-	-	-	-
Stage 2	99	78	-	545	545	-	-	-	-	-	-	-
Critical Hdwy	7.22	6.62	6.32	7.12	6.62	6.22	4.22	-	-	4.22	-	-
Critical Hdwy Stg 1	6.22	5.62	-	6.12	5.62	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.22	5.62	-	6.12	5.62	-	-	-	-	-	-	-
Follow-up Hdwy	3.608	4.108	3.408	3.518	4.108	3.318	2.308	-	-	2.308	-	-
Pot Cap-1 Maneuver	372	389	972	406	396	998	1476	-	-	1459	-	-
Stage 1	505	503	-	945	821	-	-	-	-	-	-	-
Stage 2	883	811	-	523	503	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	304	325	972	355	331	998	1476	-	-	1459	-	-
Mov Cap-2 Maneuver	304	325	-	355	331	-	-	-	-	-	-	-
Stage 1	505	421	-	945	821	-	-	-	-	-	-	-
Stage 2	825	811	-	437	421	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	9.4	0	6.3
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1476	-	-	-	355	998	1459	-	-
HCM Lane V/C Ratio	-	-	-	-	0.015	0.065	0.165	-	-
HCM Control Delay (s)	0	-	-	0	15.3	8.9	8	-	-
HCM Lane LOS	A	-	-	A	C	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	0	0.2	0.6	-	-

Intersection	
Int Delay, s/veh	3.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	160	0	213	223	0	55
Future Vol, veh/h	160	0	213	223	0	55
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	250	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	12	12	12	12	2	2
Mvmt Flow	174	0	232	242	0	60

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	174	0	-	174
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	4.22	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	2.308	-	-	3.318
Pot Cap-1 Maneuver	-	-	1344	-	0	869
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1344	-	-	869
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	4	9.4
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	869	-	-	1344	-
HCM Lane V/C Ratio	0.069	-	-	0.172	-
HCM Control Delay (s)	9.4	-	-	8.2	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0.6	-

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		↰	↱
Traffic Vol, veh/h	0	242	53	0	11	11
Future Vol, veh/h	0	242	53	0	11	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	263	58	0	12	12

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	321	58
Stage 1	-	-	-	-	58	-
Stage 2	-	-	-	-	263	-
Critical Hdwy	-	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	0	-	-	0	673	1008
Stage 1	0	-	-	0	965	-
Stage 2	0	-	-	0	781	-
Platoon blocked, %		-	-			
Mov Cap-1 Maneuver	-	-	-	-	673	1008
Mov Cap-2 Maneuver	-	-	-	-	686	-
Stage 1	-	-	-	-	965	-
Stage 2	-	-	-	-	781	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	9.5
HCM LOS			A

Minor Lane/Major Mvmt	EBT	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	-	686	1008
HCM Lane V/C Ratio	-	-	0.017	0.012
HCM Control Delay (s)	-	-	10.3	8.6
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.1	0

Intersection	
Int Delay, s/veh	4.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	153	99	19	66	15	34
Future Vol, veh/h	153	99	19	66	15	34
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	166	108	21	72	16	37

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	93	0	-	0	497	57
Stage 1	-	-	-	-	57	-
Stage 2	-	-	-	-	440	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1501	-	-	-	532	1009
Stage 1	-	-	-	-	966	-
Stage 2	-	-	-	-	649	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1501	-	-	-	473	1009
Mov Cap-2 Maneuver	-	-	-	-	542	-
Stage 1	-	-	-	-	859	-
Stage 2	-	-	-	-	649	-

Approach	EB	WB	SB
HCM Control Delay, s	4.7	0	9.6
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1501	-	-	-	542	1009
HCM Lane V/C Ratio	0.111	-	-	-	0.03	0.037
HCM Control Delay (s)	7.7	-	-	-	11.8	8.7
HCM Lane LOS	A	-	-	-	B	A
HCM 95th %tile Q(veh)	0.4	-	-	-	0.1	0.1

Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	87	27	66	131	29	19
Future Vol, veh/h	87	27	66	131	29	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	95	29	72	142	32	21

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	214	0	-	0	362	143
Stage 1	-	-	-	-	143	-
Stage 2	-	-	-	-	219	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1356	-	-	-	637	905
Stage 1	-	-	-	-	884	-
Stage 2	-	-	-	-	817	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1356	-	-	-	592	905
Mov Cap-2 Maneuver	-	-	-	-	644	-
Stage 1	-	-	-	-	822	-
Stage 2	-	-	-	-	817	-

Approach	EB	WB	SB
HCM Control Delay, s	6	0	10.2
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1356	-	-	-	644	905
HCM Lane V/C Ratio	0.07	-	-	-	0.049	0.023
HCM Control Delay (s)	7.9	-	-	-	10.9	9.1
HCM Lane LOS	A	-	-	-	B	A
HCM 95th %tile Q(veh)	0.2	-	-	-	0.2	0.1

Intersection	
Intersection Delay, s/veh	11
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	110	15	98	100	20	33	149	152	20	64	20
Future Vol, veh/h	20	110	15	98	100	20	33	149	152	20	64	20
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	12	12	12	12	12	12	12	12	12	12	12	12
Mvmt Flow	22	120	16	107	109	22	36	162	165	22	70	22
Number of Lanes	1	1	0	1	1	0	0	1	1	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	2	2
HCM Control Delay	10.9	11	11.1	11.1
HCM LOS	B	B	B	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	18%	0%	100%	0%	100%	0%	19%
Vol Thru, %	82%	0%	0%	88%	0%	83%	62%
Vol Right, %	0%	100%	0%	12%	0%	17%	19%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	182	152	20	125	98	120	104
LT Vol	33	0	20	0	98	0	20
Through Vol	149	0	0	110	0	100	64
RT Vol	0	152	0	15	0	20	20
Lane Flow Rate	198	165	22	136	107	130	113
Geometry Grp	7	7	7	7	7	7	6
Degree of Util (X)	0.34	0.248	0.042	0.241	0.202	0.225	0.201
Departure Headway (Hd)	6.194	5.396	6.97	6.377	6.836	6.21	6.401
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	582	666	514	563	525	578	561
Service Time	3.93	3.131	4.711	4.117	4.574	3.948	4.445
HCM Lane V/C Ratio	0.34	0.248	0.043	0.242	0.204	0.225	0.201
HCM Control Delay	12.1	9.9	10	11.1	11.3	10.8	11.1
HCM Lane LOS	B	A	A	B	B	B	B
HCM 95th-tile Q	1.5	1	0.1	0.9	0.7	0.9	0.7

Intersection	
Intersection Delay, s/veh	17.4
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	473	10	30	347	30	10	10	30	20	10	10
Future Vol, veh/h	10	473	10	30	347	30	10	10	30	20	10	10
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	12	12	12	12	12	12	2	2	2	2	2	2
Mvmt Flow	11	514	11	33	377	33	11	11	33	22	11	11
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	20.2	15.7	9.7	9.9
HCM LOS	C	C	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	20%	2%	7%	50%
Vol Thru, %	20%	96%	85%	25%
Vol Right, %	60%	2%	7%	25%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	50	493	407	40
LT Vol	10	10	30	20
Through Vol	10	473	347	10
RT Vol	30	10	30	10
Lane Flow Rate	54	536	442	43
Geometry Grp	1	1	1	1
Degree of Util (X)	0.092	0.729	0.612	0.077
Departure Headway (Hd)	6.066	4.896	4.977	6.368
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	594	729	717	566
Service Time	4.07	2.983	3.068	4.374
HCM Lane V/C Ratio	0.091	0.735	0.616	0.076
HCM Control Delay	9.7	20.2	15.7	9.9
HCM Lane LOS	A	C	C	A
HCM 95th-tile Q	0.3	6.4	4.2	0.2

Intersection	
Int Delay, s/veh	8.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↱		↑	↱		↑	↱		↑	↱
Traffic Vol, veh/h	60	473	10	10	201	20	20	0	50	100	20	196
Future Vol, veh/h	60	473	10	10	201	20	20	0	50	100	20	196
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	40	-	-	40	-	-	40	-	-	40
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	12	12	12	12	12	12	12	12	12	12	12	12
Mvmt Flow	65	514	11	11	218	22	22	0	54	109	22	213

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	240	0	0	525	0	0	1013	906	514	917	895	218
Stage 1	-	-	-	-	-	-	644	644	-	240	240	-
Stage 2	-	-	-	-	-	-	369	262	-	677	655	-
Critical Hdwy	4.22	-	-	4.22	-	-	7.22	6.62	6.32	7.22	6.62	6.32
Critical Hdwy Stg 1	-	-	-	-	-	-	6.22	5.62	-	6.22	5.62	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.22	5.62	-	6.22	5.62	-
Follow-up Hdwy	2.308	-	-	2.308	-	-	3.608	4.108	3.408	3.608	4.108	3.408
Pot Cap-1 Maneuver	1270	-	-	993	-	-	208	266	541	243	270	797
Stage 1	-	-	-	-	-	-	445	453	-	742	689	-
Stage 2	-	-	-	-	-	-	631	674	-	427	448	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1270	-	-	993	-	-	133	244	541	205	247	797
Mov Cap-2 Maneuver	-	-	-	-	-	-	133	244	-	205	247	-
Stage 1	-	-	-	-	-	-	413	420	-	689	680	-
Stage 2	-	-	-	-	-	-	442	665	-	356	416	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.9	0.4	19.5	24.5
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	133	541	1270	-	-	993	-	-	211	797
HCM Lane V/C Ratio	0.163	0.1	0.051	-	-	0.011	-	-	0.618	0.267
HCM Control Delay (s)	37.3	12.4	8	0	-	8.7	0	-	46.3	11.2
HCM Lane LOS	E	B	A	A	-	A	A	-	E	B
HCM 95th %tile Q(veh)	0.6	0.3	0.2	-	-	0	-	-	3.6	1.1

Intersection	
Int Delay, s/veh	2.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	302	321	120	158	53	40
Future Vol, veh/h	302	321	120	158	53	40
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	40	-	-	0	40
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	12	12	12	12	12	12
Mvmt Flow	328	349	130	172	58	43

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	677	0	760	328
Stage 1	-	-	-	-	328	-
Stage 2	-	-	-	-	432	-
Critical Hdwy	-	-	4.22	-	6.52	6.32
Critical Hdwy Stg 1	-	-	-	-	5.52	-
Critical Hdwy Stg 2	-	-	-	-	5.52	-
Follow-up Hdwy	-	-	2.308	-	3.608	3.408
Pot Cap-1 Maneuver	-	-	869	-	360	691
Stage 1	-	-	-	-	708	-
Stage 2	-	-	-	-	634	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	869	-	301	691
Mov Cap-2 Maneuver	-	-	-	-	301	-
Stage 1	-	-	-	-	708	-
Stage 2	-	-	-	-	529	-

Approach	EB	WB	NB
HCM Control Delay, s	0	4.3	15.8
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	301	691	-	-	869	-
HCM Lane V/C Ratio	0.191	0.063	-	-	0.15	-
HCM Control Delay (s)	19.8	10.6	-	-	9.9	0
HCM Lane LOS	C	B	-	-	A	A
HCM 95th %tile Q(veh)	0.7	0.2	-	-	0.5	-

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	0	262	20	10	228	0	20	0	10	0	0	0
Future Vol, veh/h	0	262	20	10	228	0	20	0	10	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	12	12	12	12	12	12	12	12	12	12	12	12
Mvmt Flow	0	285	22	11	248	0	22	0	11	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	248	0	0	307	0	0	566	566	296	572	577	248
Stage 1	-	-	-	-	-	-	296	296	-	270	270	-
Stage 2	-	-	-	-	-	-	270	270	-	302	307	-
Critical Hdwy	4.22	-	-	4.22	-	-	7.22	6.62	6.32	7.22	6.62	6.32
Critical Hdwy Stg 1	-	-	-	-	-	-	6.22	5.62	-	6.22	5.62	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.22	5.62	-	6.22	5.62	-
Follow-up Hdwy	2.308	-	-	2.308	-	-	3.608	4.108	3.408	3.608	4.108	3.408
Pot Cap-1 Maneuver	1261	-	-	1199	-	-	420	420	720	416	414	767
Stage 1	-	-	-	-	-	-	691	651	-	714	668	-
Stage 2	-	-	-	-	-	-	714	668	-	686	643	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1261	-	-	1199	-	-	417	415	720	406	409	767
Mov Cap-2 Maneuver	-	-	-	-	-	-	417	415	-	406	409	-
Stage 1	-	-	-	-	-	-	691	651	-	714	661	-
Stage 2	-	-	-	-	-	-	706	661	-	676	643	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.3	13	0
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	485	1261	-	-	1199	-	-	-
HCM Lane V/C Ratio	0.067	-	-	-	0.009	-	-	-
HCM Control Delay (s)	13	0	-	-	8	0	-	0
HCM Lane LOS	B	A	-	-	A	A	-	A
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	-

Intersection	
Intersection Delay, s/veh	28
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	82	196	34	20	179	50	29	380	100	50	110	50
Future Vol, veh/h	82	196	34	20	179	50	29	380	100	50	110	50
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	12	12	12	12	12	12	12	12	12	12	12	12
Mvmt Flow	89	213	37	22	195	54	32	413	109	54	120	54
Number of Lanes	0	1	0	0	1	1	0	2	0	1	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	3	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	2	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	3	2	1
HCM Control Delay	43.8	21.7	27	14.7
HCM LOS	E	C	D	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	13%	0%	26%	10%	0%	100%	0%	0%
Vol Thru, %	87%	66%	63%	88%	0%	0%	100%	42%
Vol Right, %	0%	34%	11%	2%	100%	0%	0%	58%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	219	290	312	204	45	50	73	87
LT Vol	29	0	82	20	0	50	0	0
Through Vol	190	190	196	179	0	0	73	37
RT Vol	0	100	34	5	45	0	0	50
Lane Flow Rate	238	315	339	222	49	54	80	94
Geometry Grp	8	8	8	8	8	8	8	8
Degree of Util (X)	0.572	0.729	0.838	0.571	0.116	0.151	0.211	0.238
Departure Headway (Hd)	8.651	8.331	8.897	9.263	8.507	10.035	9.514	9.093
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	417	435	407	390	421	357	377	395
Service Time	6.409	6.088	6.655	7.028	6.271	7.806	7.285	6.864
HCM Lane V/C Ratio	0.571	0.724	0.833	0.569	0.116	0.151	0.212	0.238
HCM Control Delay	22.4	30.5	43.8	23.7	12.4	14.6	14.8	14.7
HCM Lane LOS	C	D	E	C	B	B	B	B
HCM 95th-tile Q	3.5	5.8	7.9	3.4	0.4	0.5	0.8	0.9

Intersection	
Int Delay, s/veh	7.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	23	0	234	0	70	15	147	40	0
Future Vol, veh/h	0	0	0	23	0	234	0	70	15	147	40	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	100	-	-	50	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	12	12	12	2	12	2	12	12	12	12	12	12
Mvmt Flow	0	0	0	25	0	254	0	76	16	160	43	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	574	455	43	447	447	84	43	0	0	92	0	0
Stage 1	363	363	-	84	84	-	-	-	-	-	-	-
Stage 2	211	92	-	363	363	-	-	-	-	-	-	-
Critical Hdwy	7.22	6.62	6.32	7.12	6.62	6.22	4.22	-	-	4.22	-	-
Critical Hdwy Stg 1	6.22	5.62	-	6.12	5.62	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.22	5.62	-	6.12	5.62	-	-	-	-	-	-	-
Follow-up Hdwy	3.608	4.108	3.408	3.518	4.108	3.318	2.308	-	-	2.308	-	-
Pot Cap-1 Maneuver	415	487	1000	522	492	975	1504	-	-	1442	-	-
Stage 1	636	607	-	924	806	-	-	-	-	-	-	-
Stage 2	769	800	-	656	607	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	281	433	1000	478	437	975	1504	-	-	1442	-	-
Mov Cap-2 Maneuver	281	433	-	478	437	-	-	-	-	-	-	-
Stage 1	636	540	-	924	806	-	-	-	-	-	-	-
Stage 2	568	800	-	583	540	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	10.3	0	6.1
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1504	-	-	-	478	975	1442	-	-
HCM Lane V/C Ratio	-	-	-	-	0.052	0.261	0.111	-	-
HCM Control Delay (s)	0	-	-	0	12.9	10	7.8	-	-
HCM Lane LOS	A	-	-	A	B	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	0.2	1	0.4	-	-

Intersection	
Int Delay, s/veh	4.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	262	0	139	208	0	211
Future Vol, veh/h	262	0	139	208	0	211
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	250	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	12	12	12	12	2	2
Mvmt Flow	285	0	151	226	0	229

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	285	0	-	285
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	4.22	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	2.308	-	-	3.318
Pot Cap-1 Maneuver	-	-	1222	-	0	754
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1222	-	-	754
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	3.3	11.8
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	754	-	-	1222	-
HCM Lane V/C Ratio	0.304	-	-	0.124	-
HCM Control Delay (s)	11.8	-	-	8.4	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	1.3	-	-	0.4	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		↰	↱
Traffic Vol, veh/h	0	161	252	0	5	5
Future Vol, veh/h	0	161	252	0	5	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	175	274	0	5	5

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	449	274
Stage 1	-	-	-	-	274	-
Stage 2	-	-	-	-	175	-
Critical Hdwy	-	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	0	-	-	0	568	765
Stage 1	0	-	-	0	772	-
Stage 2	0	-	-	0	855	-
Platoon blocked, %		-	-			
Mov Cap-1 Maneuver	-	-	-	-	568	765
Mov Cap-2 Maneuver	-	-	-	-	627	-
Stage 1	-	-	-	-	772	-
Stage 2	-	-	-	-	855	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	10.3
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	-	627	765
HCM Lane V/C Ratio	-	-	0.009	0.007
HCM Control Delay (s)	-	-	10.8	9.7
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0	0

Intersection	
Int Delay, s/veh	6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	102	63	92	44	69	160
Future Vol, veh/h	102	63	92	44	69	160
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	111	68	100	48	75	174

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	148	0	-	0	414	124
Stage 1	-	-	-	-	124	-
Stage 2	-	-	-	-	290	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1434	-	-	-	595	927
Stage 1	-	-	-	-	902	-
Stage 2	-	-	-	-	759	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1434	-	-	-	549	927
Mov Cap-2 Maneuver	-	-	-	-	611	-
Stage 1	-	-	-	-	833	-
Stage 2	-	-	-	-	759	-

Approach	EB	WB	SB
HCM Control Delay, s	4.8	0	10.4
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1434	-	-	-	611	927
HCM Lane V/C Ratio	0.077	-	-	-	0.123	0.188
HCM Control Delay (s)	7.7	-	-	-	11.7	9.8
HCM Lane LOS	A	-	-	-	B	A
HCM 95th %tile Q(veh)	0.3	-	-	-	0.4	0.7

Intersection	
Int Delay, s/veh	5.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	58	74	44	87	137	92
Future Vol, veh/h	58	74	44	87	137	92
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	63	80	48	95	149	100

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	143	0	-	0	302	96
Stage 1	-	-	-	-	96	-
Stage 2	-	-	-	-	206	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1440	-	-	-	690	960
Stage 1	-	-	-	-	928	-
Stage 2	-	-	-	-	829	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1440	-	-	-	660	960
Mov Cap-2 Maneuver	-	-	-	-	691	-
Stage 1	-	-	-	-	887	-
Stage 2	-	-	-	-	829	-

Approach	EB	WB	SB
HCM Control Delay, s	3.3	0	10.6
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1440	-	-	-	691	960
HCM Lane V/C Ratio	0.044	-	-	-	0.216	0.104
HCM Control Delay (s)	7.6	-	-	-	11.6	9.2
HCM Lane LOS	A	-	-	-	B	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.8	0.3

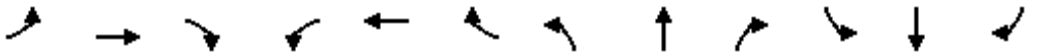
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	179	19	18	137	26	29	59	22	32	95	58
Future Volume (veh/h)	26	179	19	18	137	26	29	59	22	32	95	58
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1722	1722	1722	1722	1722	1722	1722	1722	1722	1722	1722	1722
Adj Flow Rate, veh/h	30	208	22	21	159	30	34	69	26	37	110	67
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	12	12	12	12	12	12	12	12	12	12	12	12
Cap, veh/h	175	315	31	173	360	334	68	315	113	74	274	156
Arrive On Green	0.23	0.23	0.23	0.23	0.23	0.23	0.04	0.13	0.13	0.04	0.14	0.14
Sat Flow, veh/h	111	1377	138	102	1575	1459	1640	2361	845	1640	2009	1144
Grp Volume(v), veh/h	260	0	0	180	0	30	34	47	48	37	88	89
Grp Sat Flow(s),veh/h/ln	1626	0	0	1678	0	1459	1640	1636	1570	1640	1636	1516
Q Serve(g_s), s	1.5	0.0	0.0	0.0	0.0	0.4	0.5	0.7	0.7	0.6	1.3	1.4
Cycle Q Clear(g_c), s	3.9	0.0	0.0	2.4	0.0	0.4	0.5	0.7	0.7	0.6	1.3	1.4
Prop In Lane	0.12		0.08	0.12		1.00	1.00		0.54	1.00		0.75
Lane Grp Cap(c), veh/h	522	0	0	533	0	334	68	218	209	74	223	207
V/C Ratio(X)	0.50	0.00	0.00	0.34	0.00	0.09	0.50	0.21	0.23	0.50	0.39	0.43
Avail Cap(c_a), veh/h	1364	0	0	1274	0	1007	630	629	603	630	629	583
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	9.4	0.0	0.0	8.9	0.0	8.1	12.6	10.4	10.4	12.5	10.6	10.6
Incr Delay (d2), s/veh	0.7	0.0	0.0	0.4	0.0	0.1	5.5	0.5	0.6	5.2	1.1	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	0.0	0.4	0.0	0.1	0.3	0.2	0.2	0.3	0.4	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	10.2	0.0	0.0	9.3	0.0	8.3	18.1	10.8	10.9	17.7	11.7	12.0
LnGrp LOS	B	A	A	A	A	A	B	B	B	B	B	B
Approach Vol, veh/h		260			210			129			214	
Approach Delay, s/veh		10.2			9.1			12.8			12.9	
Approach LOS		B			A			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.9	8.3		12.6	5.8	8.4		12.6				
Change Period (Y+Rc), s	* 4.7	* 4.7		* 6.5	* 4.7	* 4.7		6.5				
Max Green Setting (Gmax), s	* 10	* 10		* 20	* 10	* 10		18.5				
Max Q Clear Time (g_c+I1), s	2.6	2.7		5.9	2.5	3.4		4.4				
Green Ext Time (p_c), s	0.0	0.2		1.3	0.0	0.5		0.7				

Intersection Summary			
HCM 6th Ctrl Delay		11.0	
HCM 6th LOS		B	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



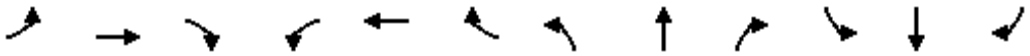
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	187	30	17	170	45	27	348	87	39	90	44
Future Volume (veh/h)	80	187	30	17	170	45	27	348	87	39	90	44
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1722	1722	1722	1722	1722	1722	1722	1722	1722	1722	1722	1722
Adj Flow Rate, veh/h	93	217	35	20	198	52	31	405	101	45	105	51
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	12	12	12	12	12	12	12	12	12	12	12	12
Cap, veh/h	202	312	44	124	505	453	60	572	141	82	507	233
Arrive On Green	0.31	0.31	0.31	0.31	0.31	0.31	0.04	0.22	0.22	0.05	0.23	0.23
Sat Flow, veh/h	263	1006	143	64	1630	1459	1640	2600	642	1640	2179	1000
Grp Volume(v), veh/h	345	0	0	218	0	52	31	253	253	45	77	79
Grp Sat Flow(s),veh/h/ln	1413	0	0	1694	0	1459	1640	1636	1607	1640	1636	1542
Q Serve(g_s), s	4.7	0.0	0.0	0.0	0.0	1.0	0.7	5.4	5.5	1.0	1.4	1.6
Cycle Q Clear(g_c), s	8.5	0.0	0.0	3.8	0.0	1.0	0.7	5.4	5.5	1.0	1.4	1.6
Prop In Lane	0.27		0.10	0.09		1.00	1.00		0.40	1.00		0.65
Lane Grp Cap(c), veh/h	559	0	0	629	0	453	60	360	353	82	381	359
V/C Ratio(X)	0.62	0.00	0.00	0.35	0.00	0.11	0.51	0.70	0.72	0.55	0.20	0.22
Avail Cap(c_a), veh/h	885	0	0	920	0	714	447	445	437	447	445	420
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.9	0.0	0.0	10.3	0.0	9.3	17.9	13.6	13.7	17.6	11.7	11.7
Incr Delay (d2), s/veh	1.1	0.0	0.0	0.3	0.0	0.1	6.6	3.8	4.2	5.7	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	0.0	0.0	0.9	0.0	0.2	0.3	2.0	2.0	0.5	0.4	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.0	0.0	0.0	10.6	0.0	9.4	24.5	17.4	17.9	23.2	11.9	12.0
LnGrp LOS	B	A	A	B	A	A	C	B	B	C	B	B
Approach Vol, veh/h		345			270			537			201	
Approach Delay, s/veh		13.0			10.4			18.0			14.5	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.6	13.0		18.2	6.1	13.5		18.2				
Change Period (Y+Rc), s	* 4.7	* 4.7		* 6.5	* 4.7	* 4.7		6.5				
Max Green Setting (Gmax), s	* 10	* 10		* 20	* 10	* 10		18.5				
Max Q Clear Time (g_c+I1), s	3.0	7.5		10.5	2.7	3.6		5.8				
Green Ext Time (p_c), s	0.0	0.8		1.5	0.0	0.4		0.9				

Intersection Summary			
HCM 6th Ctrl Delay		14.7	
HCM 6th LOS		B	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



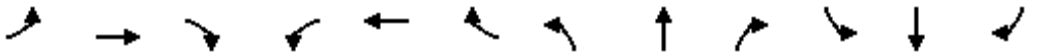
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	27	190	23	20	144	30	33	70	30	40	110	61
Future Volume (veh/h)	27	190	23	20	144	30	33	70	30	40	110	61
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1722	1722	1722	1722	1722	1722	1722	1722	1722	1722	1722	1722
Adj Flow Rate, veh/h	29	207	25	22	157	33	36	76	33	43	120	66
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	12	12	12	12	12	12	12	12	12	12	12	12
Cap, veh/h	174	302	35	177	352	327	72	285	117	84	293	152
Arrive On Green	0.22	0.22	0.22	0.22	0.22	0.22	0.04	0.13	0.13	0.05	0.14	0.14
Sat Flow, veh/h	106	1348	154	111	1568	1459	1640	2263	928	1640	2084	1080
Grp Volume(v), veh/h	261	0	0	179	0	33	36	54	55	43	93	93
Grp Sat Flow(s),veh/h/ln	1608	0	0	1679	0	1459	1640	1636	1555	1640	1636	1528
Q Serve(g_s), s	1.6	0.0	0.0	0.0	0.0	0.5	0.6	0.8	0.9	0.7	1.4	1.5
Cycle Q Clear(g_c), s	4.0	0.0	0.0	2.4	0.0	0.5	0.6	0.8	0.9	0.7	1.4	1.5
Prop In Lane	0.11		0.10	0.12		1.00	1.00		0.60	1.00		0.71
Lane Grp Cap(c), veh/h	511	0	0	529	0	327	72	206	196	84	230	215
V/C Ratio(X)	0.51	0.00	0.00	0.34	0.00	0.10	0.50	0.26	0.28	0.51	0.40	0.43
Avail Cap(c_a), veh/h	1072	0	0	983	0	742	649	635	603	636	635	593
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	9.5	0.0	0.0	8.9	0.0	8.2	12.4	10.5	10.5	12.3	10.4	10.4
Incr Delay (d2), s/veh	0.8	0.0	0.0	0.4	0.0	0.1	5.3	0.7	0.8	4.8	1.1	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	0.0	0.4	0.0	0.1	0.3	0.2	0.2	0.3	0.4	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	10.3	0.0	0.0	9.3	0.0	8.3	17.7	11.2	11.3	17.0	11.5	11.8
LnGrp LOS	B	A	A	A	A	A	B	B	B	B	B	B
Approach Vol, veh/h		261			212			145			229	
Approach Delay, s/veh		10.3			9.1			12.8			12.7	
Approach LOS		B			A			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.1	8.0		12.5	5.7	8.4		12.5				
Change Period (Y+Rc), s	* 4.7	* 4.7		* 6.5	4.5	* 4.7		6.5				
Max Green Setting (Gmax), s	* 10	* 10		* 15	10.5	* 10		13.5				
Max Q Clear Time (g_c+I1), s	2.7	2.9		6.0	2.6	3.5		4.4				
Green Ext Time (p_c), s	0.0	0.3		1.0	0.0	0.5		0.6				

Intersection Summary		
HCM 6th Ctrl Delay		11.1
HCM 6th LOS		B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	82	196	34	20	179	50	29	380	100	50	110	50
Future Volume (veh/h)	82	196	34	20	179	50	29	380	100	50	110	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1722	1722	1722	1722	1722	1722	1722	1722	1722	1722	1722	1722
Adj Flow Rate, veh/h	89	213	37	22	195	54	32	413	109	54	120	54
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	12	12	12	12	12	12	12	12	12	12	12	12
Cap, veh/h	195	294	45	127	481	433	62	576	151	94	545	233
Arrive On Green	0.30	0.30	0.30	0.30	0.30	0.30	0.04	0.22	0.22	0.06	0.24	0.24
Sat Flow, veh/h	250	990	152	75	1621	1459	1640	2567	671	1640	2232	955
Grp Volume(v), veh/h	339	0	0	217	0	54	32	262	260	54	86	88
Grp Sat Flow(s),veh/h/ln	1392	0	0	1696	0	1459	1640	1636	1601	1640	1636	1550
Q Serve(g_s), s	4.8	0.0	0.0	0.0	0.0	1.0	0.7	5.6	5.7	1.2	1.6	1.7
Cycle Q Clear(g_c), s	8.7	0.0	0.0	3.8	0.0	1.0	0.7	5.6	5.7	1.2	1.6	1.7
Prop In Lane	0.26		0.11	0.10		1.00	1.00		0.42	1.00		0.62
Lane Grp Cap(c), veh/h	534	0	0	609	0	433	62	367	360	94	399	378
V/C Ratio(X)	0.63	0.00	0.00	0.36	0.00	0.12	0.52	0.71	0.72	0.57	0.22	0.23
Avail Cap(c_a), veh/h	691	0	0	707	0	522	448	446	437	448	446	423
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.3	0.0	0.0	10.7	0.0	9.7	17.8	13.5	13.6	17.3	11.4	11.4
Incr Delay (d2), s/veh	1.3	0.0	0.0	0.4	0.0	0.1	6.5	4.1	4.6	5.4	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	0.0	0.0	0.9	0.0	0.2	0.3	2.1	2.1	0.5	0.5	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.6	0.0	0.0	11.0	0.0	9.8	24.3	17.7	18.2	22.8	11.7	11.7
LnGrp LOS	B	A	A	B	A	A	C	B	B	C	B	B
Approach Vol, veh/h		339			271			554			228	
Approach Delay, s/veh		13.6			10.8			18.3			14.3	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.9	13.2		17.7	6.1	13.9		17.7				
Change Period (Y+Rc), s	* 4.7	* 4.7		* 6.5	* 4.7	* 4.7		6.5				
Max Green Setting (Gmax), s	* 10	* 10		* 15	* 10	* 10		13.5				
Max Q Clear Time (g_c+I1), s	3.2	7.7		10.7	2.7	3.7		5.8				
Green Ext Time (p_c), s	0.0	0.8		0.9	0.0	0.4		0.7				

Intersection Summary			
HCM 6th Ctrl Delay		15.0	
HCM 6th LOS		B	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

E – Future Volume Methodology & Calculation Sheets

Ware Malcomb Industrial Building
Traffic Volume Development Methodology

The traffic volumes included in the Traffic Analysis (TA) were developed using the following process:

Step 1: Existing (2023) Traffic Volumes

Existing (2023) intersection turning movement counts were collected on May 2, 2023 at the six study area intersections. These counts were collected after the COVID-19 pandemic and during the school year. There are two schools in the vicinity of the project site: the General Shafter Elementary, which is two miles from the site, and Lakeside Union Elementary, which is five miles from the site.

Caltrans *Traffic Operations Policy Directive, 20-04* (December 7, 2020) provides guidance on how to adjust traffic counts given the impact of COVID-19 on travel demand. The Caltrans' Directive states:

> *"Historical traffic data gathered from past projects and partner agencies may be used to supplement and/or replace "existing" COVID-19 pandemic period traffic counts, subject to sound engineering justification and source documentation of historical traffic data."*

Since the turning movement counts were performed after the COVID-19 pandemic and during school, the traffic volumes collected in May 2023 were not adjusted.

Step 2: Develop Future Year Forecasts

The Kern COG regional travel demand forecasting model was used to develop traffic forecasts for the study area intersections. The forecasting process included the following:

1. AM and PM peak hour loaded networks for the base year (2022) and future year (2046) from the Kern COG model were exported and loaded into an Excel table. The model development report can be found at this URL: https://www.kerncog.org/wp-content/uploads/2017/11/VMIP-2-Model-Development-Report-KernCOG.pdf The model was calibrated to 2015 conditions and serves as the model's base year for forecasting purposes. Screenshots from the 2022 and 2046 model runs around the Houghton Road interchange are shown below.

Figure 1: 2022 AM Peak Loaded Networks

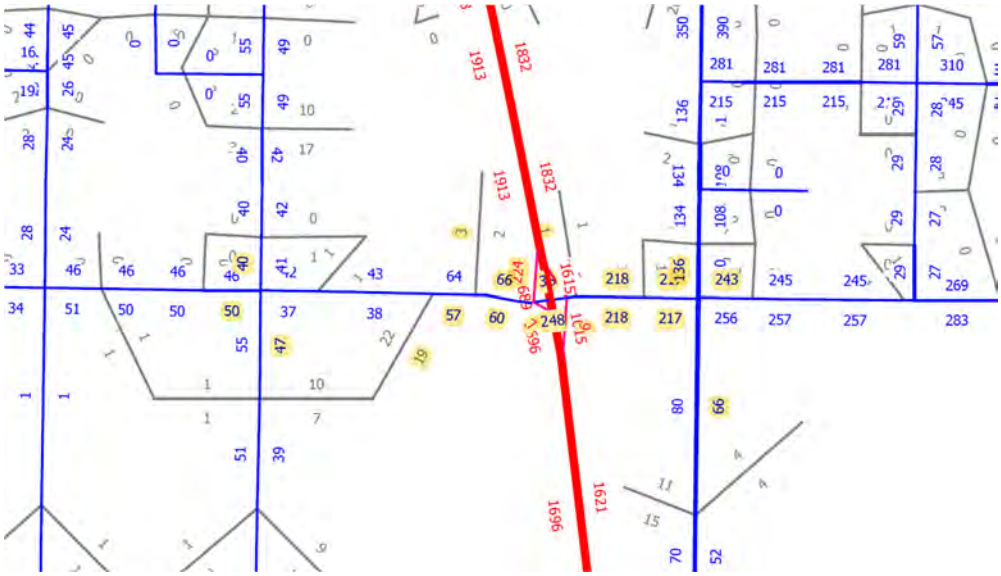


Figure 2: 2022 PM Peak Loaded Networks

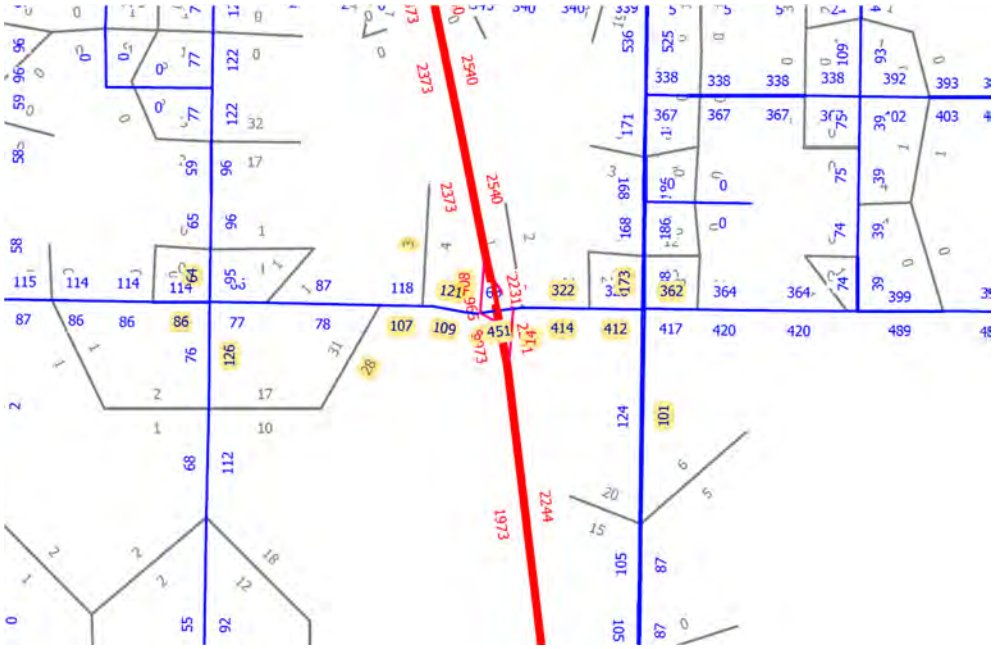


Figure 3: 2046 AM Peak Loaded Networks

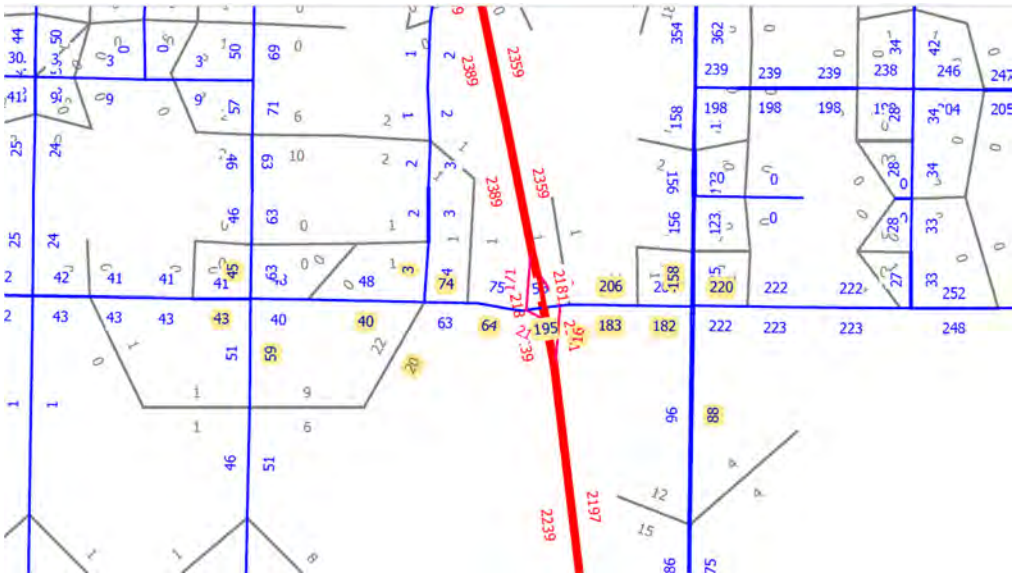
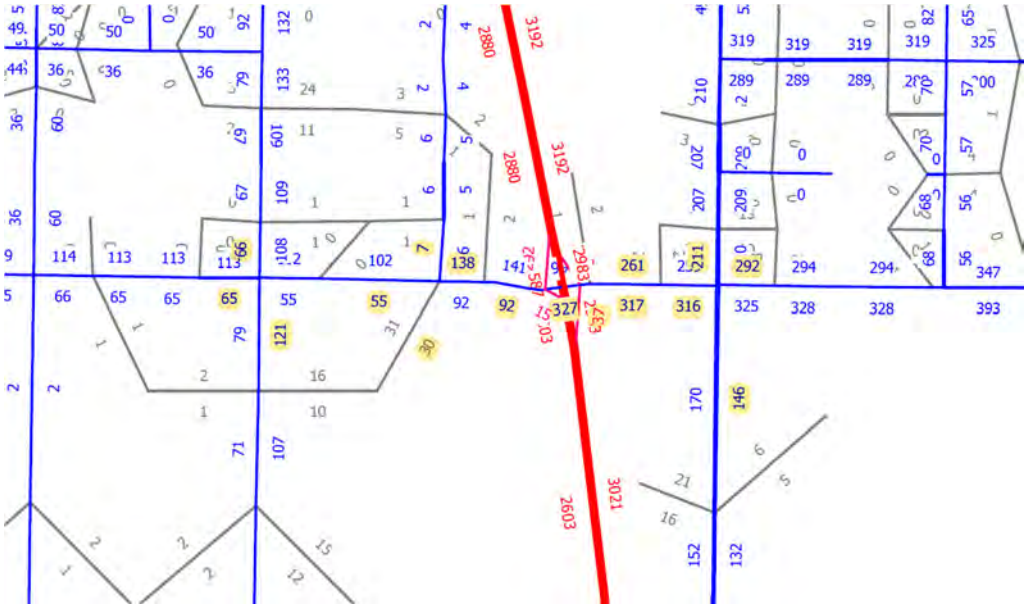


Figure 4: 2046 PM Peak Loaded Networks



2. The 2022 and 2046 directional AM/PM assigned segment volumes were used to calculate the traffic growth between 2022 and 2046 for each intersection approach. This forecasting process accounts for all planned/proposed land use and transportation projects within Kern County.

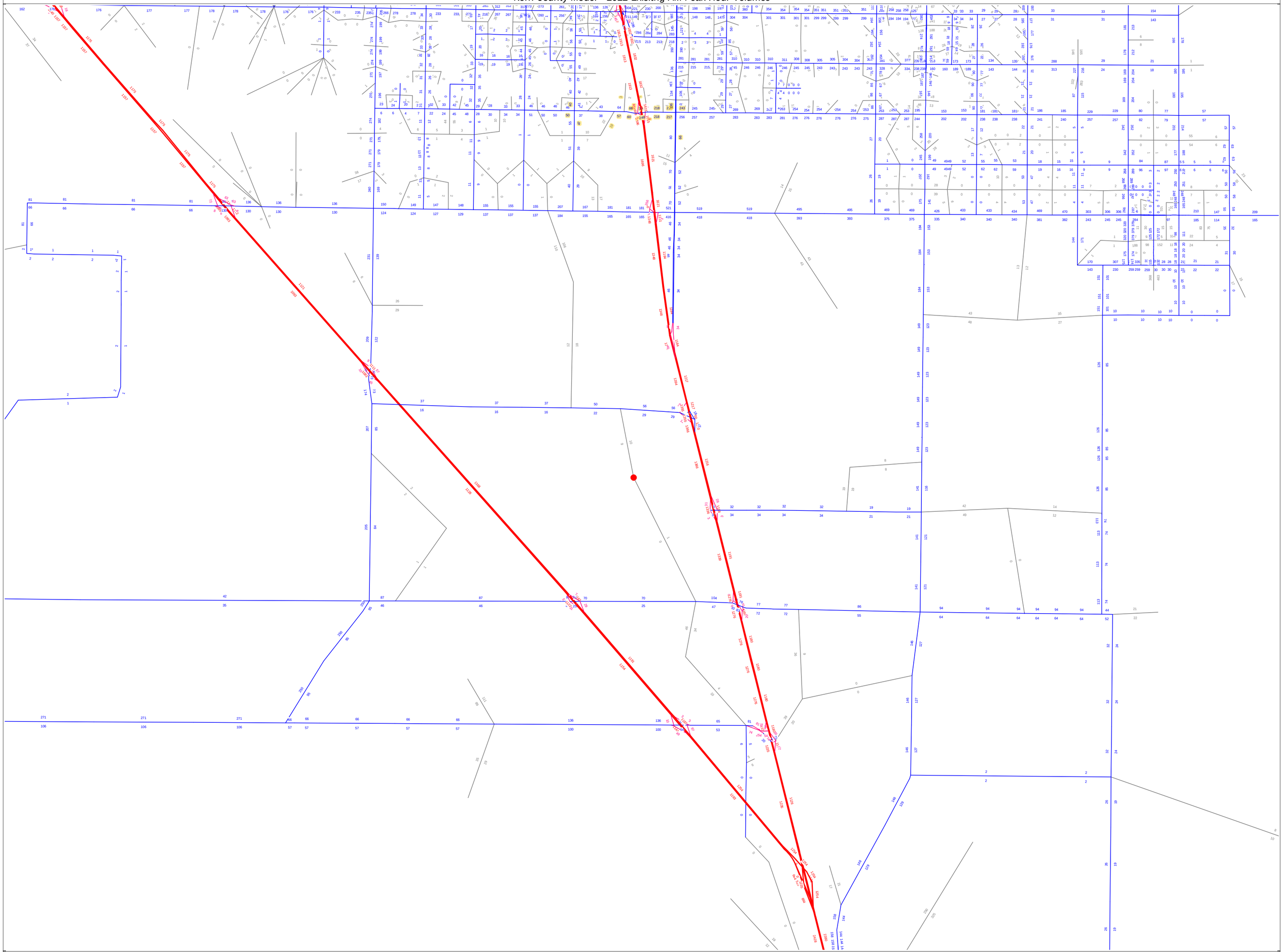
   The full growth increment from 2022 to 2046 (24 years) was added to the Existing volumes on each segment to develop the Horizon Year (2046) traffic volumes for the TA. The growth in segment volumes were applied to individual turning movements at intersections using the existing turning proportions. Assigning the full increment of growth to the Horizon Year (2046) is a conservative assumption as it accounts for countywide population and employment projections.

For segments that experienced a decrease in traffic between the 2022 and 2046 Kern COG model runs, the turning movement volume was set to the adjusted Existing volume.

The Project volumes used in the TA were assigned on top of these Cumulative Year (2042) forecasts.

3. Opening Year (2026) No Project volumes were developed for each intersection turning movement and roadway segment by assuming 24 years of linear growth between 2022 and 2046 and applying it to the adjusted Existing volumes. The Project volumes were assigned on top of these Opening Year (2026) volumes in the TA.

Kern County Model - 2022 Exisitng AM Peak Hour Volumes



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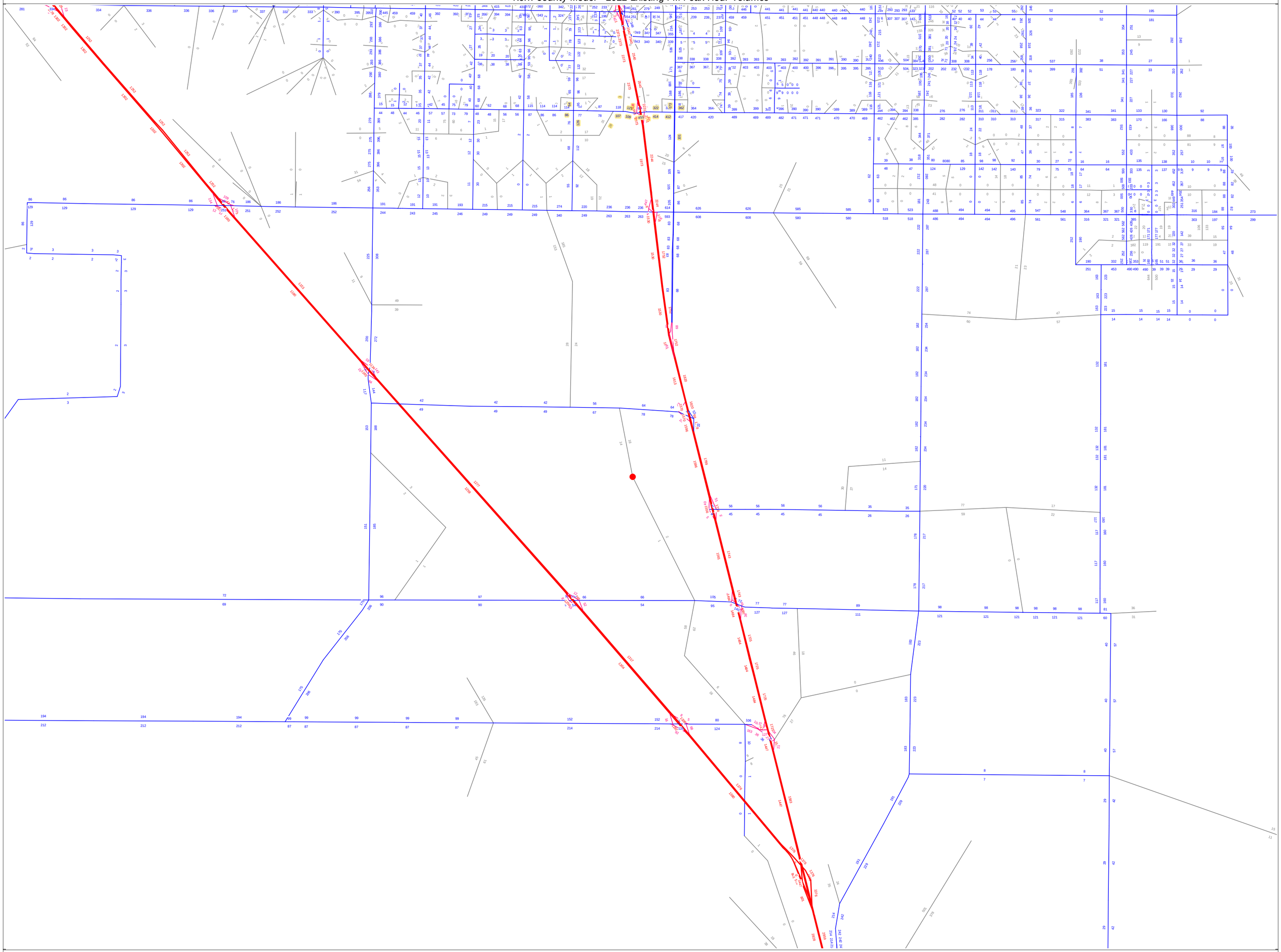
Kern County Model - 2022 Existing PM Peak Hour Volumes



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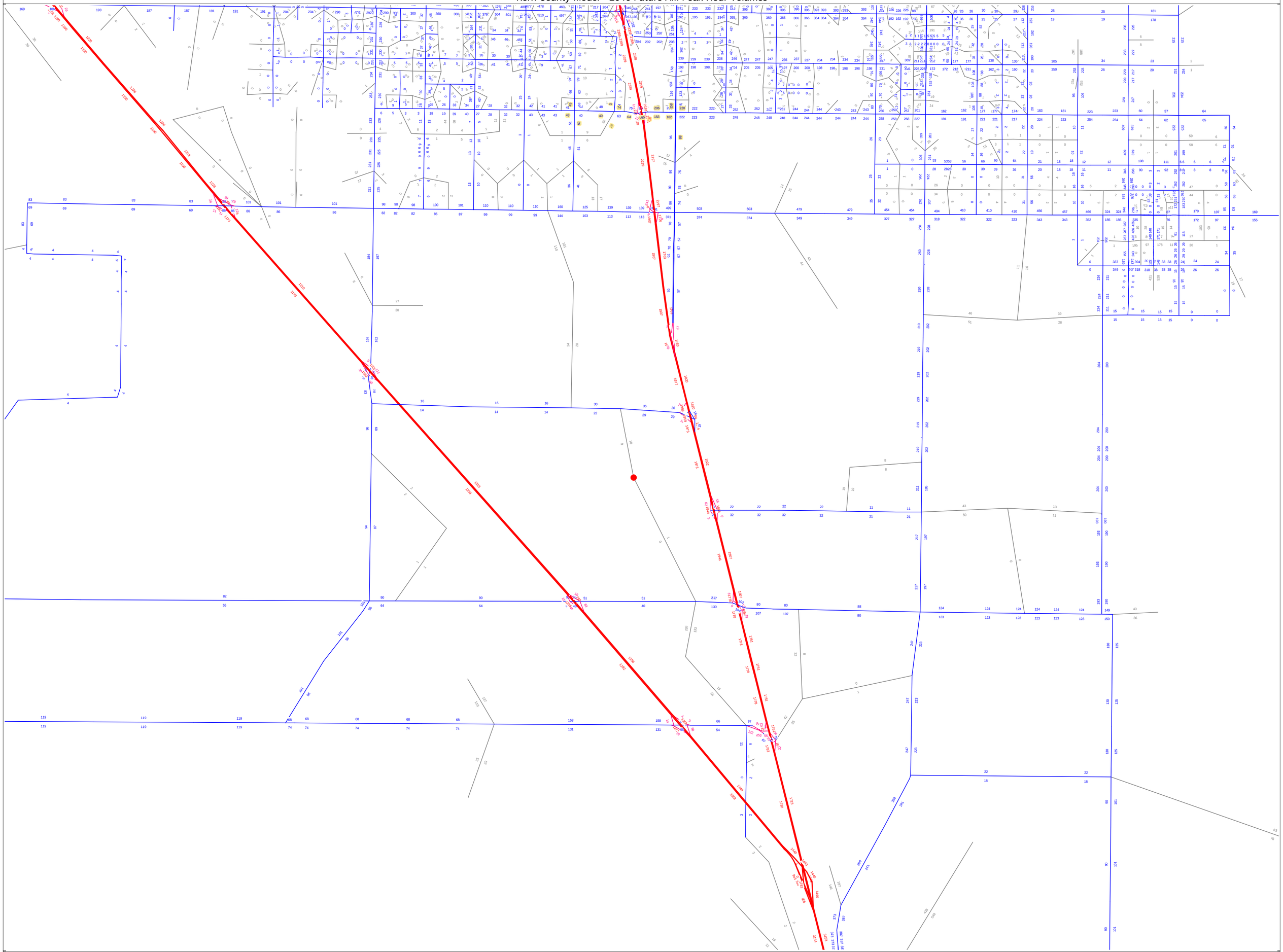
Kern County Model - 2046 Future AM Peak Hour Volumes



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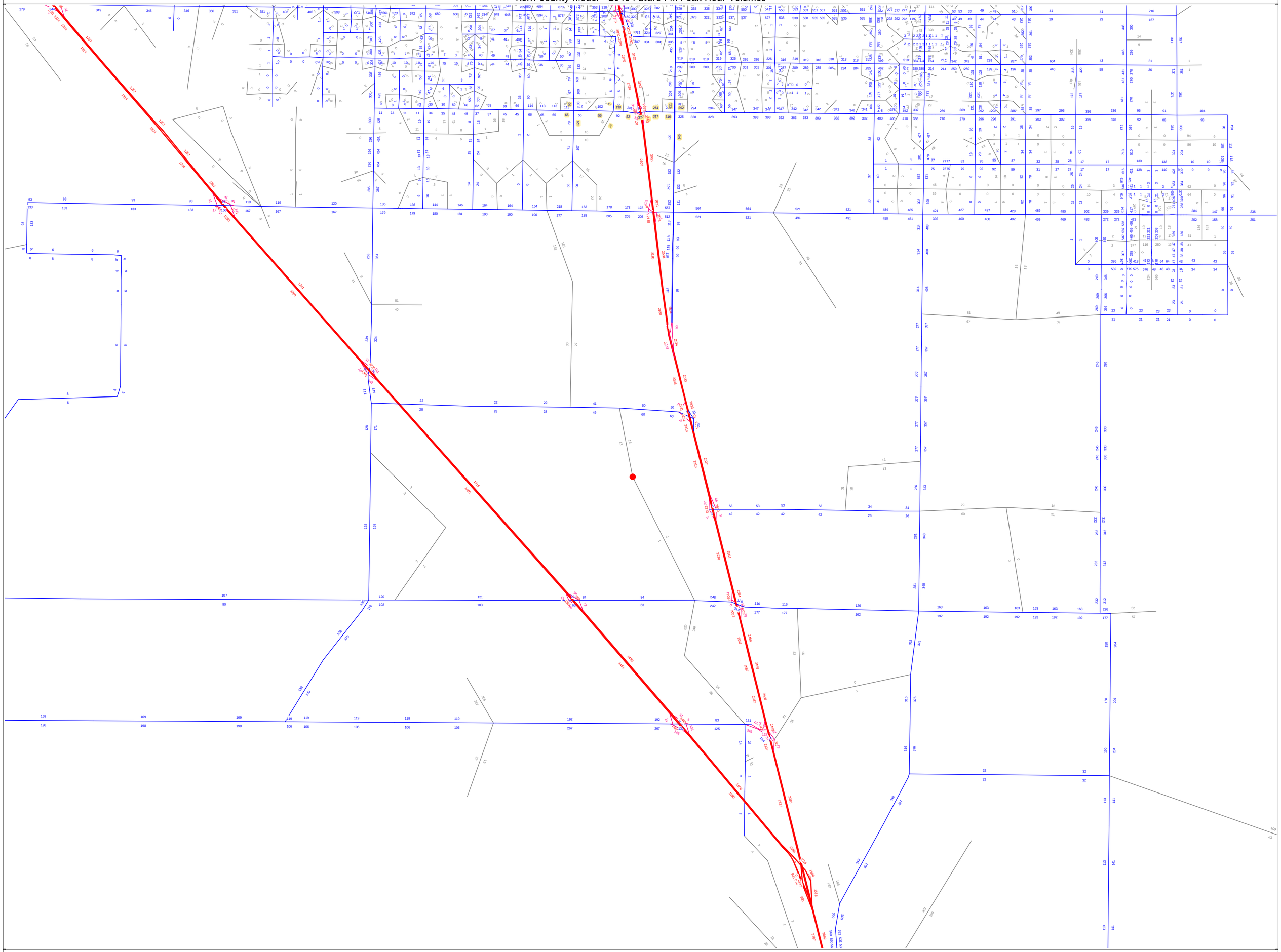
Kern County Model - 2046 Future PM Peak Hour Volumes



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Intersection Turning Movement Forecasts

		Existing		Adjusted Existing		Diff	Diff	Base Year Model		Future Year Model		Growth Check		2046 Future No Project		AM	PM	2026 OYNP		PM
Intersection	**Movement**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**Growth**	**Growth**	**AM**	**PM**	**Growth**
1	NBL	11	4	11	4	0	0							20	10	107%	33%	13	6	9%
Houghton	NBT	15	64	15	64	0	0	47	126	59	121	12	-5	30	80			18	68	
Wible	NBR	3	7	3	7	0	0							10	10			5	8	
	SBL	11	12	11	12	0	0							20	20	71%	36%	13	14	11%
	SBT	19	13	19	13	0	0	40	64	45	66	5	2	30	20			22	15	
	SBR	11	19	11	19	0	0							20	20			13	20	
	EBL	7	14	7	14	0	0							10	20	21%	18%	8	16	5%
	EBT	88	96	88	96	0	0	50	86	43	65	-7	-21	100	110			91	99	
	EBR	12	0	12	0	0	0							20	0			14	0	
	WBL	4	1	4	1	0	0							10	10	33%	31%	6	3	7%
0%	WBT	67	81	67	81	0	0	42	86	48	102	6	16	80	100			70	85	
9%	WBR	4	17	4	17	0	0							10	20			6	18	
2	NBL	2	2	2	2	0	0							10	10	40%	67%	4	4	17%
Houghton	NBT	14	7	14	7	0	0	19	28	20	30	1	2	20	10			16	8	
H St	NBR	27	21	27	21	0	0							30	30			28	23	
	SBL	9	9	9	9	0	0							20	20	122%	186%	12	12	50%
	SBT	9	4	9	4	0	0	3	3	3	7	0	4	20	10			12	6	
	SBR	0	1	0	1	0	0							0	10			0	3	
	EBL	1	2	1	2	0	0							10	10	36%	30%	3	4	7%
	EBT	101	103	101	103	0	0	57	107	40	55	-17	-52	120	120			105	107	
	EBR	1	3	1	3	0	0							10	10			3	5	
	WBL	31	22	31	22	0	0							40	30	19%	16%	33	24	4%
20%	WBT	78	108	78	108	0	0	66	121	74	138	8	17	90	120			81	111	
9%	WBR	9	25	9	25	0	0							10	30			10	26	
3	NBL	2	14	2	14	0	0							10	20	61%	30%	4	16	7%
Houghton	NBT	0	0	0	0	0	0	0	0	10	10	10	10	0	0			0	0	
SR-99 SB Ramps	NBR	29	40	29	40	0	0							40	50			32	42	
	SBL	130	86	130	86	0	0							140	100	12%	18%	132	89	4%
	SBT	18	12	18	12	0	0	224	408	171	292	-53	-116	20	20			19	14	
	SBR	58	55	58	55	0	0							70	60			61	56	
	EBL	5	6	5	6	0	0							10	10	17%	16%	6	7	4%
	EBT	129	154	129	154	0	0	60	109	64	99	4	-10	140	170			132	158	
	EBR	3	4	3	4	0	0							10	10			5	6	
	WBL	4	4	4	4	0	0							10	10	47%	36%	6	6	9%
24%	WBT	58	85	58	85	0	0	38	63	55	92	17	29	80	110			63	90	
30%	WBR	6	14	6	14	0	0							10	20			7	16	
4	NBL	1	10	1	10	0	0							10	20	329%	100%	3	12	20%
Houghton	NBT	0	0	0	0	0	0	6	14	16	37	10	23	0	0			0	0	
SR-99 NB Ramps	NBR	6	20	6	20	0	0							20	40			9	24	
	SBL	0	0	0	0	0	0							0	0	#DIV/0!	#DIV/0!	0	0	0%
	SBT	0	0	0	0	0	0	0	0	0	0	0	0	0	0			0	0	
	SBR	0	0	0	0	0	0							0	0			0	0	
	EBL	0	0	0	0	0	0							0	0	7%	10%	0	0	2%
	EBT	201	194	201	194	0	0	248	451	195	327	-53	-124	210	210			203	198	
	EBR	88	97	88	97	0	0							100	110			91	100	
	WBL	67	107	67	107	0	0							80	120	20%	11%	70	110	3%
31%	WBT	66	91	66	91	0	0	218	322	206	261	-12	-61	80	100			69	93	
27%	WBR	0	0	0	0	0	0							0	0			0	0	
5	NBL	8	6	8	6	0	0							20	20		173%	11	9	36%
Houghton	NBT	0	0	0	0	0	0	0	0	10	10	10	10	0	0			0	0	
Chevalier	NBR	5	5	5	5	0	0							10	10			6	6	
	SBL	0	0	0	0	0	0							0	0			0	0	0%
	SBT	0	0	0	0	0	0	0	0	0	0	0	0	0	0			0	0	
	SBR	0	0	0	0	0	0							0	0			0	0	
	EBL	3	0	3	0	0	0							10	0		14%	5	0	3%
	EBT	195	155	195	155	0	0	218	414	183	317	-35	-97	210	170			198	158	
	EBR	12	11	12	11	0	0							20	20			14	13	
	WBL	3	6	3	6	0	0							10	10		10%	5	7	2%
14%	WBT	126	157	126	157	0	0	217	320	204	259	-13	-61	140	170			129	160	
1%	WBR	0	0	0	0	0	0							0	0			0	0	
6	NBL	15	17	15	17	0	0							20	20		14%	16	18	3%
Houghton	NBT	56	340	56	340	0	0	66	101	88	146	22	45	70	380			59	348	
Union Ave	NBR	20	83	20	83	0	0							30	100			22	87	
	SBL	29	36	29	36	0	0							40	50		33%	32	39	7%
	SBT	91	85	91	85	0	0	136	173	158	211	22	38	110	110			95	90	
	SBR	26	22	26	22	0	0							30	30			27	24	
	EBL	18	47	18	47	0	0							20	50		10%	19	48	2%
	EBT	166	138	166	138	0	0	217	412	182	316	-35	-96	180	150			169	141	
	EBR	14	15	14	15	0	0							20	20			16	16	
	WBL	17	16	17	16	0	0							20	20		12%	18	17	3%
38%	WBT	91	138	91	138	0	0	243	362	220	292	-23	-70	100	150			93	141	
49%	WBR	24	43	24	43	0	0							30	50			26	45	
7	NBL	0	0	0	0	0	0							0	0		32%	0	0	8%
Wible	NBT	35	53	35	53	0	0	0	0	0	0	0	0	50	70			38	57	
South Private Road	NBR	0	0	0	0	0	0							0	0			0	0	
	SBL	0	0	0	0	0	0							0	0		67%	0	0	17%
	SBT	41	24	41	24	0	0	0	0	0	0	0	0	60	40			45	28	
	SBR	0	0	0	0	0	0							0	0			0	0	
	EBL	0	0	0	0	0	0							0	0			0	0	0%
	EBT	0	0	0	0	0	0							0	0			0	0	
	EBR	0	0	0	0	0	0							0	0			0	0	
	WBL	0	0	0	0	0	0							0	0			0	0	0%
	WBT	0	0	0	0	0	0							0	0			0	0	
	WBR	0	0	0	0	0	0							0	0			0	0	
8	NBL	0	0	0	0	0	0							0	0		#DIV/0!	0	0	0%
Houghton	NBT	0	0	0	0	0	0	0	0	0	0	0	0	0	0			0	0	
East Private Road	NBR	0	0	0	0	0	0							0	0			0	0	
	SBL	0	0	0	0	0	0							0	0		#DIV/0!	0	0	0%
	SBT	0	0	0	0	0	0	0	0	0	0	0	0	0	0			0	0	
	SBR	0	0	0	0	0	0							0	0			0	0	
	EBL	0	0	0	0	0	0							0	0		15%	0	0	4%
	EBT	103	104	103	104	0	0	0	0	0	0	0	0	120	120			107	108	
	EBR	0	0	0	0	0	0							0	0			0	0	
	WBL	0	0	0	0	0	0							0	0		9%	0	0	2%
	WBT	76	110	76	110	0	0	0	0	0	0	0	0	90	120			79	112	
	WBR	0	0	0	0	0	0							0	0			0	0	

F – Vehicle Queuing Calculation Sheets

Intersection: 1: Wible Rd & Houghton Rd

Movement	EB	EB	WB	WB	NB	NB	SB
Directions Served	L	TR	L	TR	LT	R	LTR
Maximum Queue (ft)	49	96	93	82	64	70	92
Average Queue (ft)	7	48	47	32	25	28	46
95th Queue (ft)	32	80	80	64	53	60	76
Link Distance (ft)		1765		1264	1083		1794
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	200		300			150	
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 3: Costajo St/SR 99 SB Ramps & Houghton Rd

Movement	EB	WB	WB	NB	NB	SB	SB
Directions Served	LT	LT	R	LT	R	LT	R
Maximum Queue (ft)	57	34	10	38	65	278	78
Average Queue (ft)	7	2	0	3	19	94	62
95th Queue (ft)	37	17	8	20	51	201	75
Link Distance (ft)	1388	717		1263		1714	
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)			40		40		40
Storage Blk Time (%)	0	0		0	1	14	17
Queuing Penalty (veh)	0	0		0	0	39	26

Intersection: 4: SR 99 NB Ramps & Houghton Rd

Movement	EB	EB	WB	NB	NB
Directions Served	T	R	LT	L	R
Maximum Queue (ft)	2	62	120	73	55
Average Queue (ft)	0	18	34	30	9
95th Queue (ft)	2	58	88	61	37
Link Distance (ft)	717		528	1290	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		40			40
Storage Blk Time (%)		0		3	0
Queuing Penalty (veh)		0		0	0

Intersection: 6: Houghton Rd & Union Ave

Movement	EB	WB	WB	NB	NB	SB	SB	SB
Directions Served	LTR	LTR	R	LT	TR	L	T	TR
Maximum Queue (ft)	135	102	31	74	68	59	58	68
Average Queue (ft)	70	48	4	37	27	19	28	29
95th Queue (ft)	112	80	21	64	59	48	50	55
Link Distance (ft)	2564	2217		1800	1800		2164	2164
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)			100			140		
Storage Blk Time (%)		0						
Queuing Penalty (veh)		0						

Intersection: 7: Wible Rd & Dirt Road/South Private Rd

Movement	WB	WB	NB	SB
Directions Served	L	TR	TR	L
Maximum Queue (ft)	31	58	6	77
Average Queue (ft)	5	28	0	14
95th Queue (ft)	23	48	5	50
Link Distance (ft)		134	2163	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	100			200
Storage Blk Time (%)			0	
Queuing Penalty (veh)			0	

Intersection: 8: East Private Rd & Houghton Rd

Movement	EB	WB	NB
Directions Served	T	L	R
Maximum Queue (ft)	2	103	46
Average Queue (ft)	0	29	19
95th Queue (ft)	2	77	38
Link Distance (ft)	1264		2434
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		250	
Storage Blk Time (%)			
Queuing Penalty (veh)			

Zone Summary

Zone wide Queuing Penalty: 66

Intersection: 1: Wible Rd & Houghton Rd

Movement	EB	EB	WB	WB	NB	NB	SB
Directions Served	L	TR	L	TR	LT	R	LTR
Maximum Queue (ft)	49	93	81	91	87	88	83
Average Queue (ft)	11	48	37	37	47	49	42
95th Queue (ft)	38	79	67	70	76	77	71
Link Distance (ft)		1765		1264	1083		1794
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	200		300			150	
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 3: Costajo St/SR 99 SB Ramps & Houghton Rd

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	LT	R	LT	R	LT	R	LT	R
Maximum Queue (ft)	95	11	42	42	65	68	246	73
Average Queue (ft)	18	0	3	2	14	23	80	59
95th Queue (ft)	62	8	22	18	44	57	175	76
Link Distance (ft)	1388		717		1263		1714	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)		40		40		40		40
Storage Blk Time (%)	1	0	0	0	1	2	15	11
Queuing Penalty (veh)	0	0	0	0	1	0	31	12

Intersection: 4: SR 99 NB Ramps & Houghton Rd

Movement	EB	EB	WB	NB	NB
Directions Served	T	R	LT	L	R
Maximum Queue (ft)	28	73	197	104	66
Average Queue (ft)	1	35	69	33	19
95th Queue (ft)	15	75	151	79	55
Link Distance (ft)	717		528	1290	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		40			40
Storage Blk Time (%)	0	1		8	1
Queuing Penalty (veh)	0	2		2	0

Intersection: 6: Houghton Rd & Union Ave

Movement	EB	WB	WB	NB	NB	SB	SB	SB
Directions Served	LTR	LTR	R	LT	TR	L	T	TR
Maximum Queue (ft)	240	126	50	127	140	63	65	67
Average Queue (ft)	97	65	9	63	69	23	28	26
95th Queue (ft)	179	108	35	103	112	51	51	54
Link Distance (ft)	2564	2217		1800	1800		2164	2164
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)			100			140		
Storage Blk Time (%)		1						
Queuing Penalty (veh)		0						

Intersection: 7: Wible Rd & Dirt Road/South Private Rd

Movement	WB	WB	NB	SB
Directions Served	L	TR	TR	L
Maximum Queue (ft)	35	74	4	74
Average Queue (ft)	15	41	0	13
95th Queue (ft)	40	63	4	47
Link Distance (ft)		134	2163	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	100			200
Storage Blk Time (%)		0	0	
Queuing Penalty (veh)		0	0	

Intersection: 8: East Private Rd & Houghton Rd

Movement	EB	WB	NB
Directions Served	T	L	R
Maximum Queue (ft)	2	82	100
Average Queue (ft)	0	34	45
95th Queue (ft)	2	73	76
Link Distance (ft)	1264		2434
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		250	
Storage Blk Time (%)			
Queuing Penalty (veh)			

Zone Summary

Zone wide Queuing Penalty: 48

Intersection: 1: Wible Rd & Houghton Rd

Movement	EB	EB	WB	WB	NB	NB	SB
Directions Served	L	TR	L	TR	LT	R	LTR
Maximum Queue (ft)	42	93	103	80	79	73	99
Average Queue (ft)	9	51	50	33	32	28	49
95th Queue (ft)	34	81	87	64	63	58	81
Link Distance (ft)		1765		1264	1083		1794
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	200		300			150	
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 3: Costajo St/SR 99 SB Ramps & Houghton Rd

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	LT	R	LT	R	LT	R	LT	R
Maximum Queue (ft)	64	7	47	13	48	67	266	76
Average Queue (ft)	9	0	3	0	8	23	102	63
95th Queue (ft)	39	6	21	8	31	57	197	75
Link Distance (ft)	1388		717		1263		1714	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)		40		40		40		40
Storage Blk Time (%)	0		0		0	1	16	19
Queuing Penalty (veh)	0		0		0	0	44	31

Intersection: 4: SR 99 NB Ramps & Houghton Rd

Movement	EB	EB	WB	NB	NB
Directions Served	T	R	LT	L	R
Maximum Queue (ft)	4	68	108	84	62
Average Queue (ft)	0	18	35	31	14
95th Queue (ft)	4	58	88	65	45
Link Distance (ft)	717		528	1290	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		40			40
Storage Blk Time (%)	0	0		3	0
Queuing Penalty (veh)	0	0		1	0

Intersection: 6: Houghton Rd & Union Ave

Movement	EB	WB	WB	NB	NB	SB	SB	SB
Directions Served	LTR	LTR	R	LT	TR	L	T	TR
Maximum Queue (ft)	140	100	31	77	74	66	65	68
Average Queue (ft)	70	50	4	41	29	22	29	30
95th Queue (ft)	113	81	22	67	62	52	51	57
Link Distance (ft)	2564	2217		1800	1800		2164	2164
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)			100			140		
Storage Blk Time (%)		0						
Queuing Penalty (veh)		0						

Intersection: 7: Wible Rd & Dirt Road/South Private Rd

Movement	WB	WB	NB	SB
Directions Served	L	TR	TR	L
Maximum Queue (ft)	31	53	9	90
Average Queue (ft)	4	28	0	17
95th Queue (ft)	20	48	6	56
Link Distance (ft)		134	2163	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	100			200
Storage Blk Time (%)			0	
Queuing Penalty (veh)			0	

Intersection: 8: East Private Rd & Houghton Rd

Movement	EB	WB	NB
Directions Served	T	L	R
Maximum Queue (ft)	6	104	51
Average Queue (ft)	0	33	19
95th Queue (ft)	5	83	39
Link Distance (ft)	1264		2434
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		250	
Storage Blk Time (%)			
Queuing Penalty (veh)			

Zone Summary

Zone wide Queuing Penalty: 76

Intersection: 1: Wible Rd & Houghton Rd

Movement	EB	EB	WB	WB	NB	NB	SB
Directions Served	L	TR	L	TR	LT	R	LTR
Maximum Queue (ft)	50	94	80	89	100	84	95
Average Queue (ft)	16	49	38	41	50	47	45
95th Queue (ft)	44	79	67	73	81	75	77
Link Distance (ft)		1765		1264	1083		1794
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	200		300			150	
Storage Blk Time (%)						0	
Queuing Penalty (veh)						0	

Intersection: 3: Costajo St/SR 99 SB Ramps & Houghton Rd

Movement	EB	WB	WB	NB	NB	SB	SB
Directions Served	LT	LT	R	LT	R	LT	R
Maximum Queue (ft)	104	45	34	68	66	300	75
Average Queue (ft)	24	5	2	14	27	94	59
95th Queue (ft)	74	25	16	43	61	214	77
Link Distance (ft)	1388	717		1263		1714	
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)			40		40		40
Storage Blk Time (%)	2	0	0	1	2	22	11
Queuing Penalty (veh)	0	0	0	1	0	43	14

Intersection: 4: SR 99 NB Ramps & Houghton Rd

Movement	EB	EB	WB	NB	NB
Directions Served	T	R	LT	L	R
Maximum Queue (ft)	25	70	220	128	70
Average Queue (ft)	2	38	74	39	27
95th Queue (ft)	16	74	156	99	64
Link Distance (ft)	717		528	1290	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		40			40
Storage Blk Time (%)	0	1		10	1
Queuing Penalty (veh)	0	2		4	1

Intersection: 6: Houghton Rd & Union Ave

Movement	EB	WB	WB	NB	NB	SB	SB	SB
Directions Served	LTR	LTR	R	LT	TR	L	T	TR
Maximum Queue (ft)	204	156	103	137	173	72	66	87
Average Queue (ft)	99	67	16	70	79	28	28	30
95th Queue (ft)	166	117	59	109	133	60	53	61
Link Distance (ft)	2564	2217		1800	1800		2164	2164
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)			100			140		
Storage Blk Time (%)		2	0					
Queuing Penalty (veh)		1	0					

Intersection: 7: Wible Rd & Dirt Road/South Private Rd

Movement	WB	WB	NB	SB
Directions Served	L	TR	TR	L
Maximum Queue (ft)	42	78	6	61
Average Queue (ft)	16	41	0	12
95th Queue (ft)	42	65	4	43
Link Distance (ft)		134	2163	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	100			200
Storage Blk Time (%)		0		
Queuing Penalty (veh)		0		

Intersection: 8: East Private Rd & Houghton Rd

Movement	EB	WB	NB
Directions Served	T	L	R
Maximum Queue (ft)	2	90	105
Average Queue (ft)	0	33	46
95th Queue (ft)	2	73	81
Link Distance (ft)	1264		2434
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		250	
Storage Blk Time (%)			
Queuing Penalty (veh)			

Zone Summary

Zone wide Queuing Penalty: 66

G – CA MUTCD Traffic Signal Warrant Sheets

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2014 MUTCD)

MAJOR STREET: **Union Ave** NB SB # OF APPROACH LANES: **2**

MINOR STREET: **Houghton Rd** EB WB # OF APPROACH LANES: **1**

CITY, STATE: **Kern County, CA**

COMMENTS: **Opening Year 2026**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N) **N**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N) **Y**

			MAJOR ST	MINOR ST	Ped Count	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour
			TWO-WAY TRAFFIC	TRAFFIC HEAVY LEG	CROSSING MAJOR ST	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET		
THRESHOLD VALUES						**420**	**105**		**630**	**53**		**336**	**84**		**504**	**42**		**60**	**75**
06:00 AM	TO	07:00 AM	251	116			Y			Y			Y			Y			
07:00 AM	TO	08:00 AM	251	204			Y			Y			Y			Y			
08:00 AM	TO	09:00 AM	216	127			Y			Y			Y			Y			
09:00 AM	TO	10:00 AM	177	94						Y			Y			Y			
10:00 AM	TO	11:00 AM	201	82						Y						Y			
11:00 AM	TO	12:00 PM	220	99						Y			Y			Y			
12:00 PM	TO	01:00 PM	205	126			Y			Y			Y			Y			
01:00 PM	TO	02:00 PM	323	91						Y			Y			Y			
02:00 PM	TO	03:00 PM	467	133		Y	Y	**Y**		Y		Y	Y	**Y**		Y			
03:00 PM	TO	04:00 PM	606	205		Y	Y	**Y**		Y		Y	Y	**Y**	Y	Y	**Y**	**Y**	
04:00 PM	TO	05:00 PM	361	162			Y			Y		Y	Y	**Y**		Y			
05:00 PM	TO	06:00 PM	335	147			Y			Y			Y			Y			
06:00 PM	TO	07:00 PM	236	105			Y			Y			Y			Y			
07:00 PM	TO	08:00 PM	182	67						Y						Y			
08:00 PM	TO	09:00 PM																	
09:00 PM	TO	10:00 PM																	
			4,031	1,758		2	9	**2**	0	14	**0**	3	12	**3**	1	14	**1**	**1**	**0**
						8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED
						NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**

10/03/23
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2014 MUTCD)

MAJOR STREET: **Union Ave** NB SB # OF APPROACH LANES: **2**

MINOR STREET: **Houghton Rd** EB WB # OF APPROACH LANES: **1**

CITY, STATE: **Kern County, CA**

COMMENTS: **Opening Year plus Project**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N) **N**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N) **Y**

			MAJOR ST	MINOR ST	Ped Count	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour
			TWO-WAY TRAFFIC	TRAFFIC HEAVY LEG	CROSSING MAJOR ST	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET		
THRESHOLD VALUES						**420**	**105**		**630**	**53**		**336**	**84**		**504**	**42**		**60**	**75**
06:00 AM	TO	07:00 AM	269	127			Y			Y			Y			Y			
07:00 AM	TO	08:00 AM	268	222			Y			Y			Y			Y			
08:00 AM	TO	09:00 AM	231	146			Y			Y			Y			Y			
09:00 AM	TO	10:00 AM	194	116			Y			Y			Y			Y			
10:00 AM	TO	11:00 AM	213	105			Y			Y			Y			Y			
11:00 AM	TO	12:00 PM	234	128			Y			Y			Y			Y			
12:00 PM	TO	01:00 PM	224	156			Y			Y			Y			Y			
01:00 PM	TO	02:00 PM	336	113			Y			Y		Y	Y	**Y**		Y			
02:00 PM	TO	03:00 PM	483	157		Y	Y	**Y**		Y		Y	Y	**Y**		Y			
03:00 PM	TO	04:00 PM	619	250		Y	Y	**Y**		Y		Y	Y	**Y**	Y	Y	**Y**	**Y**	**Y**
04:00 PM	TO	05:00 PM	371	200			Y			Y		Y	Y	**Y**		Y			
05:00 PM	TO	06:00 PM	344	182			Y			Y		Y	Y	**Y**		Y			
06:00 PM	TO	07:00 PM	240	127			Y			Y			Y			Y			
07:00 PM	TO	08:00 PM	184	73						Y						Y			
08:00 PM	TO	09:00 PM																	
09:00 PM	TO	10:00 PM																	
			4,210	2,102		2	13	**2**	0	14	**0**	5	13	**5**	1	14	**1**	**1**	**1**
						8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED
						NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**SATISFIED**

10/03/23
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2014 MUTCD)

MAJOR STREET: **Union Ave** NB SB # OF APPROACH LANES: **2**

MINOR STREET: **Houghton Rd** EB WB # OF APPROACH LANES: **1**

CITY, STATE: **Kern County, CA**

COMMENTS: **Horizon Year 2046**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N) **N**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N) **Y**

			MAJOR ST	MINOR ST	Ped Count	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour
			TWO-WAY TRAFFIC	TRAFFIC HEAVY LEG	CROSSING MAJOR ST	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET		
THRESHOLD VALUES						**420**	**105**		**630**	**53**		**336**	**84**		**504**	**42**		**60**	**75**
06:00 AM	TO	07:00 AM	300	126			Y			Y			Y			Y			
07:00 AM	TO	08:00 AM	300	220			Y			Y			Y			Y			
08:00 AM	TO	09:00 AM	258	137			Y			Y			Y			Y			
09:00 AM	TO	10:00 AM	211	101						Y			Y			Y			
10:00 AM	TO	11:00 AM	241	89						Y			Y			Y			
11:00 AM	TO	12:00 PM	263	107			Y			Y			Y			Y			
12:00 PM	TO	01:00 PM	233	135			Y			Y			Y			Y			
01:00 PM	TO	02:00 PM	368	98						Y		Y	Y	**Y**		Y			
02:00 PM	TO	03:00 PM	531	143		Y	Y	**Y**		Y		Y	Y	**Y**	Y	Y	**Y**		
03:00 PM	TO	04:00 PM	690	220		Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	**Y**	**Y**
04:00 PM	TO	05:00 PM	411	174			Y			Y		Y	Y	**Y**		Y			
05:00 PM	TO	06:00 PM	381	157			Y			Y		Y	Y	**Y**		Y			
06:00 PM	TO	07:00 PM	269	112			Y			Y			Y			Y			
07:00 PM	TO	08:00 PM	207	72						Y						Y			
08:00 PM	TO	09:00 PM																	
09:00 PM	TO	10:00 PM																	
			4,663	1,891		2	10	**2**	1	14	**1**	5	13	**5**	2	14	**2**	**1**	**1**
						8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED
						NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**SATISFIED**

10/03/23
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2014 MUTCD)

MAJOR STREET: **Union Ave** NB SB # OF APPROACH LANES: **2**

MINOR STREET: **Houghton Rd** EB WB # OF APPROACH LANES: **1**

CITY, STATE: **Kern County, CA**

COMMENTS: **Horizon Year plus Project**

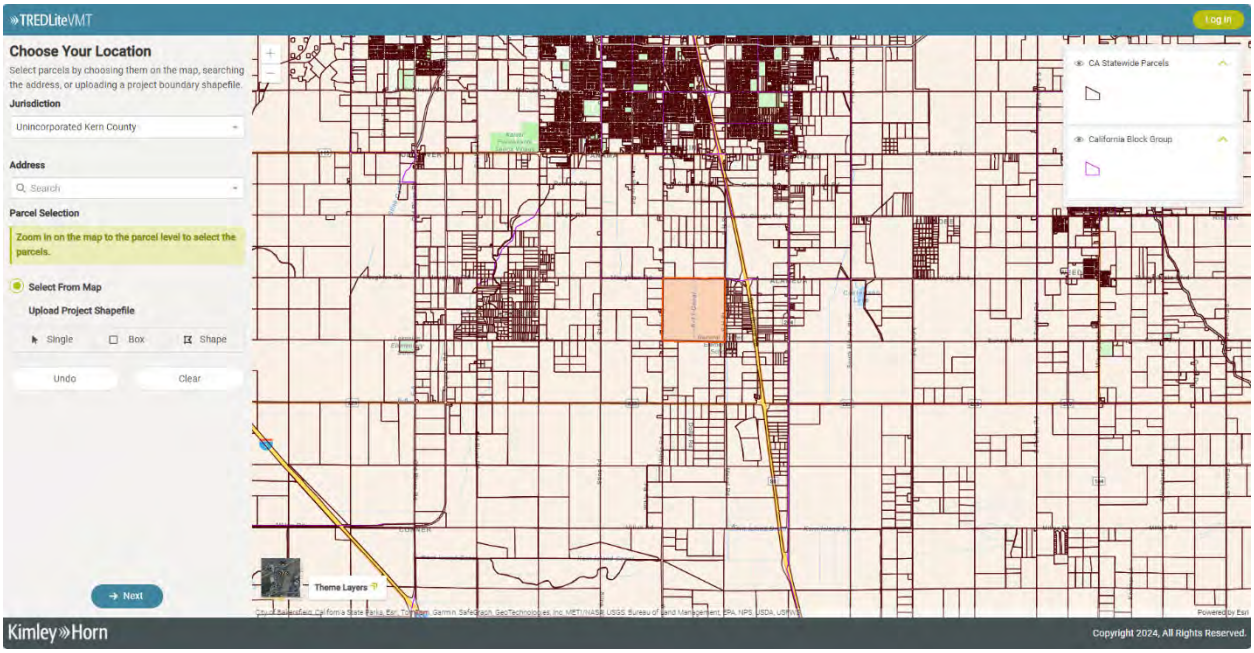
ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N) **N**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N) **Y**

			MAJOR ST	MINOR ST	Ped Count	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour
			TWO-WAY TRAFFIC	TRAFFIC HEAVY LEG	CROSSING MAJOR ST	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET		
THRESHOLD VALUES						**420**	**105**		**630**	**53**		**336**	**84**		**504**	**42**		**60**	**75**
06:00 AM	TO	07:00 AM	318	137			Y			Y			Y			Y			
07:00 AM	TO	08:00 AM	317	238			Y			Y			Y			Y			
08:00 AM	TO	09:00 AM	273	156			Y			Y			Y			Y			
09:00 AM	TO	10:00 AM	228	123			Y			Y			Y			Y			
10:00 AM	TO	11:00 AM	253	112			Y			Y			Y			Y			
11:00 AM	TO	12:00 PM	277	136			Y			Y			Y			Y			
12:00 PM	TO	01:00 PM	252	165			Y			Y			Y			Y			
01:00 PM	TO	02:00 PM	381	120			Y			Y		Y	Y	**Y**		Y			
02:00 PM	TO	03:00 PM	547	167		Y	Y	**Y**		Y		Y	Y	**Y**	Y	Y	**Y**	**Y**	
03:00 PM	TO	04:00 PM	703	265		Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	**Y**	**Y**
04:00 PM	TO	05:00 PM	421	212		Y	Y	**Y**		Y		Y	Y	**Y**		Y		**Y**	
05:00 PM	TO	06:00 PM	390	192			Y			Y		Y	Y	**Y**		Y			
06:00 PM	TO	07:00 PM	273	134			Y			Y			Y			Y			
07:00 PM	TO	08:00 PM	209	78						Y						Y			
08:00 PM	TO	09:00 PM																	
09:00 PM	TO	10:00 PM																	
			4,842	2,235		3	13	**3**	1	14	**1**	5	13	**5**	2	14	**2**	**3**	**1**
						8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED
						NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**SATISFIED**

10/03/23
Kimley-Horn and Associates

H – VMT Calculations and Information

Model Network and Project TAZ



TREDLiteVMT | A Kimley-Horn Environmental Solution

Project Name: Westside Industrial Project

Location: Unincorporated Kern County

Analysis Year: 2023

Project Land Uses & Intensities

Code	Intensity	Unit	Per Capita/ Employee VMT	VMT With Mitigation	Total VMT	Threshold	Significant Impact
155	630	1,000 Sq Ft	26.37		35242.1	20.83	Yes
		Totals	26.37		35242.1		

Transportation Demand Management

Implement Commute Trip Reduction Program (Voluntary) (T-5)	This measure will implement a voluntary commute trip reduction (CTR) program with employers. CTR programs discourage single occupancy vehicle trips and encourage alternative modes of transportation such as carpooling, taking transit, walking, and biking, thereby reducing VMT and GHG emissions.	4.00%	50	percent of employees eligible	2.00%
Implement Commute Trip Reduction Marketing (T-7)	This measure will implement a marketing strategy to promote the project site employer's CTR program. Information sharing and marketing promote and educate employees about their travel choices to the employment location beyond driving such as carpooling, taking transit, walking, and biking, thereby reducing VMT and GHG emissions.	4.00%	50	percent of employees eligible	2.00%
Provide End-of-Trip Bicycle Facilities (T-10)	This measure will install and maintain end-of-trip facilities for employee use. End-of-trip facilities include bike parking, bike lockers, showers, and personal lockers.	0.75%	Without	bicycle facility with/without locker & shower	0.06%
Employer-Sponsored Vanpool (T-11)	This measure will implement an employer-sponsored vanpool service. Vanpooling is a flexible form of public transportation that provides groups of 5 to 15 people with a cost-effective and convenient rideshare option for commuting.	20.00%	1	percent of employees eligible (2.7% default)	1.34%

Mitigation

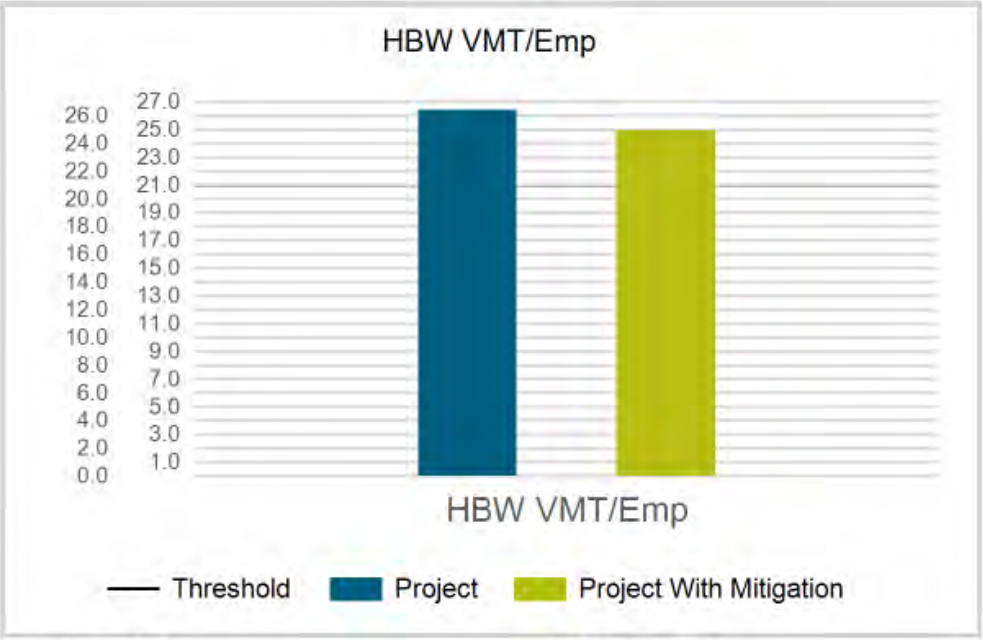
TREDLiteVMT | A Kimley-Horn Environmental Solution

Land Use: 155 - High-Cube Fulfillment Center Warehouse (Sort)

Metric	Project	Mitigation	With Mitigation
HBW VMT/Emp	26.37325	1.43	24.95
Daily Trips	4383.00	0	0

Selected TDM

TDM	Input	Result
Implement Commute Trip Reduction Program (Voluntary) (T-5)	50%	2.00%
Implement Commute Trip Reduction Marketing (T-7)	50%	2.00%
Provide End-of-Trip Bicycle Facilities (T-10)	Without	0.06%
Employer-Sponsored Vanpool (T-11)	1%	1.34%
Pedestrian Network Improvement (T-18)	0	0.00%



Regional Avg: 24.5057659

Threshold (15% below Average): 20.83

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Appendix K:
Utilities and Service Systems Supporting Information

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K-1: Water Supply Assessment

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Water Supply Assessment for the Ware Malcomb Industrial Project

Bakersfield District
California Water Service

DRAFT
November 2023
EKI C20003.00

EKI ENVIRONMENT & WATER, INC.

www.ekiconsult.com
2001 Junipero Serra Blvd, Suite 300 • Daly City, CA 94014

Water Supply Assessment

Ware Malcomb Industrial Project
Bakersfield District, California Water Service

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Water Supply Assessment

Ware Malcomb Industrial Project
Bakersfield District, California Water Service

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APPENDICES

Appendix A: Bakersfield District Purchase Agreements

1 INTRODUCTION

Included herein is a Senate Bill (SB) 610-compliant water supply assessment (WSA) in support of the proposed Ware Malcomb Industrial Project (Proposed Project). The Proposed Project is located within the City of Bakersfield, California (Bakersfield or City; **Figure 1**) and the project site is a 94-acre parcel located at the southeast corner of Wible Road and Houghton Road (**Figure 2**). Per the project description provided by Kimley-Horn and Associates, Inc. (Project Proponent; Kimley-Horn, 2023b; 2023c), the Proposed Project includes an approximately 653,442 square foot (sq ft) single-story warehouse and distribution facility and related improvements.

The Proposed Project is located adjacent to the California Water Service (Cal Water) Bakersfield District service area along an existing water main located on Wible Road (**Figure 1**). Providing services to the Proposed Project will necessitate an expansion of the Bakersfield District service area (Cal Water, 2023c).

The information provided in this WSA is consistent with California Water Code (CWC or Water Code) §10910-10912 requirements and the California Department of Water Resources' (DWR's) *Guidebook for Implementation of SB 610 and SB 221 of 2001: To Assist Water Suppliers, Cities, and Counties in Integrating Water and Land Use Planning*, dated 8 October 2003. The text of specific sub-sections of the Water Code is included in greyed boxes and italicized font at the beginning of specific sections of this WSA. The information presented in those respective sections, and the associated tables and figures, respond directly to Water Code requirements.

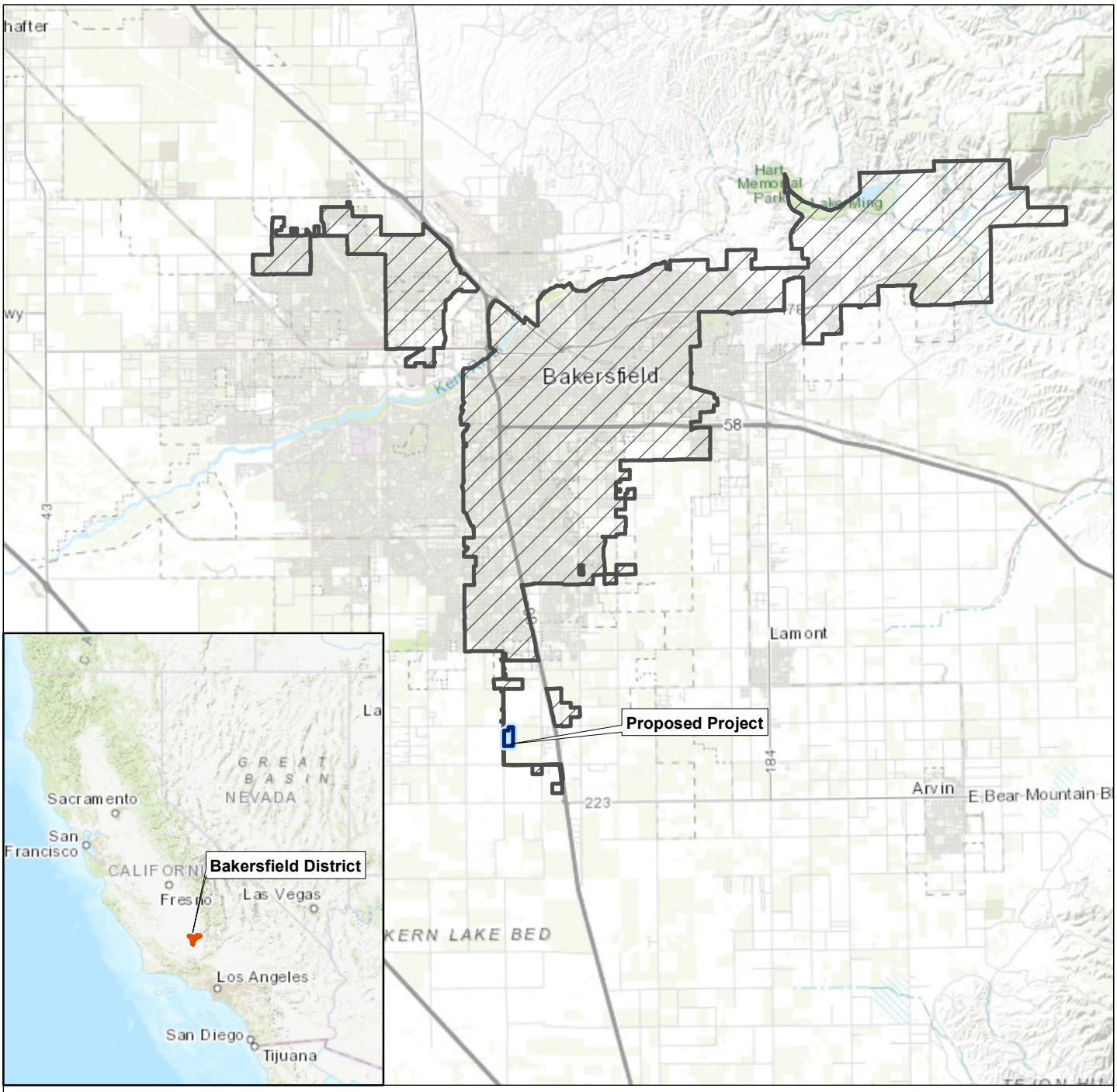
The purpose of this WSA is to evaluate whether sufficient water supplies are available to meet future demands within the Bakersfield District service area, including demands associated with the Proposed Project, during normal, single dry, and multiple dry hydrologic years for a 20-year time horizon.[1] More specifically, this WSA includes:

- A summary of the WSA requirements articulated in CWC §10910-10912 and a description of how they apply to the Proposed Project;
- A description and analysis of the current and projected future water demands of the Proposed Project through the year 2045;
- A description and analysis of the historical, current, and projected future water demands for the Bakersfield District service area through the year 2045;
- A description and analysis of the current and projected future water supplies for the Bakersfield District service area through the year 2045; and
- A comparison of the water supplies and demands for the Bakersfield District service area, including the projected water demands associated with the Proposed Project.

[1] The Water Code specifies that a WSA must look at supplies and demand on a 20-year horizon (i.e., to 2043), but given the available data, this WSA looks beyond that to 2045.

The information contained in this WSA is based on the Bakersfield District 2020 Urban Water Management Plan (2020 UWMP) prepared for the Bakersfield District, except where augmented by additional relevant water demand and supply reliability and other information from sources including Cal Water, Groundwater Sustainability Agencies (GSAs), DWR, and others.

This WSA concludes that, based on the currently available information, sufficient water supply is available to Cal Water to meet future demands anticipated within the Bakersfield District service area, including those associated with the Proposed Project.



Legend

- Proposed Project
- Service Area Boundary

DRAFT

Notes

1. All locations are approximate.
2. Proposed Project boundary per Source 2.

N

0 4 8

(Scale in Miles)

Sources

1. Basemap provided by ESRI.
2. Kimley-Horn, 2023. Email Correspondence, received 6 September 2023.

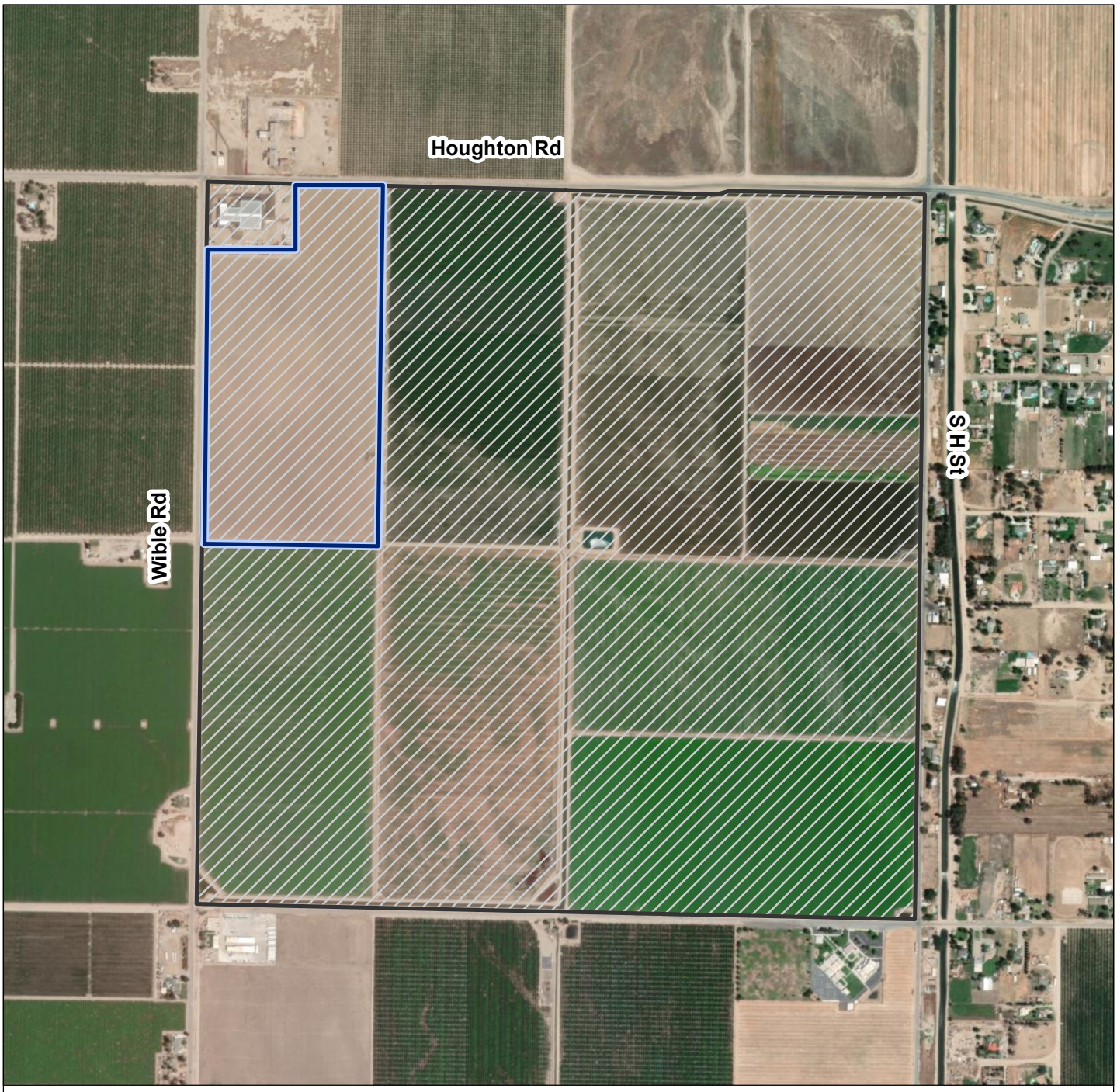
Bakersfield District Service Area and Project Location

Ware Malcomb Industrial Project

Bakersfield, CA
October 2023
C20003.00

Figure 1

Path: X:\C20003\Maps\...00\20231010\Fig1_ProjectLocation_20230929.mxd



Legend

Proposed Project

Proposed Project Parcel (APN 184-391-08)

DRAFT

N

0 1,100 2,200

(Scale in feet)

Notes

1. All locations are approximate.
2. Proposed Project boundary per Source 2.

Sources

1. Basemap provided by ESRI.
2. Kimley-Horn, 2023. Email Correspondence, received 6 September 2023.

Project Location

Ware Malcomb Industrial Project

Bakersfield, CA
October 2023
C20003.00

Figure 2

eki environment & water

Path: X:\C20003\Maps\...00\20231010\Fig2_ProjectBoundary_20230929.mxd

2 GENERAL REQUIREMENTS FOR THE PREPARATION OF A WATER SUPPLY ASSESSMENT

The purpose of this section is to outline what types of projects require the preparation of a WSA, who is responsible for its preparation, and the necessary components of a WSA.

2.1 Applicability of Senate Bill 610 to the Project

☑ ***CWC § 10910 (a)***

Any city or county that determines that a project, as defined in Section 10912, is subject to the California Environmental Quality Act (Division 13 (commencing with Section 21000) of the Public Resources Code) under Section 21080 of the Public Resources Code shall comply with this part.

☑ ***CWC § 10912***

For the purposes of this part, the following terms have the following meanings:

(a) "Project" means any of the following:

(1) A proposed residential development of more than 500 dwelling units.

(2) A proposed shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor space.

(3) A proposed commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor space.

(4) A proposed hotel or motel, or both, having more than 500 rooms.

(5) A proposed industrial, manufacturing, or processing plant, or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area.

(6) A mixed-use project that includes one or more of the projects specified in this subdivision.

(7) 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.

(b) If a public water system has fewer than 5,000 service connections, then "project" means any proposed residential, business, commercial, hotel or motel, or industrial development that would account for an increase of 10 percent or more in the number of the public water system's existing service connections, or a mixed-use project that would demand an amount of water equivalent to, or greater than, the amount of water required by residential development that would represent an increase of 10 percent or more in the number of the public water system's existing service connections.

The Proposed Project includes 653,442 sq ft of floor area (i.e., over 650,000 sq ft) and therefore satisfies the definition of a "project" requiring a WSA pursuant to SB 610 (CWC §10912(a)(5)).

2.2 Responsibility for Preparation of the Water Supply Assessment

☑ ***CWC § 10910 (b)***

The city or county, at the time that it determines whether an environmental impact report, a negative declaration, or a mitigated negative declaration is required for any project subject to the California Environmental Quality Act pursuant to Section 21080.1 of the Public Resources Code, shall identify any water system that is, or may become as a result of supplying water to the project identified pursuant to this subdivision, a public water system, as defined in Section 10912, that may supply water for the project. If the city or county is not able to identify any public water system that may supply water for the project, the city or county shall prepare the water assessment required by this part after consulting with any entity serving domestic water supplies whose service area includes the project site, the local agency formation commission, and any public water system adjacent to the project site.

The Proposed Project is located adjacent to the Cal Water Bakersfield District service area along an existing water main located on Wible Road (**Figure 1**). Providing services to the Proposed Project will necessitate an expansion of the Bakersfield District service area (Cal Water, 2023c). Therefore, in accordance with CWC §10910(b), Cal Water is the entity responsible for developing the WSA for the Proposed Project, assuming successful annexation of the Proposed Project into the Bakersfield District service area.

2.3 Components of a Water Supply Assessment

☑ ***CWC § 10910 (c) (4)***

If the city or county is required to comply with this part pursuant to subdivision (b), the water supply assessment for the project shall include a discussion with regard to whether the total projected water supplies, determined to be available by the city or county for the project during normal, single dry, and multiple dry water years during a 20-year projection, will meet the projected water demand associated with the proposed project, in addition to existing and planned future uses, including agricultural and manufacturing uses.

☑ ***CWC § 10911***

(b) The city or county shall include the water supply assessment provided pursuant to Section 10910, and any information provided pursuant to subdivision (a), in any environmental document prepared for the project pursuant to Division 13 (commencing with Section 21000) of the Public Resources Code.

(c) The city or county may include in any environmental document an evaluation of any information included in that environmental document provided pursuant to subdivision (b). The city or county shall determine, based on the entire record, whether projected water supplies will be sufficient to satisfy the demands of the project, in addition to existing and planned future uses. If the city or county determines that water supplies will not be sufficient, the city or county shall include that determination in its findings for the project.

As listed above in CWC §10910(c)(4), the primary purpose of a WSA is to evaluate whether sufficient water supply is available to meet future demands within the water supplier's service area, including those associated with the Proposed Project, during normal and dry hydrologic years for a 20-year time horizon.[1] Therefore, the following information is included in this WSA:

- A description and analysis of the current and projected future water demands of the Proposed Project through the year 2045;

- A description and analysis of the historical, current, and projected future water demands for the Bakersfield District service area through the year 2045;
- A description and analysis of the current and projected future water supplies for the Bakersfield District service area through the year 2045; and
- A comparison of the water supplies and demands for the Bakersfield District service area, including the projected water demands and supplies associated with the Proposed Project.

3 PROJECT DESCRIPTION

The Proposed Project includes an approximately 653,442 sq ft single-story warehouse and distribution facility located within the City of Bakersfield Sphere of Influence at the southeast corner of Wible Road and Houghton Road (see **Figure 2**).

Per the project description in the *Draft Environmental Impact Report (EIR) for the Westside Industrial Project* provided by the Project Proponent, the total occupiable space in the proposed facility would be roughly 653,442 sq ft (Kimley-Horn, 2023b). The proposed facility has a floor footprint of approximately 629,186 sq ft, including approximately 44,424 sq ft of office space, that would primarily facilitate material handling equipment and warehouse uses. The remaining area is made up of a 24,256-sq ft mezzanine, which contains only material handling equipment conveyors with occasional maintenance and no storage. The proposed facility would operate 24 hours a day, 365 days a year, and typically consist of both day and night shifts. It is anticipated that the facility would employ approximately 915 employees per shift (two shifts, for a total of 1,830 employees) in peak season from June to August and November to January, and approximately 732 employees per shift (two shifts for a total of 1,464 employees) in non-peak season from February to May and September to October. In addition to the warehouse and distribution facility, the Proposed Project will include 217,529 sq ft of landscaped area, which would consist primarily of drought tolerant and low maintenance plants (Kimley-Horn, 2023b; 2023c). In addition, the Proposed Project includes approximately 543,000 sq ft of parking lot (Cal Water, 2023b).

The Assessor's Parcel Number (APN) for the Proposed Project site is 184-391-08. As shown in **Figure 2**, this parcel includes a feed store in the northwest corner of the parcel and agricultural land. The feed store is currently supplied by Cal Water, and the agricultural land is supplied by local groundwater from the Kern County Subbasin (Subbasin). The parcel will be subdivided so that the feed store is its own individual parcel. The feed store will remain in operation and will continue to be served by Cal Water (Kimley-Horn, 2023a). The Proposed Project site is within the existing agricultural land use, which has historically been covered by row crop varietals including corn, wheat, beets, turnips, and cotton. Historical water use at the site ranged between 117 and 173 acre-feet per year (AFY) from 2018 to 2022, and averaged 151 AFY (Kimley-Horn, 2022). Since the Proposed Project's total annual water demand is projected to be less than the site's historical agricultural water use (see Section 4.5 below), it is anticipated that the Proposed Project will constitute a net reduction in demand on the underlying Subbasin.

For the purposes of this WSA, it is assumed that full buildout of the facility will be complete by 2025 (Kimley-Horn, 2023c). The Proposed Project buildout schedule is shown in **Table 1**, along with additional land use details.

Table 1
Project Land Use Assumptions
Ware Malcomb Industrial Project, City of Bakersfield, California

Land Use	Total Land Use (a)	Land Use Units	Cumulative Buildout (a)					Description
			2025	2030	2035	2040	2045	
Industrial	653,442	sq ft	653,442	653,442	653,442	653,442	653,442	Warehouse and distribution facility; includes approximately 44,424 sq ft of office space
Landscaped Area	217,529	sq ft	217,529	217,529	217,529	217,529	217,529	--
Total	**870,971**	**sq ft**	**870,971**	**870,971**	**870,971**	**870,971**	**870,971**	

Abbreviations:
"sq ft" = square feet

Notes:
(a) Land use and buildout estimates are based on information per Reference 1.

References:
1. Kimley Horn, 2023. Draft Environmental Impact Report Project Description, received 9 August 2023.

4 PROJECT WATER DEMAND

The City of Bakersfield has adopted green building standards and water efficient landscaping ordinances consistent with previous versions of the CalGreen building standards and the California Model Water Efficient Landscape Ordinance (MWELO). As part of state requirements, all new developments must comply with these efficiency standards. As such, the Proposed Project development is expected to include a number of water-efficient features, including, but not limited to:

- Use of low-flow lavatory faucets, kitchen faucets, toilets, and urinals in accordance with CalGreen Code; and
- Inclusion of low-water use landscaping and high-efficiency irrigation systems to minimize outdoor water use in accordance with MWELO.

As described below, the average annual water demand for the Proposed Project was estimated based on: (1) literature values for industrial and commercial water use (USEIA, 2017); and (2) information provided by the Project Proponent in coordination with Cal Water (Kimley-Horn, 2023b; 2023c). Total water demands include water used by the Proposed Project for industrial uses, landscaping, and water that is lost during distribution (i.e., "distribution system losses" or "unaccounted for water").

Table 2 includes a summary of the water demand projections associated with the proposed land uses at the project completion, including assumed distribution system losses. As described in Section 3, for the purpose of this WSA, it is conservatively assumed that full buildout will be complete by 2025 (Kimley-Horn, 2023c).

4.1 Indoor Water Use

Based on the project description provided, it is anticipated that sinks, toilet-flushing, and other non-industrial, non-process-oriented operations will comprise the majority of indoor water use for the Proposed Project. As such, an employee-based demand factor of 30 gallons per day (gpd) per employee was selected to project indoor water demands. The selected demand factor is based on literature values included in the United States Energy Information Administration 2012 Large Commercial Buildings Energy Consumption Survey (USEIA, 2017). Applying the selected demand factor, the indoor water use of the Proposed Project is estimated to be approximately 55 AFY at full buildout.

It is noted that Cal Water typically uses their *WSA Water Factor Tool* to calculate water use factors based on building area and customer-level metered water use records for 2016 through 2018 within each district (e.g., existing service area building stock). However, the demand factors within this tool are not appropriate for application to the Proposed Project because the average building size for non-residential buildings in the Bakersfield District, on which the demand factors are based, is only 12,712 sq ft, or 1.9% of the size of the Proposed Project building. Additionally, the non-residential demand factor for the Bakersfield District from the *WSA Water Factor Tool* is 0.16 gpd/sq ft, which is almost two times higher than the demand factor used in this WSA (0.075

gpd/sq ft). Therefore, applying the *WSA Water Factor Tool* to calculate the non-residential water demand would significantly overestimate the water demands associated with the Proposed Project.

4.2 Landscaping Water Use

The projected water demand for the landscaped area included as part of the Proposed Project was estimated based on the Maximum Applied Water Allowance (MAWA; DWR, 2015). The Model Water Efficient Landscape Ordinance (MWELO) requires that the annual landscape irrigation water use not exceed the MAWA (DWR, 2015). As shown below, the MAWA is calculated based on the regional reference evapotranspiration rate, an evaporation adjustment factor, the total landscaped area, and the area of "special landscaped area."[2] Water use for the Proposed Project landscaping irrigation has been conservatively assumed to be equal to the MAWA, which is the upper limit of annual applied water for established landscaped areas.

The MAWA is calculated using the following equation:

$$MAWA = ETo \times [(ETAF \times LA) + (1\text{-}ETAF) \times SLA]$$

where:

ETo	=	The regional reference evapotranspiration rate
ETAF	=	Evapotranspiration Adjustment Factor For parks (SLAs) = 1.0 For landscape corridors = 0.45
LA	=	Total landscape area (including SLA)
SLA	=	Special Landscape Area

Based on the above methodology, the total annual water use for landscaping is estimated to be 11 AFY at full buildout as shown in **Table 3a** and encompasses all irrigated areas (excluding the distribution system losses discussed in Section 4.5).

As shown in **Table 3b**, based on the monthly average reference evapotranspiration for the San Joaquin Valley, the maximum monthly landscape irrigation demand associated with the Proposed Project is estimated to be 1.6 AF per month. All landscape irrigation demands will be met with potable water.

4.3 Distribution System Losses

Water distribution systems experience a degree of water loss over the course of transmission from the source to the customer. Although losses from the newly-constructed portion of the system's infrastructure associated with the Proposed Project would initially be expected to be minimal, it is conservatively assumed that distribution system losses associated with delivering water to the Proposed Project will ultimately be consistent with the proportion of real and

[2] Special Landscaped Area includes landscaping dedicated solely to edible plants, recreational areas, areas irrigated with recycled water, or water features using recycled water.

apparent losses per the validated 2021 water loss audit that Cal Water has submitted to DWR for the Bakersfield Public Water System (PWS; i.e., 8.7%; DWR, 2022). It should be noted that while these losses represent a demand on the system, water lost through the distribution system returns to the underlying groundwater basins and thus is not a true demand on the groundwater supply. However, for purposes of this WSA, all water loss is conservatively considered a demand. **Table 2** shows the distribution system water loss associated with the Proposed Project, estimated to be 6.3 AFY at buildout.

4.4 Existing Current Water Demand on the Proposed Project Site

The Proposed Project site has historically been used for agricultural production and irrigated using local groundwater from the Subbasin. Within the past five years, crop varietals including corn, wheat, beets, turnips, and cotton have been cultivated at the site. Current and historical groundwater demands at the site were calculated by multiplying the planted acreage by the corresponding water demand factor for each crop type provided by the Project Proponent (Kimley-Horn, 2022). Based on this information, it is estimated that historical water use for irrigation at the site ranged from 117 and 173 AFY between 2018 and 2022, and averaged 151 AFY (Kimley-Horn, 2022). The demands for the Proposed Project will be served by Cal Water, whereas historical and existing onsite demands were met directly with local groundwater supplies. Therefore, for the purposes of this WSA, the projected demands do not account for existing demands as shown in **Table 2**.

4.5 Total Project Water Demand

Based on the above methodologies and assumptions, the total annual water demand for the Proposed Project at full buildout and occupancy is conservatively estimated to be 72 AFY, as shown in **Table 2**. Since the Proposed Project's total annual water demand is projected to be less than the site's historical water use, it is anticipated that the Proposed Project will constitute a net reduction in demand on the underlying Subbasin. It is noted that, while not quantified herein, after consideration of irrigation return flows to groundwater, the actual demand on the supply system will be less than 72 AFY.

Table 2

Estimated Project Water Demand

Ware Malcomb Industrial Project, City of Bakersfield, California

Land Use	Season (a)	Employees/ Shift	Shift/Day (a)	Water Use Factor (b)	Water Use Factor Units	Estimated Water Use (AFY)				
						2025	2030	2035	2040	2045
Industrial	non-peak	732	2	30	gpd/employee	24	24	24	24	24
	peak	915				31	31	31	31	31
Landscaping	--	--	--	(c)	--	11	11	11	11	11
System Water Losses (d)	--	--	--	8.7%	--	6.3	6.3	6.3	6.3	6.3
					Total (e)	**72**	**72**	**72**	**72**	**72**

Abbreviations:

"AFY" = acre-feet per year

"Cal Water" = California Water Service

"gpd/employee" = gallons per day per employee

"MAWA" = Maximum Applied Water Allowance

"MWELO" = Model Water Efficient Landscaping Ordinance

"Proposed Project" = Ware Malcomb Industrial Project

Notes:

(a) Water demand calculations are based on a 7-day work week with a peak season lasting from June to August and November to January per Reference 1.

(b) Industrial water use factor per Reference 2.

(c) Estimates of landscape irrigation are based on MWELO MAWA calculations provided by Cal Water, per Reference 3. See Table 3 for MWELO MAWA calculations.

(d) Estimated distribution system water loss associated with delivery of water to the Proposed Project is based on a rate of 8.7% per Reference 4 and includes both real and apparent losses.

(e) Totals may not sum due to rounding.

References:

1. Kimley Horn, 2023. Request for Information form, received 9 August 2023.
2. USEIA, 2017. 2012 Commercial Buildings Energy Consumption Survey: Water Consumption in Large Buildings Summary, dated 9 February 2017.
3. California Code of Regulations, Title 23, Division 2, Chapter 2.7, Model Water Efficient Landscape Ordinance, 29 September 2020.
4. California Department of Water Resources, 2022. WUEdata – 2021 Water Audit Report: California Water Service Bakersfield District, uploaded 30 September 2022. (https://wuedata.water.ca.gov/awwa_plans).

Table 3a

Estimated Annual Landscaping Water Use

Ware Malcomb Industrial Project, City of Bakersfield, California

Landscaping Land Use	[A] **Area of Land Use (ac)** **(a)**	[B] **Annual Reference Evapotranspiration Rate (in)** **(b)**	[C] **Evapotranspiration Adjustment Factor (ETAF)** **(c)**	[D] **Applied Water (MAWA) (AFY)** **D = A * B * C (d)**	**Estimated Water Use (AFY)**				
					2025	**2030**	**2035**	**2040**	**2045**
Non-Residential Landscaped Area	5.0	58	0.45	11	11	11	11	11	11
Estimated Total Outdoor Water Use (AFY)					**11**	**11**	**11**	**11**	**11**

Abbreviations:

"ac" = acre

"AFY" = acre-feet per year

"ETAF" = Evapotranspiration Adjustment Factor

"in" = inches

"MAWA" = Maximum Applied Water Allowance

Notes:

(a) Total landscaped area per Reference 1.

(b) Annual reference evapotranspiration rate per Reference 2.

(c) The ETAF is 0.45 for non-residential areas.

(d) The MAWA calculations are described in Reference 3.

References:

1. Kimley Horn, 2023. Request for Information, received 9 August 2023.
2. California Department of Water Resources, 2012. California Irrigation Management Information System Reference Evapotranspiration Zones, January 2012.
3. California Code of Regulations, Title 23, Division 2, Chapter 2.7, Model Water Efficient Landscape Ordinance, 29 September 2020.

Table 3b

Estimated Monthly Landscaping Water Use

Ware Malcomb Industrial Project, City of Bakersfield, California

	Estimated Monthly Outdoor Water Use (AFY)												
	Jan	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Total**
Evapotranspiration (in/month)	1.2	2.2	3.7	5.7	7.4	8.1	8.7	7.8	5.7	4.0	2.1	1.2	58
% of Annual Evapotranspiration	2.1%	3.9%	6.4%	10%	13%	14%	15%	13%	10%	7.0%	3.6%	2.1%	100%
Estimated Outdoor Water Use	**0.23**	**0.42**	**0.69**	**1.1**	**1.4**	**1.5**	**1.6**	**1.4**	**1.1**	**0.75**	**0.39**	**0.23**	**11**

Abbreviations:

"AFY" = acre-feet per year

"in" = inches

Notes:

(a) Monthly average reference evapotranspiration for Northern & Southern San Joaquin Valley zone per Reference 1.

References:

1. California Department of Water Resources, 2012. California Irrigation Management Information System Reference Evapotranspiration Zones, January 2012.

5 CAL WATER BAKERSFIELD DISTRICT WATER DEMAND

☑ ***CWC § 10910 (c)***

(1) The city or county, at the time it makes the determination required under Section 21080.1 of the Public Resources Code, shall request each public water system identified pursuant to subdivision (b) to determine whether the projected water demand associated with a proposed project was included as part of the most recently adopted urban water management plan adopted pursuant to Part 2.6 (commencing with Section 10610).

(2) If the projected water demand associated with the proposed project was accounted for in the most recently adopted urban water management plan, the public water system may incorporate the requested information from the urban water management plan in preparing the elements of the assessment required to comply with subdivisions (d), (e), (f), and (g).

(3) If the projected water demand associated with the proposed project was not accounted for in the most recently adopted urban water management plan, or the public water system has no urban water management plan, the water supply assessment for the project shall include a discussion with regard to whether the public water system's total projected water supplies available during normal, single dry, and multiple dry water years during a 20-year projection will meet the projected water demand associated with the proposed project, in addition to the public water system's existing and planned future uses, including agricultural and manufacturing uses.

Consistent with the UWMP Act (CWC §10610-10656), the 2020 UWMP presents estimates of projected future water demand for the Bakersfield District service area in five-year increments, between the years 2025 and 2045 (Cal Water, 2021b). Projected water demand is subdivided between the following seven customer sectors or use types: (1) residential single family, (2) residential multi-family, (3) commercial, (4) industrial, (5) institutional/ governmental, (6) other, and (7) system losses. As discussed further below, the 2020 UWMP demand projections account for: (1) demands for the existing service area and accounts, (2) projected growth based on population and employment estimates, and (3) all anticipated new development based on information currently available to Cal Water.

The number of commercial, industrial, and institutional (CII) sector service connections are projected to increase by approximately 23% between 2020 and 2045 (Cal Water, 2021a).[3] This corresponds to an estimated net increase of 1,635 service connections and a net increase of 1,522 AFY of demand in the CII sector within the Bakersfield District. When conservatively considering the total water demand of the Proposed Project at 72 AFY, the projected Proposed Project demand would account for 4.7% of the projected net CII growth for the Bakersfield District. Therefore, while the Proposed Project is not explicitly included in the 2020 UWMP water demand growth projections, the Proposed Project's demands are considered to be within the projected growth anticipated by the 2020 UWMP. Total water demands for the Bakersfield District are therefore inclusive of the demands associated with the Proposed Project.

[3] Service growth projections projected in the 2020 UWMP are tied to county-level population, housing, and employment projections developed by Caltrans.

5.1 Current and Historical Water Demand Within the Bakersfield District Service Area

Historical water demand within the Bakersfield District from 2000 through 2022 is summarized in **Table 4**. Based on water use from 2018 to 2022, the majority of the water demand within the Bakersfield District is from the single-family residential (SFR) sector, which represented 58% of the demand. The remainder of the demand was split between commercial and industrial (18% of overall demand), government (8.7% of overall demand), multi-family residential (MFR) (5.8% of overall demand), and other (0.37% of overall demand; Cal Water, 2023a).

Water use from 2000 to 2008 remained fairly consistent within the Bakersfield District, at an average of approximately 77,752 AFY. A decrease in water use occurred from 2008 to 2011, which generally corresponds with the 2007 to 2009 drought and the economic downturn. Then, a significant drop in water demand occurred in 2014 through 2016, corresponding with the recent historic drought and mandatory state-wide water use restrictions and water conservation targets. Total water demand within the Bakersfield District was 54,905 AFY in 2022 (Cal Water, 2023a).

5.2 Planned Development Projects within the Bakersfield District

The 2020 UWMP water demand projections incorporate current and historical water usage within the Bakersfield District service area through 2045 and estimates population growth based on population and employment forecasts for Kern County generated by the California Department of Transportation's (Caltrans) long-term socio-economic forecast model for the existing Bakersfield District service area (Cal Water, 2021b). As discussed above, Cal Water has determined that the water demand associated with the Proposed Project is within the growth anticipated within the Bakersfield District and is accounted for in the 2020 UWMP demand projections. The 2020 UWMP water demand projections do not include any other major developments which would necessitate a WSA. Thus, the demand projections presented in Section 6 are inclusive of all identified and anticipated development, including the water demand associated with the Proposed Project.

5.3 Water Demand Projections

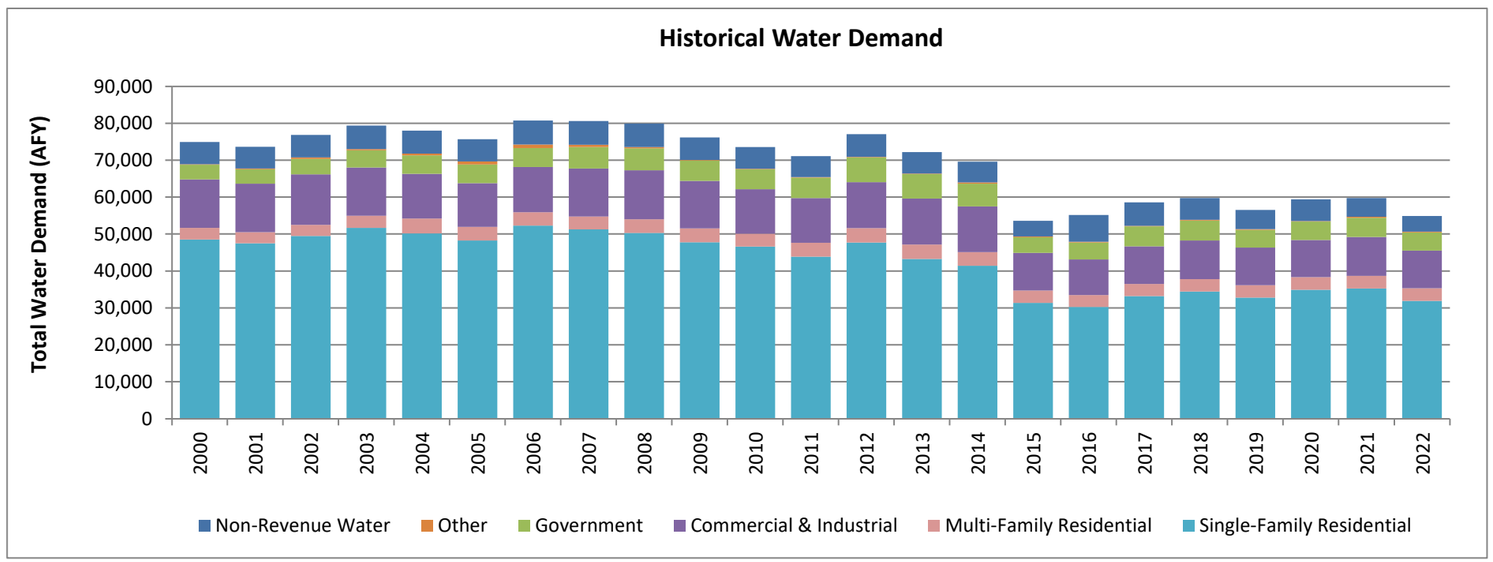
As discussed above, the 2020 UWMP demand projections include projections of growth within the existing service area based on Caltrans forecasts, including demands associated with the Proposed Project (Cal Water, 2021b). The 2020 UMMP demand projections for the Bakersfield District are presented in Section 6 in five-year increments. It is estimated that, inclusive of the Proposed Project, the total annual water demand for the Bakersfield District will be approximately 70,314 AFY in 2045.

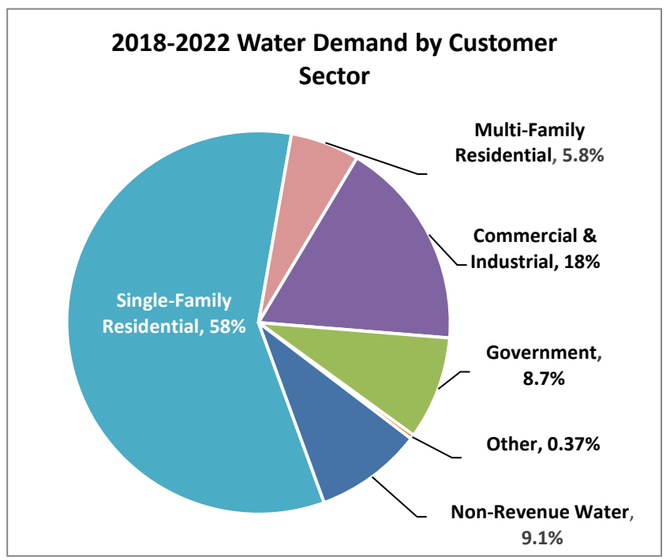
Table 4

Historical Water Demand for Bakersfield District

Ware Malcomb Industrial Project, City of Bakersfield, California

Category	Cal Water Historical Annual Water Demand (AFY) (a)																						
	2000	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
Single-Family Residential	48,528	47,504	49,476	51,646	50,179	48,231	52,255	51,237	50,320	47,798	46,611	43,885	47,678	43,260	41,396	31,371	30,254	33,202	34,421	32,810	34,931	35,233	31,933
Multi-Family Residential	3,162	2,978	3,036	3,296	4,011	3,726	3,625	3,494	3,673	3,718	3,520	3,757	3,919	3,874	3,734	3,368	3,243	3,317	3,366	3,323	3,400	3,471	3,361
Commercial & Industrial	13,098	13,141	13,625	13,098	12,086	11,842	12,269	12,982	13,260	12,876	11,977	12,070	12,445	12,455	12,377	10,162	9,616	10,170	10,452	10,188	10,061	10,522	10,217
Government	3,949	3,914	4,223	4,647	5,014	5,007	5,151	5,854	5,927	5,534	5,444	5,599	6,725	6,674	6,135	4,216	4,597	5,381	5,412	4,786	4,977	5,148	4,937
Other	178	192	362	357	500	818	953	616	344	152	131	95	134	144	356	196	174	148	188	212	182	290	202
Non-Revenue Water	5,993	5,889	6,150	6,352	6,243	6,054	6,457	6,451	6,393	6,094	5,885	5,687	6,165	5,774	5,565	4,288	7,288	6,355	5,935	5,206	5,867	5,100	4,255
Total Water Demand	**74,907**	**73,619**	**76,872**	**79,395**	**78,032**	**75,679**	**80,709**	**80,634**	**79,918**	**76,173**	**73,568**	**71,094**	**77,067**	**72,181**	**69,562**	**53,602**	**55,171**	**58,572**	**59,773**	**56,525**	**59,418**	**59,764**	**54,905**





Abbreviations:

"AFY" = acre-feet per year

"Cal Water" = California Water Service

Notes:

(a) Historical water demands per Reference 1.

References:

1. Cal Water, 2023. Historical Demand and Production Data, provided by Cal Water on 11 May 2023.

6 CAL WATER BAKERSFIELD DISTRICT WATER SUPPLY

This section identifies the water supplies for the Bakersfield District and discusses the variability of the different supplies based on drought and other factors affecting water supply reliability. Unless otherwise noted, the source of the information included in this section is the Bakersfield District's 2020 UWMP. The water supply for the Bakersfield District is a combination of the following sources:

- Untreated Kern River water purchased from the City of Bakersfield,
- Treated Kern River water and imported water purchased from the Kern County Water Agency-Improvement District 4 (ID-4), and
- Groundwater pumped from the Subbasin of the San Joaquin Valley Groundwater Basin (DWR Basin No. 5-022.14).

Demand associated with the Proposed Project will be met by potable water, which would be expected to be a combination of purchased water via ID-4 and groundwater.

6.1 Identification of Water Supply Rights

☑ ***CWC § 10910 (d)(1)***

The assessment required by this section shall include an 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 by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), under the existing water supply entitlements, water rights, or water service contracts.

Pursuant to CWC §10910(d)(1), a WSA is required to include identification of all water supply entitlements, water rights, and water service contracts relevant to the identified water supply for the Proposed Project. In accordance with these requirements, this WSA includes a summary of each of Cal Water's supply sources in the Bakersfield District service area. All relevant purchase agreements are included as **Appendix A**.

6.2 Purchased Water

Cal Water currently purchases water from two sources to meet demands in its Bakersfield District: (1) untreated Kern River water purchased from City of Bakersfield, and (2) treated Kern River water and imported water purchased from ID-4. Historical water supply purchases are shown in **Table 5** and projected supplies are shown in **Table 6**.

6.2.1 Purchases from City of Bakersfield

The City of Bakersfield holds pre-1914 appropriative rights to Kern River water. Cal Water has a signed long-term supply agreement with the City for up to 67,200 AFY of this water supply (Cal Water, 2003; **Appendix A**). Cal Water purchases untreated Kern River surface water from the City of Bakersfield and treats the water at the Northeast Bakersfield Water Treatment Plant (NEBWTP) and the North Garden Water Treatment Plant (NGWTP). The NEBWTP currently has a

base load treatment capacity of 20 million gallons per day (MGD; or 22,400 AFY) and peaking capacity of 23 MGD. The NEBWTP has a planned phase 2 expansion that would add another 22,400 AFY of base load capacity to bring the total to 44,800 AFY. This expansion is projected to be online by 2030 (Cal Water, 2021b). However, there is the possibility that the treatment capacity expansion at the NEBWTP could be delayed and come online at a later date. The NGWTP has a base load treatment capacity of 8.0 MGD (8,960 AFY) and a 10.4 MGD peaking capacity (Cal Water, 2021b). Cal Water's long-term supply agreement with the City of Bakersfield stipulates that Kern River water shall not be delivered to customers outside City limits. Thus, the Proposed Project will not receive purchased water from the City of Bakersfield.

6.2.2 Purchases from Kern County Water Agency Improvement District 4

Cal Water also purchases imported water from ID-4 (Cal Water, 2013; **Appendix A**). The Kern County Water Agency (KCWA) is a contractor of the State Water Project (SWP) and imports water for municipal and industrial (M&I) and agricultural use through the California Aqueduct. The KCWA also holds water rights to, and diverts water from, the Kern River.

The ID-4 built and operates a surface water treatment plant, the Henry C. Garnett Water Treatment Plant (HGWTP), that serves Cal Water, the East Niles Community Services District, and the North of the River Water District. The ID-4 obtains its water supply from KCWA entitlements to SWP supplies and Kern River flows and uses the water to recharge groundwater aquifers and to supply its conventional multi-media high-rate filtration plant (i.e., the HGWTP). The total treatment plant capacity of the HGWTP is about 47 MGD (53,000 AFY).

Rapid growth is occurring in the northwest Bakersfield area. To provide a reliable supply for this area, Cal Water entered into an agreement with KCWA for expansion of the HGWTP and construction of the Northwest feeder pipeline to convey water from the expanded plant (Cal Water, 2005; **Appendix A**). The Northwest feeder pipeline has been constructed and Cal Water has a contract with ID-4 to purchase 20,500 AFY of treated water from the HGWTP during normal hydrologic conditions, as well as access to a peaking capacity of 15.5 MGD. Further, depending on the needs of other water suppliers and the production capabilities of the plant, Cal Water can purchase up to 15% more than its contracted amount.

Every year Cal Water prepares a monthly demand schedule for this water and submits it to ID-4. The schedule is weighted so that the greatest volume of deliveries occurs during the peak summer demand period. The water acquired from ID-4 is obtained through five service connections (Cal Water, 2021b).

6.3 Groundwater Supply

☑ ***CWC § 10910 (f)***

If a water supply for a proposed project includes groundwater, the following additional information shall be included in the water supply assessment:

(1) A review of any information contained in the urban water management plan relevant to the identified water supply for the proposed project.

(2)(A) A description of any groundwater basin or basins from which the proposed project will be supplied.

(B) For those basins for which a court or the board has adjudicated the rights to pump groundwater, a copy of the order or decree adopted by the court or the board and a description of the amount of groundwater the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), has the legal right to pump under the order or decree.

(C) For a basin that has not been adjudicated that is a basin designated as high- or medium-priority pursuant to Section 10722.4, information regarding the following:

(i) Whether the department has identified the basin as being subject to critical conditions of overdraft pursuant to Section 12924.

(ii) If a groundwater sustainability agency has adopted a groundwater sustainability plan or has an approved alternative, a copy of that alternative or plan.

(D) For a basin that has not been adjudicated that is a basin designated as low- or very low priority pursuant to Section 10722.4, information as to whether the department has identified the basin or basins as overdrafted or has projected that the basin will become overdrafted if present management conditions continue, in the most current bulletin of the department that characterizes the condition of the groundwater basin, and a detailed description by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), of the efforts being undertaken in the basin or basins to eliminate the long-term overdraft condition.

(3) A detailed description and analysis of the amount and location of groundwater pumped by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), for the past five years from any groundwater basin from which the proposed project will be supplied. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

(4) A detailed description and analysis of the amount and location of groundwater that is projected to be pumped by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), from any basin from which the proposed project will be supplied. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

(5) An analysis of the sufficiency of the groundwater from the basin or basins from which the proposed project will be supplied to meet the projected water demand associated with the proposed project. A water supply assessment shall not be required to include the information required by this paragraph if the public water system determines, as part of the review required by paragraph (1), that the sufficiency of groundwater necessary to meet the initial and projected water demand associated with the project was addressed in the description and analysis required by paragraph (4) of subdivision (b) of Section 10631.

As shown on **Figure 3,** the Bakersfield District overlies the Subbasin of the San Joaquin Valley Groundwater Basin (DWR Basin No. 5-022.14). Between 2018 and 2022, the Bakersfield District relied on groundwater for approximately 49% to 56% of its total supply, as shown in **Table 5**.

Additional details regarding the Subbasin description, groundwater management, and historical groundwater use are included below.

6.3.1 Subbasin Description and Status

The Subbasin covers an area of approximately 1,813,800 acres (2,834 square miles) and is located at the southern end of the San Joaquin Valley and underlies the City of Bakersfield. The Subbasin is bounded on the west, southwest, and east by the bedrock formations of the coast range, San Emigdio Mountains, and Sierra Nevada, respectively. It is separated from the White Wolf Subbasin on the southeast by the White Wolf Fault. The northern boundary is generally coincident with the Kern County line (DWR, 2018).

The Subbasin is not adjudicated. In its evaluation of California groundwater basins, DWR determined that the Subbasin is in a condition of critical overdraft (DWR, 2019). The Subbasin is further designated as a high priority basin under DWR's 2019 Phase 2 Basin Prioritization. Under this prioritization process, basins are ranked on eight components, and if a basin is assigned more than 21 total points, it is defined as "high priority." The main factors driving the Subbasin's designation include population growth (5 out of 5 possible points), irrigated acreage per square mile (4 out of 5 possible points), groundwater reliance (4.5 out of 5 possible points), and documented impacts including declining groundwater levels and subsidence (4 out of 5 possible points). However, because the Subbasin is critically overdrafted, the Subbasin is assigned 40 priority points, which is the maximum total points under DWR's ranking system.

6.3.2 Groundwater Management

6.3.2.1 Non-SGMA Groundwater Management

Prior to the passage of SGMA, water agencies in the Subbasin cooperated in water supply and groundwater management efforts. The Subbasin was included in the Kern Integrated Regional Water Management Plan (IRWMP) within the Greater Bakersfield Subregion. Section 3 of the Kern IRWMP describes the physical, environmental, social, and demographic characteristics of the Greater Bakersfield Subregion, the hydrologic features and overall water reliability, major water related infrastructure, and the identified subregional issues, needs, challenges and priorities (Provost & Pritchard Consulting Group, 2020).

The most recent update to the Kern IRWMP was adopted in March 2020. The five regional goals stated in the IRWMP include: (1) increase water supply, (2) improve operational efficiency, (3) improve water quality, (4) promote land use planning and resource stewardship, and (5) improve regional flood management (Provost & Pritchard Consulting Group, 2020). These regional goals were used to inform the measurable objectives and potential project proposals to accomplish the goals of the region. The Groundwater Sustainability Plans (GSPs; discussed below) supersede the IRWMP as the groundwater management plan for the Bakersfield District portion of the Subbasin.

6.3.2.2 SGMA Groundwater Management

In 2014, the California State Legislature enacted the Sustainable Groundwater Management Act (SGMA) with subsequent amendments in 2015. Among other things, SGMA requires the formation of GSAs and the development and implementation of GSPs for groundwater basins that are designated by DWR as medium or high priority. As a high priority, critically overdrafted and non-adjudicated basin, the Subbasin is subject to the requirements of SGMA.

Seventeen GSAs were formed to collectively assume responsibility for sustainable groundwater management of the Subbasin. The Proposed Project falls within the jurisdiction of the Kern River Groundwater Sustainability Agency (KRGSA).

The seventeen GSAs coordinated to prepare five GSPs within the Subbasin (i.e., Kern Groundwater Authority [KGA] GSP, KRGSA GSP, Olcese GSA GSP, Henry Miller Water District GSA GSP, and Buena Vista Water Storage District GSA GSP), but certain technical efforts (e.g., development of the Subbasin-level Water Budget) were cooperatively developed through a Coordination Agreement. The majority of the Bakersfield District, including the Proposed Project, falls within the jurisdiction of the KRGSA GSP, which covers an area of 230,830 acres in the southeast-central portion of the Subbasin, including most of the City of Bakersfield. Small portions of the Bakersfield District also fall within the jurisdiction of the Olcese GSA GSP. All of the Subbasin GSPs were submitted to DWR on or before the January 30, 2020 deadline, and re-submitted these, along with a new additional GSP, to address DWR recommendations in July 2022 (see additional discussion below).

As defined under SGMA, sustainable yield means "the maximum quantity of water, calculated over a base period representative of long-term conditions in a basin and including any temporary surplus, that can be withdrawn annually from a groundwater supply without causing undesirable results."[4] Based on development and application of a numerical groundwater flow model for the Subbasin (C2VSimFG-Kern), the sustainable yield of the Subbasin is estimated to be approximately 1,313,000 AFY, plus or minus 10%, but has not been further allocated (KGA GSA, 2022). The Subbasin-level estimate was supplemented by local water budget information presented in each GSP, but again, the local sustainable yield was not formally allocated. For example, the KRGSA GSP estimated an initial sustainable yield of about 290,000 AFY to 320,000 AFY for its portion of the Subbasin and the Olcese GSA GSP estimated a sustainable yield of 890 AFY to 1,840 AFY for its portion of the Subbasin (KRGSA, 2022; Olcese GSA, 2022).

Projects and management actions to support achievement of the Subbasin's sustainability goal under SGMA are proposed by the GSAs and documented in their respective GSPs. Projects and management actions for the GSPs that include the Bakersfield District are briefly summarized below, but it should be noted that this summary is not exhaustive.

- The "Phase One" projects described in the KRGSA GSP include: a water allocation plan, Kern River optimized conjunctive use, expanded recycled water use, conversion of

[4] CWC §10721(w).

agricultural lands to urban use, water system consolidation, and possible water exchange. These six projects will begin implementation prior to 2025 but will require adjustment and possible re-direction over time to optimize project performance and avoid undesirable results. In addition, the KRGSA proposed ten management actions to provide a framework for overall groundwater management including establishing GSP policies and filling data gaps (KRGSA, 2022).

- The projects and management actions described in the Olcese GSA GSP include: installation of a shallow monitoring well to evaluate the degree of hydraulic connection between the Olcese Sand Aquifer Unit and the Shallow Alluvium and conducting a study of the potential hydraulic connection between the Olcese Sand Aquifer Unit and the Shallow Alluvium (Olcese GSA, 2022).

As reported in the Kern County Subbasin Groundwater Sustainability Plans Fourth Annual Report Water Year 2022, all GSAs that include the Bakersfield District have made progress towards implementing projects and management actions since the release of their respective GSPs (Todd Groundwater, 2023). For example, the KRGSA obtained additional transfer water, recharged along the Kern River, used recycled water, continued funding of the Delta Conveyance Project, and started efforts towards lining the Cross Valley Canal. Additional detail regarding implementation of projects and management actions for the KRGSA and all other GSAs within the Subbasin are included in the Kern County Subbasin Groundwater Sustainability Plans Fourth Annual Report Water Year 2022 (Todd Groundwater, 2023).

In late January 2022, DWR announced that the five GSPs and coordination agreement developed for the Subbasin were collectively determined to be "incomplete" pursuant to SGMA (23 CCR §355.2(e)(2)). The deficiencies identified by DWR are provided verbatim below.

A. The GSPs do not establish undesirable results that are consistent for the entire Subbasin.

1. While the Coordination Agreement presents Subbasin-wide undesirable results, the Subbasin's fragmented approach towards establishing management criteria that define undesirable conditions in various parts of the Subbasin does not satisfy SGMA's requirement to use same data and methodologies.

B. The Subbasin's chronic lowering of groundwater levels sustainable management criteria do not satisfy the requirements of SGMA and the GSP Regulations.

1. The GSPs relied on disparate methods to develop groundwater level minimum thresholds across the numerous GSPs and management areas.

2. The GSPs do not consistently and sufficiently document the effects of their selected minimum thresholds on beneficial uses and users in the Subbasin, nor explain how the minimum thresholds and measurable objectives that are set below historical lows will impact other applicable sustainability indicators specifically water quality, land subsidence, and reduction of groundwater storage.

C. The Subbasin's land subsidence sustainable management criteria do not satisfy the requirements of SGMA and the GSP Regulations.

1. *The Plan lacks a Subbasin-wide, coordinated approach to establishing land subsidence sustainable management criteria.*
2. *The GSPs and management areas that use their minimum thresholds for the chronic lowering of groundwater levels as proxy criteria for subsidence do not sufficiently demonstrate that groundwater levels (specifically groundwater levels below historical lows) are a reasonable proxy to avoid land subsidence that would substantially interfere with surface land uses.*

Pursuant to 23 CCR §355.2(e)(2), the GSAs had 180 days from the date of the determination (until 27 July 2022) to correct the identified deficiencies. Subsequently, the GSAs reorganized to amend the five GSPs and prepare one additional GSP to address DWR recommendations. The six amended GSPs were submitted to DWR on 27 July 2022, to correct deficiencies identified by DWR (Todd Groundwater, 2023). However, on 2 March 2023, DWR determined that the six revised GSPs were inadequate to fully address the previous corrective actions. The findings regarding the sufficiency of the actions taken by the GSAs to correct the deficiencies are provided verbatim below.

Deficiency 1: involved how the Plan established and justified undesirable results that represent effects caused by groundwater conditions occurring throughout the Subbasin. The corrective action advised the Agencies to evaluate the groundwater conditions that would be occurring throughout the Subbasin at the defined quantitative criteria described in the Plan. The corrective action also advised the Plan to explain how the Subbasin has utilized the same data and methodologies to define the Subbasin-wide undesirable results and how the Plan has considered the interests of beneficial uses and users of groundwater. The corrective actions included developing clear and consistent terminology and reporting processes for the Subbasin. The Staff Report indicates that the Agencies did not take sufficient actions to correct this deficiency, which materially affects the ability of the Agencies to achieve sustainability and the ability of the Department to evaluate the likelihood of the Plan to achieve sustainability.

Deficiency 2: involved the establishment of minimum thresholds for the chronic lowering of groundwater levels. The corrective action advised the Agencies to describe the various methods used to establish minimum thresholds and the potential effects on beneficial uses and users. The corrective action also advised the Plan to explain how the lowering of groundwater levels minimum thresholds and measurable objectives that are set below historical lows will impact other applicable sustainability indicators. The Staff Report indicates that the Agencies made progress toward describing the specific minimum thresholds at the management area plan scale but still did not take sufficient action to explain how the various minimum thresholds will collectively achieve the sustainability goals and avoid undesirable results for the Subbasin, which materially affects the ability of the Agencies to achieve sustainability and the ability of the Department to evaluate the likelihood of the Plan to achieve sustainability.

> *Deficiency 3: involved the establishment of sustainable management criteria for land subsidence. The corrective action advised the Plan to establish a Subbasin-wide approach to land subsidence, including Subbasin-wide subsidence sustainable management criteria and assessment of critical infrastructure that would be susceptible to substantial interference from future subsidence. The Staff Report indicates that the Agencies did not take sufficient actions to correct this deficiency, which materially affects the ability of the Agencies to achieve sustainability and the ability of the Department to evaluate the likelihood of the Plan to achieve sustainability.*

Since DWR determined that the GSPs are inadequate, primary jurisdiction has shifted from DWR to the State Water Resources Control Board (SWRCB). The SWRCB may designate the Subbasin as *probationary*, pursuant to CWC § 10735.2(a). A probationary hearing for the Subbasin is anticipated to occur in April 2024.[5] If the deficiencies identified in the probationary designation are not remedied within one year, the SWRCB may develop and adopt its own interim plan to manage groundwater use in the Subbasin, which could potentially result in allocations and fees imposed on the Subbasin. Given this, the long-term impacts of SGMA implementation in the Subbasin are still uncertain. The GSAs are currently consulting with the SWRCB and DWR while continuing coordinated implementation of the six GSPs to stabilize water levels and provide for sustainable management of the groundwater resource.

6.3.3 Groundwater Use

The Bakersfield District has a total of 130 wells located within the Bakersfield District service area boundaries, all of which overlie the Subbasin (Cal Water, 2021b). Pursuant to Water Code §10910(f)(3), the amount of groundwater pumped by Cal Water within the Bakersfield District for the past five years and prior years is provided in **Table 5**. The groundwater pumping data shown in **Table 5** extends beyond the required period and includes data from 2000 through 2022 (Cal Water, 2023a). The available groundwater supplies (supplemented by its other supplies described in Section 6.2) have been sufficient to meet all of the Bakersfield District's demands in all prior years. **Table 6** shows the Bakersfield District's projected groundwater use through 2045, per the 2020 UWMP projections.[1] The 2020 UWMP assumes that surface water will be utilized at a higher rate in the future as a result of infrastructure improvements and the remaining demands will be met with groundwater. Notably, the 2020 UWMP assumes an additional 14,500 AFY of water purchased from the City of Bakersfield will be available once increased treatment capacity becomes available at the NEBWTP in 2030. Thus, the Bakersfield District is projected to use less groundwater than it has historically. However, as noted in Section 6.2.1, there is a possibility that the treatment capacity expansion at the NEBWTP may experience delays and come online at a later date. If that is the case, Bakersfield District will continue to use groundwater to meet the remaining demands.[6]

[5] A probationary hearing timeline was presented in the SWRCB Board meeting on June 21, 2023.

[6] Note that the Proposed Project's total annual water demand is projected to be less than the site's historical agricultural water use (see Section 4.5). Therefore, it is anticipated that the Proposed Project will constitute a net reduction in demand on the underlying Subbasin.

6.3.4 Analysis of Sufficiency of Groundwater Supply

Historically, the groundwater supplies available to the Bakersfield District from the underlying Subbasin (supplemented by other supplies) have always been sufficient to meet Bakersfield District demands and the Cal Water supply wells have not dewatered, even during historical drought periods. As shown in **Table 5**, the groundwater pumping volumes within the Bakersfield District in recent years (an average of 30,591 AFY from 2018 through 2022) are lower than they were in previous years (an average of 48,328 AFY from 2000 through 2017), reflecting Cal Water's successful implementation of water conservation measures in response to the drought and continued efficiency due to passive conservation and demand hardening (Cal Water, 2023a).

Despite these efficiency achievements, the Kern County Subbasin Groundwater Sustainability Plans Fourth Annual Report Water Year 2022 reported 11 groundwater levels in the KRGSA GSP area exceeded the Minimum Thresholds (MTs) set as part of the Sustainability Management Criteria for the Subbasin, four of which were within the Bakersfield District boundaries (Todd Groundwater, 2023). While there are no pumping restrictions currently in place for the Subbasin, the KRGSA GSP includes a management action that entails a five-step action plan to address MT exceedances. One step of the action plan is to consider the development of programs to curtail pumping or allocate groundwater (KRGSA, 2022). Assuming a Proposed Project area of 90 acres and that groundwater will only provide 28% of Bakersfield District's groundwater supplies in 2045, groundwater demand will be equivalent to approximately 0.22 AFY/acre. The Subbasin has a native safe yield of 0.15 AF/acre in undeveloped lands and a safe yield of 0.35 AF/acre in currently irrigated lands (KRGSA, 2022). Therefore, it is assumed the groundwater demand will be between this range. This is deemed reasonably conservative, even considering SGMA uncertainty.

It is also important to note that from a regional and Subbasin-wide standpoint, the Cal Water Bakersfield District pumping is only a small fraction of total groundwater pumping. Based on Figure 2-58 presented in the KGA GSP, also shown on **Figure 4** below, average annual groundwater pumping from water year 1995 to 2014 within the Subbasin was approximately 1,590,373 AFY. Approximately 78% of that pumping was for irrigated agriculture, while total M&I pumping (inclusive of the Bakersfield District, the areas served by the City of Bakersfield, City of Shafter, and others) only accounted for approximately 11% of total pumping (KGA GSA, 2022). In water year 2022, irrigated agriculture accounted for approximately 71% of total pumping within the Subbasin, while total M&I pumping only accounted for approximately 6.2% of total pumping within the Subbasin (Todd Groundwater, 2023). While the long-term impacts of SGMA implementation in the Subbasin are still uncertain, it is likely that management of agricultural groundwater use, rather than M&I use, will be a much larger determining factor in maintaining groundwater sustainability in the Subbasin in the future.

Figure 4. Groundwater Pumping by Type for Kern County Subbasin Figure from the KGA GSP

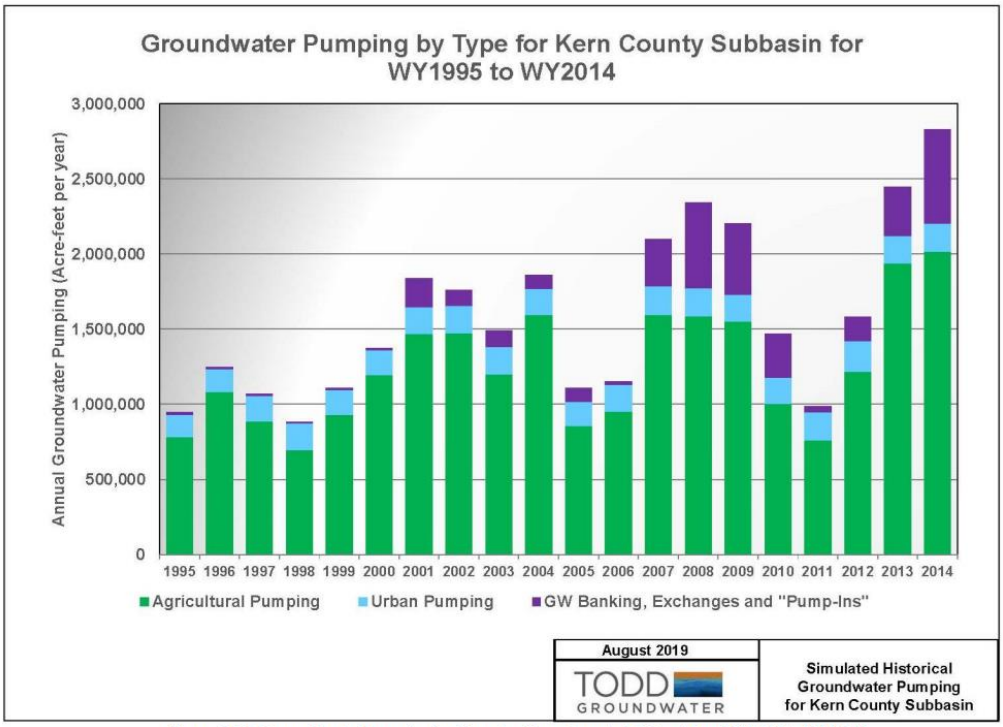


Figure 2-58. Groundwater Pumping by Type for Kern County Subbasin for WY1995 to WY2014

Further, although a significant amount of growth is projected in the Bakersfield District over the planning horizon (i.e., a projected population increase of approximately 24% over the next 25 years), it is anticipated that some land currently used for agricultural production will be converted to residential and non-residential urban uses to accommodate future growth. Irrigated agriculture typically uses more water on a per-acre basis than urban uses; thus, some future growth within the Bakersfield District will likely result in a net decrease in water use within the Subbasin. Based on the Kern River GSA GSP, which covers the majority of the Bakersfield District, approximately 10,000 acres of current KRGSA agricultural lands are expected to be urbanized representing a projected demand reduction of 27,000 AFY (KRGSA, 2022).

Cal Water holds certain water rights to groundwater it has pumped and used as an overlying owner and appropriator. Cal Water's water rights have been dedicated to a public use, and Cal Water is required by the CPUC to provide water to all customers within its designated service area under reasonable rules and regulations. Further, under California law municipal water rights and uses have a higher priority and are entitled to more protection than other uses of water, including in connection with SGMA. Use of water for domestic purposes is recognized as the "highest use" of water in the State of California pursuant to CWC §106, and the rights of urban water purveyors should be protected to the fullest extent necessary for existing and future uses, pursuant to CWC §106.5.

SGMA was intended to preserve the security of water rights in the state to the greatest extent possible, and was not intended to determine, modify or alter any surface water or groundwater

rights or priorities (CWC §10720.1(b), 10720.5(a) and (b)). SGMA should therefore not reduce, adversely impact or limit Cal Water's present or future exercise of its domestic water rights or its obligation to serve its municipal customers, and Cal Water's rights should be subject to less restrictions and limitations than any other types of water rights or uses.

Because of the demonstrated ability of the Bakersfield District to meet historical demands through the combination of purchased water and groundwater supplies, the 2020 UWMP concludes that the available supplies are sufficient to meet the projected Bakersfield District demands under all conditions (i.e., current and projected, and for normal, single dry, and multiple dry years including a five-year drought period).

6.4 Total Projected Potable Supply in Normal, Single Dry, and Multiple Dry Years

As discussed above, the water supply for the Bakersfield District is a combination of: (1) untreated Kern River water purchased from City of Bakersfield, (2) treated Kern River water and imported water purchased from ID-4, and (3) groundwater pumped from the Subbasin.

The agreement with the City of Bakersfield allows the Bakersfield District to receive untreated Kern River surface water at a rate of up to 67,200 acre-feet per year (AFY) regardless of water year type (i.e., 100% reliable). The City holds pre-1914 appropriative rights to the Kern River surface water.

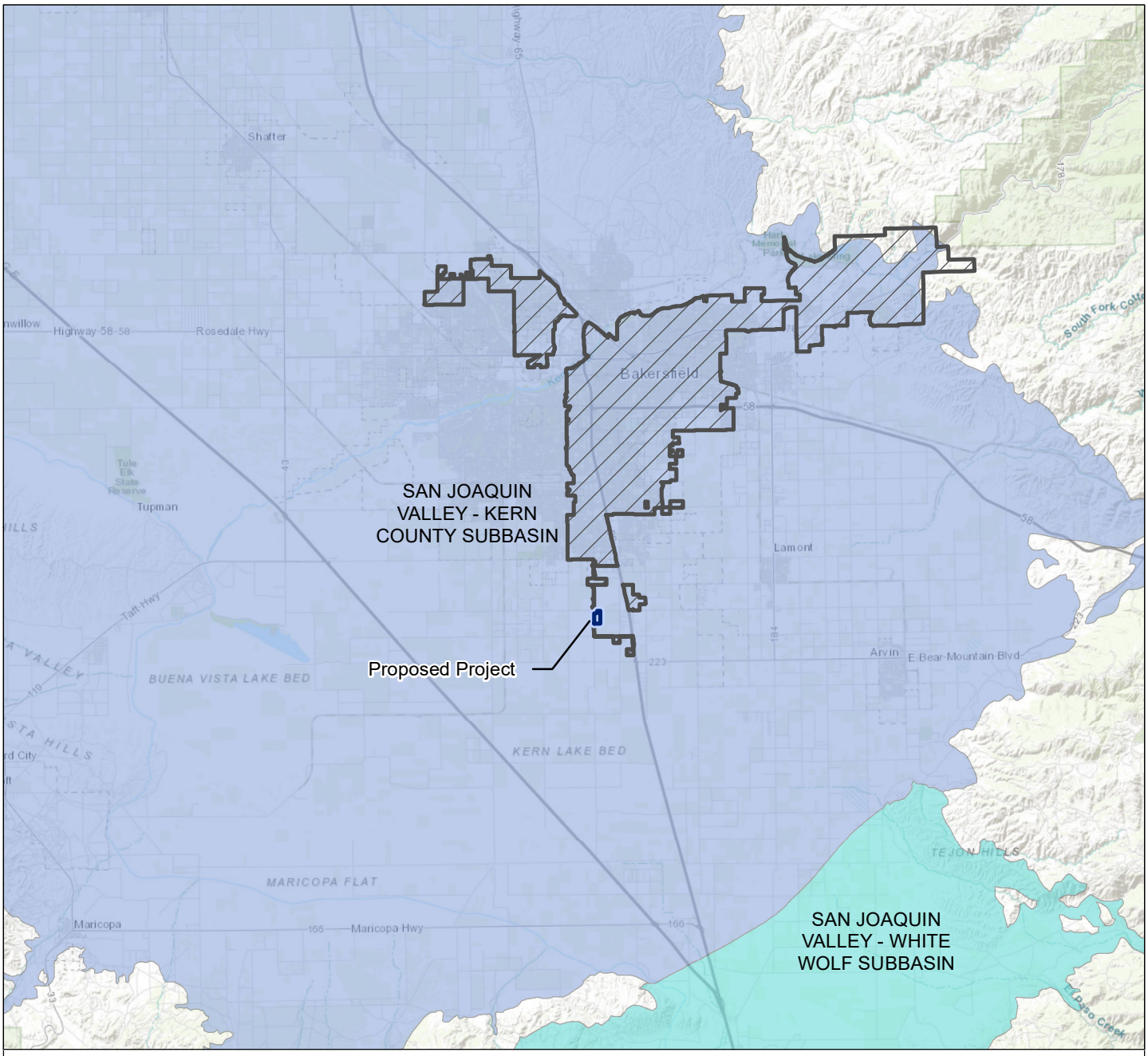
The agreement with ID-4 allows the Bakersfield District to receive up to 20,500 AFY of treated Kern River surface water and imported SWP water during normal hydrologic conditions. Cal Water can purchase up to 15% more than this amount depending on the needs of other water suppliers and the production capabilities of the ID-4 treatment plant (which has a total capacity of about 53,000 AFY). Based on the information provided by ID-4,[7] ID-4's supplies are adequate to meet its projected demands on average in normal year, single dry year, and multiple dry years.

Historically, the groundwater supplies available to the Bakersfield District from the Subbasin (supplemented by other supplies) have always been sufficient to meet Bakersfield District demands and the Cal Water supply wells have not dewatered, even during historical drought periods. While the long-term impacts of SGMA implementation in the Subbasin are still uncertain, development of programs to curtail pumping or allocate groundwater could occur in the future as described in Section 6.3.4. The total groundwater demand for the Proposed Project will largely be met with the safe yield.

In the event of purchased water supply shortages, groundwater supply will be used to serve any remaining projected demand that is not met with purchased water supplies. Given that Cal Water's agreements with the City of Bakersfield and ID-4, purchased water supplies in combination with groundwater supply are expected to be sufficient to meet projected water demands of the Bakersfield District under all hydrologic conditions, including in normal, single

[7] Table 7-2 to 7-4 of the ID-4 UWMP provided by KCWA ID-4 on 27 April 2021.

dry, and multiple dry years (Cal Water, 2021b). The total projected potable supplies for normal, single dry, and multiple dry years are presented in **Tables 7**, **8**, and **9**, respectively.



Legend

- Proposed Project
- Service Area Boundary

Groundwater Basins

- San Joaquin Valley - Kern County
- San Joaquin Valley - White Wolf

DRAFT

N

0 6 12

(Scale in Miles)

Notes

1. All locations are approximate.
2. Proposed Project boundary per Source 2.

Sources

1. Basemap provided by ESRI.
2. Kimley-Horn, 2023. Email Correspondence, received 6 September 2023.
3. DWR groundwater basins are based on the boundaries defined in California's Groundwater, Bulletin 118-2019 Update.

Regional Setting and Groundwater Subbasins

Ware Malcomb Industrial Project

Bakersfield, CA
October 2023
C20003.00

Figure 3

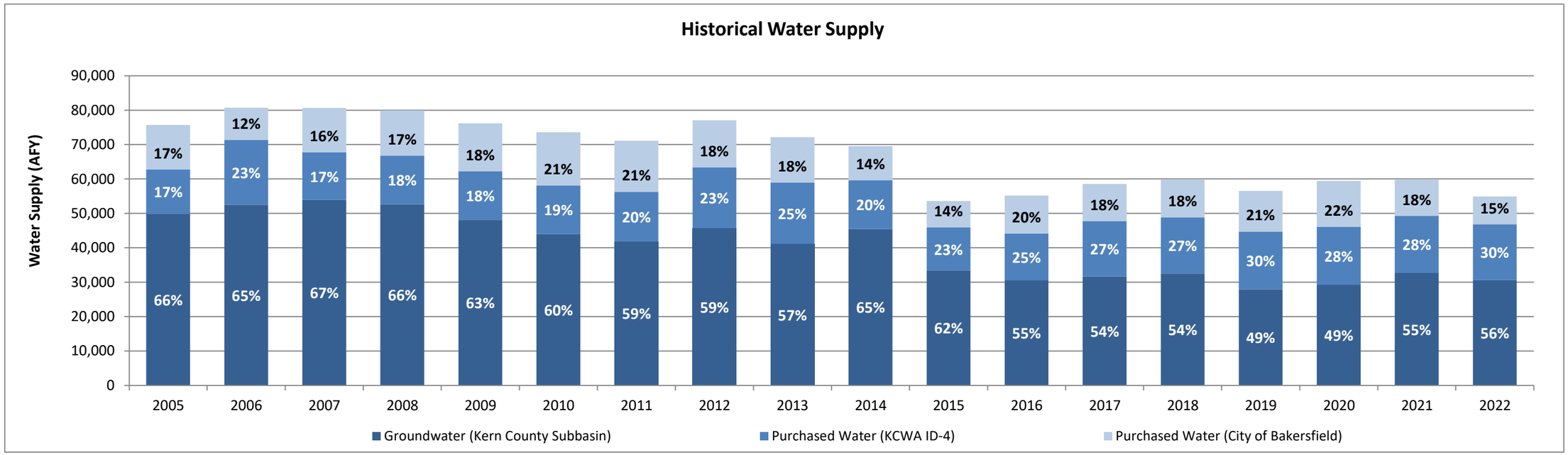
Path: X:\C20003\Maps\...00\20231010\Fig3_GW_Basins_20230929.mxd

Table 5

Historical Water Supply for the Bakersfield District

Ware Malcomb Industrial Project, City of Bakersfield, California

Water Supply Source	Historical Water Supply (AFY) (a)																						
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Groundwater (Kern County Subbasin)	61,961	61,566	65,645	58,278	51,587	49,856	52,499	53,889	52,661	48,154	43,995	41,835	45,709	41,158	45,495	33,388	30,552	31,669	32,498	27,895	29,249	32,719	30,596
Purchased Water (KCWA ID-4)	12,945	12,053	11,226	15,607	11,982	12,908	18,879	13,814	14,058	14,090	14,103	14,436	17,712	17,829	14,178	12,496	13,588	16,101	16,290	16,810	16,807	16,541	16,225
Purchased Water (City of Bakersfield)	0	0	0	5,510	14,463	12,916	9,331	12,931	13,199	13,929	15,470	14,823	13,646	13,194	9,889	7,718	11,031	10,801	10,985	11,819	13,362	10,504	8,084
Total Water Supply	**74,907**	**73,619**	**76,872**	**79,395**	**78,032**	**75,679**	**80,710**	**80,634**	**79,918**	**76,173**	**73,568**	**71,094**	**77,067**	**72,181**	**69,563**	**53,602**	**55,171**	**58,572**	**59,773**	**56,525**	**59,418**	**59,764**	**54,905**



Abbreviations:

"AFY" = acre-feet per year

"Cal Water" = California Water Service

"KCWA ID-4" = Kern County Water Agency Irrigation District No. 4

Notes:

(a) Historical water supply for the Bakersfield District per Reference 1.

References:

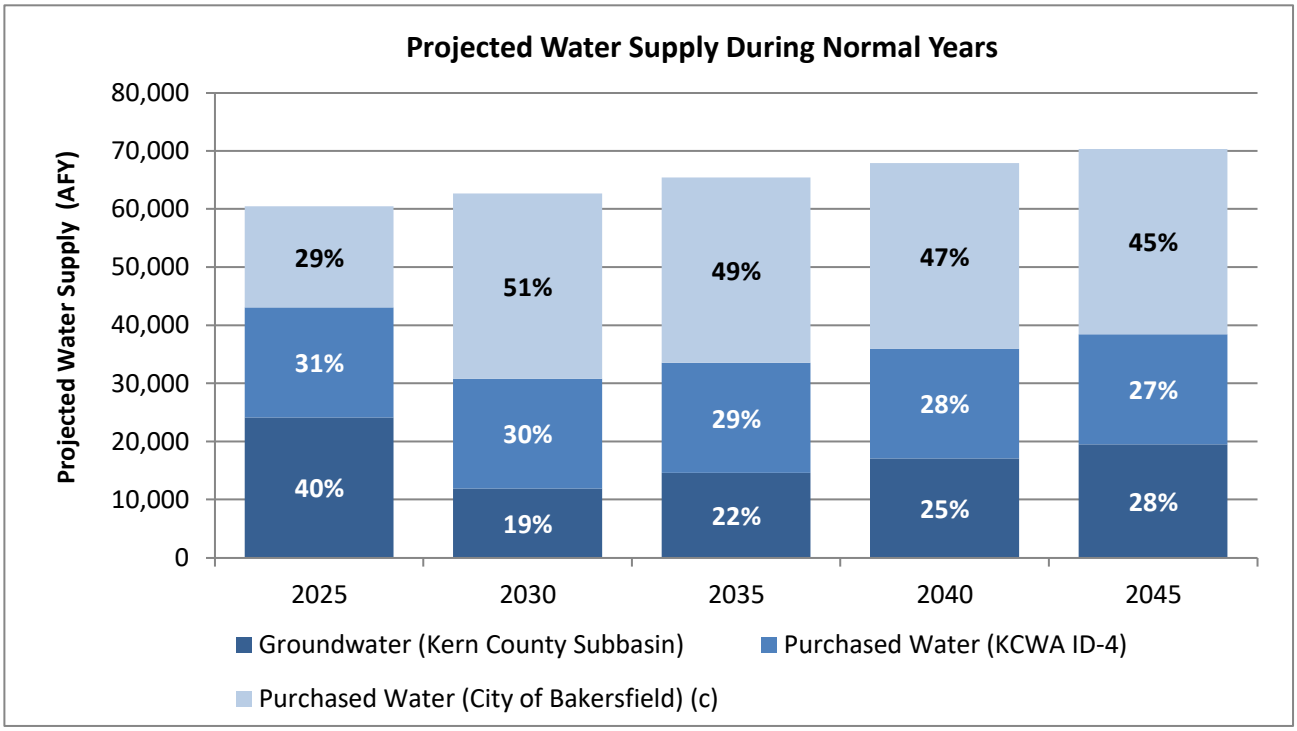
1. Cal Water, 2023. Historical Demand and Production Data, provided by Cal Water on 11 May 2023.

Table 6

Projected Normal Year Water Supply Sources for the Bakersfield District

Ware Malcomb Industrial Project, City of Bakersfield, California

Water Supply Source (a)	Projected Water Supply (b) (AFY)				
	2025	2030	2035	2040	2045
Groundwater (Kern County Subbasin)	24,139	11,881	14,608	17,071	19,514
Purchased Water (KCWA ID-4)	18,900	18,900	18,900	18,900	18,900
Purchased Water (City of Bakersfield) (c)	17,400	31,900	31,900	31,900	31,900
Total Projected Supply	**60,439**	**62,681**	**65,408**	**67,871**	**70,314**



Abbreviations:

"AFY" = acre-feet per year
"Cal Water" = California Water Service
"District" = Cal Water - Bakersfield District
"KCWA ID-4" = Kern County Water Agency Irrigation District No. 4
"NBWTP" = Northeast Bakersfield Water Treatment Plant
"UWMP" = Urban Water Management Plan

Notes:

(a) The District's 2020 UWMP assumes that surface water will be utilized at a higher rate in the future as a result of infrastructure improvements and the remaining demands will be met with groundwater.

(b) Projected supplies for the District per Reference 1.

(c) The District's 2020 UWMP assumes an additional 14,500 AFY of water purchased from the City of Bakersfield will be available once increased treatment capacity becomes available at the NEBWTP in 2030. Should the treatment capacity expansion at the NEBWTP experience delays and come online at a later date, the District will continue to use groundwater to meet the remaining demands.

References:

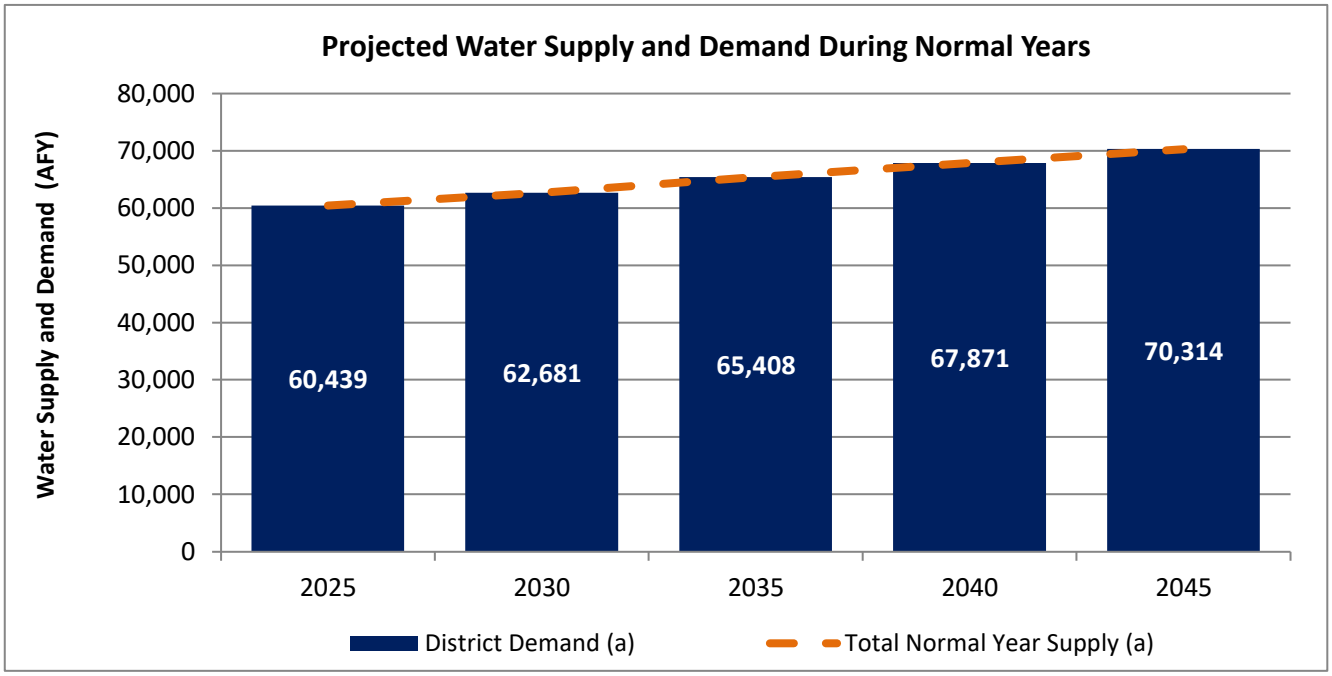
1. Cal Water, 2021. 2020 Urban Water Management Plan, Bakersfield District, prepared by Cal Water, dated June 2021.

Table 7

Projected Normal Year Water Supply and Demand for the Bakersfield District

Ware Malcomb Industrial Project, City of Bakersfield, California

Water Supply and Demand	Projected Normal Year Water Supply and Demand (AFY)				
	2025	2030	2035	2040	2045
Total Normal Year Supply (a)	60,439	62,681	65,408	67,871	70,314
Demand					
District Demand (a)	60,439	62,681	65,408	67,871	70,314
Proposed Project	Included in District Demands (b)				
Total Water Demand Inclusive of the Proposed Project	**60,439**	**62,681**	**65,408**	**67,871**	**70,314**
Supply Shortfall (% demand) (c)	***None***	***None***	***None***	***None***	***None***



Abbreviations:

"AFY" = acre-feet per year

"Cal Water" = California Water Service

"District" = Cal Water - Bakersfield District

"Proposed Project" = Ware Malcomb Industrial Project

"UWMP" = Urban Water Management Plan

Notes:

(a) Projected water supplies and demands for the District per Reference 1.

(b) The demands associated with the Proposed Project are within the growth anticipated within the District and accounted for in the District's 2020 UWMP demand projections. Note that the Proposed Project's total annual water demand is projected to be less than the site's historical agricultural water use; therefore, it is anticipated that the Proposed Project will constitute a net reduction in demand on the underlying Subbasin.

(c) Supply values shown do not represent the total supply available to the District in a given year, but rather reflect the fact that the available purchased water and groundwater supplies are sufficient to meet the demands as needed.

References:

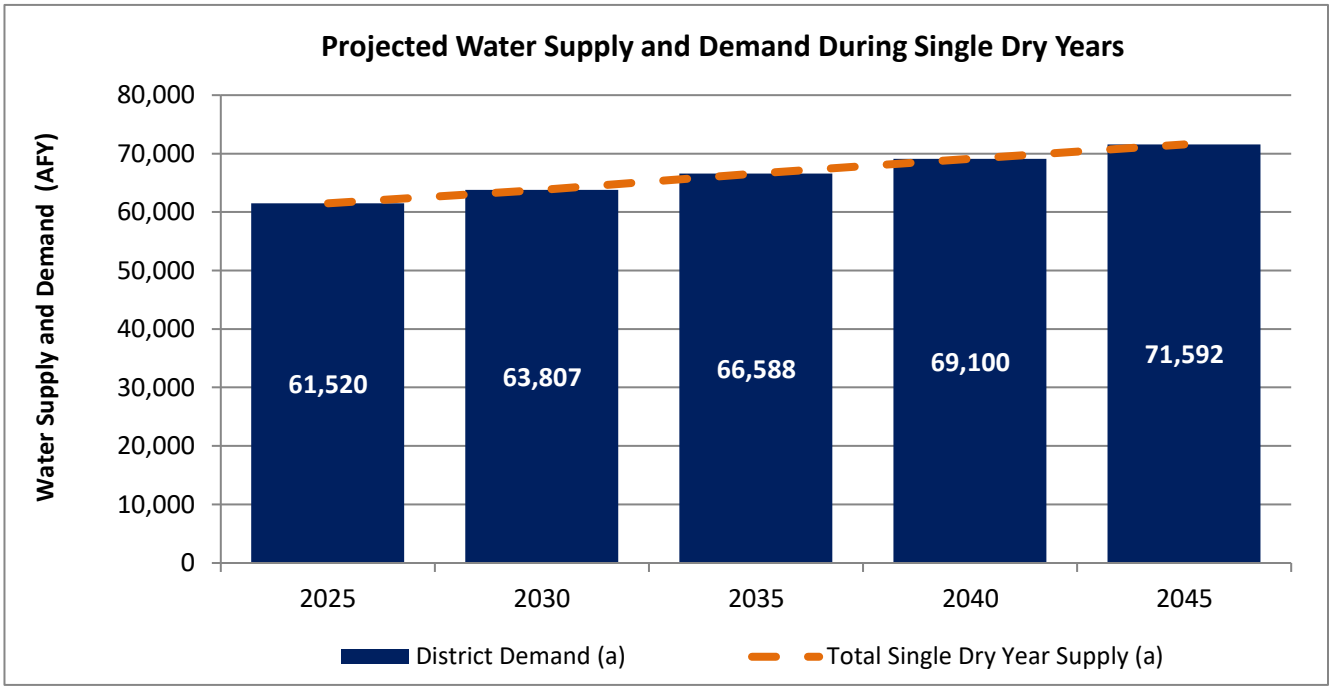
1. Cal Water, 2021. 2020 Urban Water Management Plan, Bakersfield District, prepared by Cal Water, dated June 2021.

Table 8

Projected Single Dry Year Water Supply and Demand for the Bakersfield District

Ware Malcomb Industrial Project, City of Bakersfield, California

Water Supply and Demand	Projected Single Dry Year Water Supply and Demand (AFY)				
	2025	2030	2035	2040	2045
Total Single Dry Year Supply (a)	61,520	63,807	66,588	69,100	71,592
Demand					
District Demand (a)	61,520	63,807	66,588	69,100	71,592
Proposed Project	Included in District Demands (b)				
Total Water Demand Inclusive of the Proposed Project	**61,520**	**63,807**	**66,588**	**69,100**	**71,592**
Supply Shortfall (% demand) (c)	***None***	***None***	***None***	***None***	***None***



Abbreviations:

"AFY" = acre-feet per year

"Cal Water" = California Water Service

"District" = Cal Water - Bakersfield District

"Proposed Project" = Ware Malcomb Industrial Project

"UWMP" = Urban Water Management Plan

Notes:

(a) Projected water supplies and demands for the District per Reference 1.

(b) The demands associated with the Proposed Project are within the growth anticipated within the District and accounted for in the District's 2020 UWMP demand projections. Note that the Proposed Project's total annual water demand is projected to be less than the site's historical agricultural water use; therefore, it is anticipated that the Proposed Project will constitute a net reduction in demand on the underlying Subbasin.

(c) Supply values shown do not represent the total supply available to the District in a given year, but rather reflect the fact that the available purchased water and groundwater supplies are sufficient to meet the demands as needed.

References:

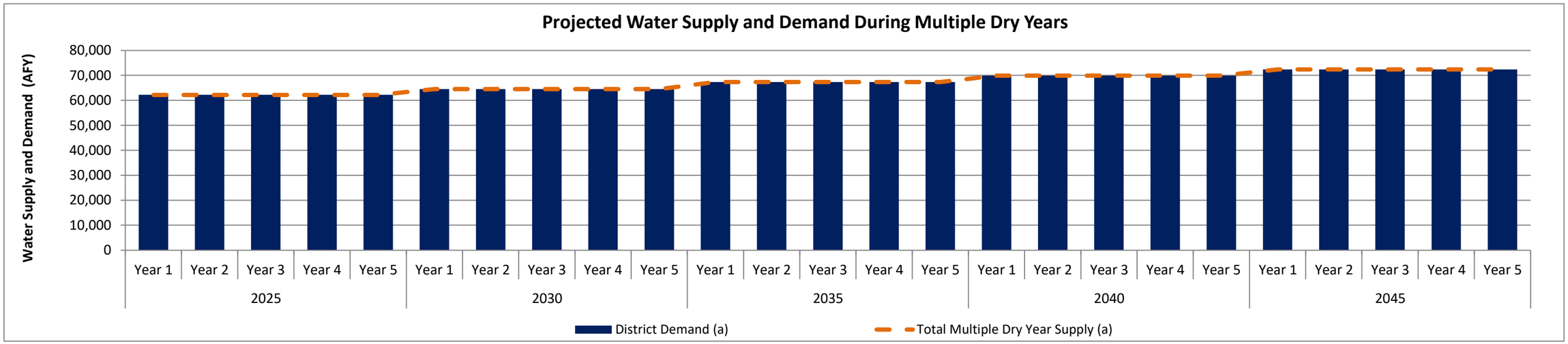
1. Cal Water, 2021. 2020 Urban Water Management Plan, Bakersfield District, prepared by Cal Water, dated June 2021.

Table 9

Projected Multiple Dry Year Water Supply and Demand for the Bakersfield District

Ware Malcomb Industrial Project, City of Bakersfield, California

Water Supply and Demand	Projected Multiple Dry Year Water Supply and Demand (AFY)																								
	2025					2030					2035					2040					2045				
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 1	Year 2	Year 3	Year 4	Year 5	Year 1	Year 2	Year 3	Year 4	Year 5	Year 1	Year 2	Year 3	Year 4	Year 5	Year 1	Year 2	Year 3	Year 4	Year 5
Total Multiple Dry Year Supply (a)	62,188	62,188	62,188	62,188	62,188	64,504	64,504	64,504	64,504	64,504	67,318	67,318	67,318	67,318	67,318	69,860	69,860	69,860	69,860	69,860	72,382	72,382	72,382	72,382	72,382
Demand																									
District Demand (a)	62,188	62,188	62,188	62,188	62,188	64,504	64,504	64,504	64,504	64,504	67,318	67,318	67,318	67,318	67,318	69,860	69,860	69,860	69,860	69,860	72,382	72,382	72,382	72,382	72,382
Proposed Project	Included in District Demands (b)																								
Total Water Demand Inclusive of the Proposed Project	62,188	62,188	62,188	62,188	62,188	64,504	64,504	64,504	64,504	64,504	67,318	67,318	67,318	67,318	67,318	69,860	69,860	69,860	69,860	69,860	72,382	72,382	72,382	72,382	72,382
Supply Shortfall (% demand) (c)	***None***	***None***	***None***	***None***	***None***	***None***	***None***	***None***	***None***	***None***	***None***	***None***	***None***	***None***	***None***	***None***	***None***	***None***	***None***	***None***	***None***	***None***	***None***	***None***	***None***



Abbreviations:

"AFY" = acre-feet per year

"Cal Water" = California Water Service

"District" = Cal Water - Bakersfield District

"Proposed Project" = Ware Malcomb Industrial Project

"UWMP" = Urban Water Management Plan

Notes:

(a) Projected water supplies and demands for the District per Reference 1.

(b) The demands associated with the Proposed Project are within the growth anticipated within the District and accounted for in the District's 2020 UWMP demand projections. Note that the Proposed Project's total annual water demand is projected to be less than the site's historical agricultural water use; therefore, it is anticipated that the Proposed Project will constitute a net reduction in demand on the underlying Subbasin.

(c) Supply values shown do not represent the total supply available to the District in a given year, but rather reflect the fact that the available purchased water and groundwater supplies are sufficient to meet the demands as needed.

References:

1. Cal Water, 2021b. 2020 Urban Water Management Plan, Bakersfield District, prepared by California Water Service, dated June 2021.

7 COMPARISON OF SUPPLY AND DEMAND

☑ ***CWC § 10910 (c)(3)***

If the projected water demand associated with the proposed project was not accounted for in the most recently adopted urban water management plan, or the public water system has no urban water management plan, the water supply assessment for the project shall include a discussion with regard to whether the public water system's total projected water supplies available during normal, single dry, and multiple dry water years during a 20-year projection will meet the projected water demand associated with the proposed project, in addition to the public water system's existing and planned future uses, including agricultural and manufacturing uses.

☑ ***CWC § 10911 (a)***

If, as a result of its assessment, the public water system concludes that its water supplies are, or will be, insufficient, the public water system shall provide to the city or county its plans for acquiring additional water supplies, setting forth the measures that are being undertaken to acquire and develop those water supplies. If the city or county, if either is required to comply with this part pursuant to subdivision (b), concludes as a result of its assessment, that water supplies are, or will be, insufficient, the city or county shall include in its water supply assessment its plans for acquiring additional water supplies, setting forth the measures that are being undertaken to acquire and develop those water supplies. Those plans may include, but are not limited to, information concerning all of the following:

(1) The estimated total costs, and the proposed method of financing the costs, associated with acquiring the additional water supplies.

(2) All federal, state, and local permits, approvals, or entitlements that are anticipated to be required in order to acquire and develop the additional water supplies.

(3) Based on the considerations set forth in paragraphs (1) and (2), the estimated timeframes within which the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), expects to be able to acquire additional water supplies.

☑ ***CWC § 10911 (c)***

The city or county may include in any environmental document an evaluation of any information included in that environmental document provided pursuant to subdivision (b). The city or county shall determine, based on the entire record, whether projected water supplies will be sufficient to satisfy the demands of the project, in addition to existing and planned future uses. If the city or county determines that water supplies will not be sufficient, the city or county shall include that determination in its findings for the project.

As discussed further in Section 5, based on a review of the projected Bakersfield District growth assumptions, Cal Water has determined that the Proposed Project is within the growth anticipated within the Bakersfield District and thus is accounted for in the 2020 UWMP demand projections. Therefore, pursuant to CWC §10910(c)(3), the WSA may rely upon the 2020 UWMP for its analysis of normal, single dry, and multiple dry water years.

This WSA includes an estimate of the projected water supplies available to the Bakersfield District under normal, single dry, and multiple dry years, and a discussion of whether those supplies will meet the projected demand associated with the Proposed Project, in addition to the water system's existing and planned future uses. This assessment is parallel to the multiple-dry year supply reliability analysis required for UWMPs under CWC §10635. In 2018, CWC §10635 was revised to require UWMPs to extend this analysis to consider "a drought lasting five consecutive

water years." Although CWC §10910(c)(3) has not yet been updated to require this for WSAs, a five-year drought scenario is also evaluated herein.

Tables 7, **8**, and **9** provide a comparison of the demands and supplies, inclusive of the Proposed Project, in normal year, single-dry year, and multiple-dry year hydrologic scenarios respectively for the Bakersfield District. As discussed above, because all water sources are considered reliable, the 2020 UWMP assumes that the total projected supplies are equal to the projected demands under all conditions (i.e., current and projected, and for normal, single dry, and multiple dry years).

While supply shortfalls are not projected, shortfalls resulting from any cause (e.g., droughts, impacted distribution system infrastructure, regulatory-imposed shortage restrictions, etc.) that could occur in the future would be managed through the implementation of the Bakersfield District's Water Shortage Contingency Plan (WSCP). The overall reduction goals in the WSCP are established for six drought stages ranging from 10% to greater than 50% shortfalls.

In 2016, Governor Brown signed Executive Order (EO) B-37-16 *Making Water Conservation a California Way of Life* and subsequently SB 606 and Assembly Bill (AB) 1668 were passed. SB 606/AB 1688 set new requirements for urban water agencies to continue to increase water efficiency beyond the 2020 water use targets developed under the Water Conservation Act of 2009 (SB X7-7). Beginning in 2024, agencies are required to report on "annual water use objectives." The urban water use objective is based on an aggregate estimate of efficient urban water use for the previous year and local service area characteristics for that year. In addition, SB 606/AB 1668 added new requirements related to drought planning and WSCPs, including requirements for agencies to: (1) conduct a drought risk assessments part of their future UWMPs to assess water supply reliability for a period of drought lasting five consecutive water years (CWC §10635(b)), and (2) conduct annual water supply and demand assessments to determine its water supply reliability for the current year and one dry year (CWC §10632(a)). These elements are included in the Bakersfield District's 2020 WSCP.

With implementation of its WSCP during the historic five-year 2013-2017 drought, the Bakersfield District achieved a demand reduction of 19% (2017 water demand compared to 2013 water demand; Cal Water, 2021b). As a customer within the Bakersfield District, the Proposed Project would be obligated to comply with the demand reduction efforts imposed by Cal Water through implementation of the WSCP in any future water shortage condition. Therefore, the Proposed Project would contribute a proportionate share of the reduction in water demands during dry years.

On 8 July 2021, in response to the recent drought conditions, Governor Newsom signed EO N-10-21 calling Californians to voluntarily reduce water use by 15% compared to 2020 levels. The Bakersfield District enacted Stage 2 of its WSCP on 14 December 2021 and implemented numerous drought response actions, including, but not limited to, irrigation day restrictions, obligations to fix leaks, community outreach, rebates, and penalties (Cal Water, 2021c; 2021d). The Bakersfield District demands decreased by 8.2% in 2022 compared to its 2020 demands.

Therefore, based on: (1) the projected reliability of the supply sources available to the Bakersfield District, (2) the demonstrated effectiveness of the Bakersfield District's WSCP in the case of supply shortages, and (3) the increasing efficiency and drought planning requirements from the State, sufficient water supply is estimated to be available to Cal Water to meet future demands within the Bakersfield District service area including those associated with the Proposed Project.

8 CONCLUSIONS

As listed in CWC §10910(c)(4), the primary purpose of this WSA is to evaluate whether sufficient water supply is available to meet future water demands within the water supplier's service area, including those associated with the Proposed Project, during normal and multiple dry hydrologic years for a 20-year time horizon.

As described in Section 4, the water demand of the Proposed Project (i.e., 72 AFY at buildout) has been conservatively estimated. As discussed in Section 5, these demands are within the projected water demand growth that form the basis of Cal Water's updated demand projections in the adopted 2020 UWMP.

As discussed in Section 6, all supply sources to the Bakersfield District are considered reliable based on the findings of the 2020 UWMP. Therefore, sufficient water supply is estimated to be available to Cal Water to meet future demands within the Bakersfield District service area from 2020 through 2045 under all hydrologic conditions (i.e., current and projected, and for normal, single dry, and multiple dry years including a five-year drought period).

Therefore, this WSA concludes that sufficient water supply is available to Cal Water to meet future demands anticipated within the Bakersfield District service area, including those associated with the Proposed Project.

9 REFERENCES

California Public Utilities Commission (CPUC), 2004. Applying for a Certificate of Public Convenience and Necessity for a Water of Sewer System Company, dated March 2004.

California Water Service (Cal Water), 2003. Agreement No. 03-316 Customer Service Agreement Kern Delta Water District, California Water Service Company and City of Bakersfield dated November 2003.

Cal Water, 2005. Agreement between Kern County Water Agency and California Water Service Company for a Water Supply, dated September 2005.

Cal Water, 2013. Agreement for a Dry Year Water Supply From Improvement District No.4, dated May 2013.

Cal Water 2021a. Demand Model for the Bakersfield District, prepared by M.Cubed, dated 26 February 2021.

Cal Water, 2021b. *2020 Urban Water Management Plan*, Bakersfield District, prepared by California Water Service, dated June 2021.

Cal Water, 2021c. *The Drought, Water-Use Restrictions, Conservation, You,* prepared by California Water Service, dated November 2021.

Cal Water, 2021d. *Press Release: Stage 2 Contingency Plan in Effect in Bakersfield*, dated 14 December 2021, (https://www.calwater.com/latest-news/2021-1214-stage-2-contingency-plan-in-effect-in-bakersfield/).

Cal Water, 2023a. Historical Demand and Production Data, provided by California Water Service, on 11 May 2023.

Cal Water, 2023b. Information provided by California Water Service on 28 August 2023.

Cal Water, 2023c. Information provided by California Water Service via email on 4 October 2023.

Department of Water Resources (DWR), 2015. 2015 Updated Chapter 2.7: Model Water Efficient Landscape Ordinance.

DWR, 2018. B118 Basin Description, Kings Subbasin, dated March 2018.

DWR, 2019. Sustainable Groundwater Management Act 2018 Basin Prioritization, State of California, dated January 2019.

DWR, 2022. WUEdata – 2021 Water Audit Report: California Water Service Bakersfield District, uploaded 30 September 2022, (https://wuedata.water.ca.gov/awwa_plans).

Kern River Groundwater Sustainability Agency (KRGSA), 2022. *Amended Kern River Groundwater Sustainability Agency Groundwater Sustainability Plan*, dated July 2022.

Kimley-Horn, 2022. Information provided by Kimley-Horn, received via email 27 January 2022.

Kimley-Horn, 2023a. Information provided by Kimley-Horn, received via email 6 September 2023.

Kimley-Horn, 2023b. Draft Environmental Impact Report Project Description, received 9 August 2023.

Kimley-Horn, 2023c. Request for Information form, received 9 August 2023.

Olcese Groundwater Sustainability Agency (Olcese GSA), 2022. *Amended Olcese Groundwater Sustainability Agency Groundwater Sustainability Plan*, dated July 2022.

Provost & Pritchard Consulting Group, 2020. *Kern Integrated Regional Water Management Plan*, dated March 2020.

State Water Resources Control Board (SWRCB), 2015. State Reduces Water Use by Nearly 29 Percent In Advance of June Conservation Mandates, dated 1 July 2015.

Todd Groundwater, 2023. Kern County Subbasin Groundwater Sustainability Plans Fourth Annual Report Water Year 2022, dated March 2023.

U.S. Energy Information Administration (USEIA), 2017. 2012 Commercial Buildings Energy Consumption Survey: Water Consumption in Large Buildings Summary, dated 9 February 2017.

Appendix A

Bakersfield District Purchase Agreements

AGREEMENT FOR A DRY YEAR WATER SUPPLY FROM
IMPROVEMENT DISTRICT No. 4

This agreement entered this 24th day of May, 2013, between the Kern County Water Agency ("Agency"), individually and on behalf of Improvement District No. 4 ("ID4"), and CALIFORNIA WATER SERVICE COMPANY ("Customer").

RECITALS

WHEREAS, the Agency has previously entered into long term water supply agreements with the Customer dated September 21, 2005 ("Water Supply Agreement"), a model of which is attached hereto as Exhibit A;

WHEREAS, the Water Supply Agreement provides, pursuant to Article 12(A), that the Agency may use ID4 groundwater banking projects or in-district wells for reducing shortages subject to a separate agreement between the Agency and the Customer;

WHEREAS, ID4 staff has investigated the recovery capacity of the ID4 groundwater banking projects and in-district wells to provide dry year supplies to reduce shortages to the Customer in years when treated water requests of the Customer for New Entitlement cannot be met by ID4's surface water supplies;

WHEREAS, ID4 staff has provided the Customer with analyses showing the estimated costs of utilizing the recharge and recovery capacity of the ID4 groundwater banking projects and in-district wells to provide such dry year supplies;

WHEREAS, the Customer desires to utilize the recovery capacity of the ID4 groundwater banking projects and in-district wells to receive a dry year water supply from ID4 to reduce shortages as provided for in the Water Supply Agreement.

NOW, THEREFORE, for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Agency and Customer agree as follows:

1. Incorporation of Water Supply Agreement.

   The provisions of the Water Supply Agreement, including but not limited to those that define the terms used in this agreement and those that describe the obligation and method of payments, are hereby incorporated by reference into this agreement.

2. Schedule for Dry Year Supplies.

   (a) By December 1 of each year, the Agency will provide the Customer with a preliminary estimate of ID4's recovery capacity for dry year supplies for the succeeding year.

   (b) By March 1 of each year, the Customer will provide the Agency with its preliminary dry year water supply request and delivery schedule for that year.

(c) By May 1 of each year, the Customer will provide ID4 with its final dry year water supply request and delivery schedule for that year.

(d) After May 1, the Customer may propose to amend its dry year water supply request and delivery schedule for that year. The Agency shall review any proposed amendments and provide an updated delivery schedule within two weeks of the request.

(e) Agency shall endeavor to at all times keep the Customer apprised of State Water Supply anticipated allocations so that the Customer may make informed decisions about dry year supply needs.

3. Costs and Payments for Dry Year Supplies.

(a) By December 1 of each year, the Agency will provide the Customer with a preliminary estimate and detailed breakdown of the costs for dry year supplies, including any ID4 administrative costs, for the succeeding year.

(b) By March 1 of each year, the Customer shall pay 25% of the dry year water supply charges due to ID4 for that year that are attributable to such Customer's preliminary dry year water supply request and delivery schedule. The remaining 75% of the dry year water supply charges due to ID4 for that year will be collected in equal installments on a monthly basis in those months for which the Customer has requested delivery of any dry year water supplies.

(c) ID4 will reconcile all dry year water supply costs when final costs for the recovery of such supplies are available and by substituting actual deliveries for the requested deliveries made pursuant to 2(c) and 2(d). The Customer will be charged a melded rate for recovery over all ID4 groundwater banking projects and in-district wells used to meet dry year water supply requests.

(d) The Customer may, upon reasonable notice, reduce its dry year water supply request and delivery schedule, and shall not be obligated to make payments for dry year water supplies that are not delivered to Customer pursuant to such reduction.

4. 2013 Schedule and Costs for Dry Year Supplies.

(a) By June 1, 2013, the Customer will provide the Agency with a final dry year water supply request, delivery schedule for the year and shall pay 25% of the dry year water supply charges due to ID4 for 2013.

(b) In 2013, the Customer shall be charged $75 per acre-foot for dry year water supplies.

Executed on the day(s) specified below by the following duly authorized representatives of the contracting parties.

Dated: 5-24-13

KERN COUNTY WATER AGENCY

By _____

Dated: 5/16/13

CALIFORNIA WATER SERVICE COMPANY

By _____

AGREEMENT BETWEEN

KERN COUNTY WATER AGENCY

AND

CALIFORNIA WATER SERVICE COMPANY

FOR A WATER SUPPLY

SEPTEMBER 2005

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AMENDMENT NO. 2
TO THE
CONTRACT BETWEEN THE KERN COUNTY WATER AGENCY
AND CALIFORNIA WATER SERVICE COMPANY
FOR A WATER SUPPLY

This agreement made this 23rd day of June, 1994, is by and between the Kern County Water Agency, established by Chapter 1003 of the 1961 Statutes of the State of California (hereinafter "Agency"), and the California Water Service Company (hereinafter "Company"). This agreement is an amendment to the water supply contract entered into between Agency and Company on June 13, 1974 (hereinafter "Water Supply Contract").

RECITALS:

WHEREAS, the Agency and Company have previously entered into the Water Supply Contract dated June 13, 1974 governing the terms and conditions under which the Agency will provide a designated water supply to Company;

WHEREAS, Article 15 of the Water Supply Contract contains pricing provisions, and provides for a surcharge and renegotiation in the event of specified financial conditions leading to the potential insolvency of Improvement District Number 4 of the Agency;

WHEREAS, the conditions specified have occurred and a surcharge under subdivision (d) of Article 15 of the Water Supply Contract has been imposed; and

WHEREAS, the Agency and the Company have engaged in renegotiation pursuant to Article 15 of the Water Supply Contract and have reached the agreement set forth herein which shall constituted an amendment to the Water Supply Contract.

AGREEMENT:

NOW, THEREFORE, IT IS HEREBY MUTUALLY AGREED by the parties hereto as follows:

1. This agreement between the Agency and Company shall constitute an amendment to the terms of the Water Supply Contract between the parties, attached hereto as Exhibit A and incorporated herein

by reference as though fully set forth at length.

2. Subdivision (a) of Article 15 of the Water Supply Contract shall be amended to read as follows:

"Until the date of this amendment the charge for each acre-foot of water delivered to the Company, and all other customers shall be five dollars ($5.00) more per acre-foot than the highest groundwater charge levied in Improvement District No. 4 for that year in accordance with the Agency's resolution 17-71, as amended. After the date of this amendment the charge for each acre-foot of water delivered to the Company, and all other customers, shall be thirty-eight dollars ($38.00) (hereinafter "Water Treatment Charge") more per acre-foot than the highest groundwater charge levied in Improvement District No. 4 for that year in accordance with the Agency's Resolution No. 17-71, as amended."

3. Subdivision (b) of Article 15 of the Water Supply contract shall be amended to read as follows:

"Beginning in the 1980-81 year and each year thereafter the Company and all other customers, shall pay the rate per acre-foot provided for in paragraph (a) of this article times either the water delivered to them or their annual entitlement, whichever is greater. Commencing with the first full year that water is made available and each year thereafter prior to 1980-81 if the Company or any other customer, fails to take its annual entitlement, the customer failing to take its annual entitlement shall pay the Water Treatment Charge for each acre-foot of annual entitlement not taken by it; provided, however, if other customers have paid for the delivery of 25,000 acre-feet of water and the Agency determines on the basis of its estimates that the proceeds from the charges for water delivered and any groundwater charges and taxes levied in Improvement District No. 4 will be sufficient to meet the expenses for the Improvement District for that year, customers failing to take their annual entitlement shall not be required to pay said Water Treatment Charge; provided further, if the Agency has levied the maximum permitted groundwater charge for Improvement District No. 4 and anticipates levying a tax in Improvement District No. 4 for the same year of not less than twenty cents ($.20) per one hundred dollars ($100.00) of assesssed valuation or the maximum tax rate permitted by law without an election, if such maximum is less than twenty cents, and determines on the basis of its estimates that the proceeds from all charges and taxes levied in the Improvement District will be insufficient to meet the estimated expenses for the Improvement District for that year, the Company and all other customers, shall pay, at a uniform rate for each acre-foot of annual entitlement not taken by them, the amount necessary to meet such expenses; provided, that said uniform rate shall be not less than the Water Treatment Charge nor more than the Water Treatment Charge plus the maximum groundwater charge permissible in Improvement District No. 4.

4. Subdivision (j) of Article 1 shall be amended by changing the the title of the last column of figures contained therein from "Max. Capacity" to "Maximum Instantaneous Flow Capacity".

5. Except as specifically amended herein all other provisions of the Water Supply Contract

shall remain in force and effect.

IN WITNESS WHEREOF, the parties hereto have executed this amendment on the date first above written.

KERN COUNTY WATER AGENCY

By _____
President

ATTEST:

By _____
Secretary

CALIFORNIA WATER SERVICE COMPANY

By _____
President

By _____
Secretary

CONTRACT BETWEEN KERN COUNTY WATER AGENCY AND
CALIFORNIA WATER SERVICE COMPANY
FOR A WATER SUPPLY

This agreement made this 13th day of June, 1974 is by and between the Kern County Water Agency, established by Chapter 1003 of the 1961 Statutes of the State of California, hereinafter referred to as the "Agency" and California Water Service Company, a California corporation, hereinafter referred to as the "Company".

W I T N E S S E T H:

WHEREAS, the Agency and the State of California entered into an agreement entitled "Water Supply Contract Between the State of California Department of Water Resources and Kern County Water Agency" dated November 15, 1963, whereby the State of California will furnish a water supply to the Agency; and

WHEREAS, the Agency has allocated an ultimate annual supply of 77,000 acre-feet of the water it will obtain from the State to the Urban Bakersfield Area; and

WHEREAS, by Resolution No. 17-71 adopted December 21, 1971, the Agency formed Improvement District No. 4 of the Kern County Water Agency to undertake the financing, construction, operation and maintenance of works to provide a supplemental water supply for the Urban Bakersfield Area; and

WHEREAS, the Company, which is a public utility serving customers in said Improvement District No. 4, is in need of additional water to serve such customers; and

WHEREAS, the Agency desires to sell water to distribution agencies within said Improvement District No. 4, including the Company, under terms and conditions which shall be fair and equitable to all such water distributors and the inhabitants of said Improvement District No. 4; and

WHEREAS, the Company desires to contract with the Agency for a water supply for the benefit and use of the lands and inhabitants served by the Company and for which the Company will make payments to the Agency upon the terms and conditions hereinafter set forth;

NOW, THEREFORE, IT IS HEREBY MUTUALLY AGREED by the parties hereto as follows:

Article 1. Definitions.

When used in this contract the following terms shall have the meanings hereinafter set forth:

(a) "Master Contract" shall mean that contract between the Agency and the State of California entitled "Water Supply Contract Between the State of California Department of Water Resources and the Kern County Water Agency" dated November 15, 1963, as amended to date and any revisions or amendments hereafter made.

(b) "State Project Water" shall mean water made available to the Agency from the California Aqueduct, a portion of the State Water Resources Development system.

(c) "Year" shall mean the 12-month period from July 1 of any calendar year to June 30 of the following calendar year.

(d) "Cross Valley Canal" shall mean the concrete lined canal approximately 17 miles in length extending from the California Aqueduct near Tupman easterly to the Arvin-Edison Canal, together with the turnout from the California Aqueduct, the pumping plants necessary to lift water through a static head of approximately 84 feet and such road crossings, utility relocations, fences, and other facilities necessary for its construction and operation.

(e) "Extension" shall mean the unlined canal beginning at the eastern terminus of the Cross Valley Canal and extending easterly approximately 4.5 miles to a point near the Calloway Weir, together with the pumping plants necessary to lift water through a static head of approximately 30 feet and such road crossings, utility relocations, fences and other facilities necessary for its construction and operation.

(f) "Improvement District No. 4" shall mean Improvement District No. 4 of the Kern County Water Agency created by Resolution No. 17-71 of the Board of Directors of the Kern County Water Agency adopted December 21, 1971.

(g) "Project" shall mean the project to be undertaken by the Agency for the benefit of Improvement District No. 4 and others as described in said Resolution No. 17-71, including the features more particularly described in Article 5 hereof.

(h) "Agency Act" shall mean the Kern County Water Agency Act, being Chapter 1003 of the 1961 Statutes of the State of California, as amended.

(i) "Customers" shall mean each of the following water purveyors that contracts to buy treated water from the project: the Company, East Niles Community Services District, and North of the River Municipal Water District.

(j) "Annual entitlement" shall mean the following amounts of treated water, in acre-feet, to be made available to each customer each year, and the maximum instantaneous flow capacities to be provided for each customer in the transmission facilities are the following amounts:

Customer	Annual Entitlement	Max. Capacity
North of the River Municipal Water District	8,500 acre-feet	17.6 CFS
East Niles Community Services District	5,000 acre-feet	10.4 CFS
Company	11,500 acre-feet	24.0 CFS

(k) "Capital costs" shall mean all costs incurred by the Agency which are properly chargeable, in accordance with generally accepted accounting practices, to the construction of and the furnishing of equipment for the various

project facilities, including the costs of surveys, engineering studies, exploratory work, designs, preparation of construction plans and specifications, acquisitions, acquisition of lands, easements and rights-of-way, relocation work, and essential legal, administrative and financial work in connection therewith.

(l) "Operating costs" shall mean all necessary costs, other than pumping costs, for the operation, maintenance, repair, replacement and administration of the various project facilities.

(m) "Pumping costs" shall mean all necessary power costs incurred for pumping water.

Article 2. Term.

This contract shall become effective when the Agency has executed contracts with customers for an aggregate of 25,000 acre-feet of annual entitlements from a treatment plant or plants to be constructed as part of the project and, except as provided for in Article 15(d), shall remain in effect for the repayment period of any bonds authorized for the project by the electorate of Improvement District No. 4 at the election held on September 12, 1972; provided, however, that if the construction of the water treatment plant described in subdivision (c) of Article 5 is not commenced by December 31, 1975 either party may terminate this contract by giving the other party written notice of its election to do so by January 31, 1976.

Article 3. Option for Continued Service.

After the expiration of the term of this contract, the Company shall be entitled to continued service under the following conditions unless otherwise agreed to:

(a) Service of water in annual amounts equal to the Company's annual entitlement.

(b) Service of water under the same physical conditions of service, including time, place, amount and rate of delivery, as are provided for hereunder.

(c) Service of water at prices to be mutually agreed upon.

Other terms and conditions of the continued service shall be reasonable and equitable and shall be mutually agreed upon. In the event that said terms and conditions provide for continued service for a limited number of years only, the Company shall have the same option to receive continued service here provided for upon the expiration of that and each succeeding period of continued service.

Article 4. Relationship to Master Contract.

This contract is subject to the obligations and limitations imposed by the Master Contract and is intended to be in conformance and harmony with it. The Master Contract is hereby incorporated herein by this reference in all respects as though set forth in full at this point. The Company hereby expressly agrees to the provisions of the Master Contract imposing obligations and limitations upon it and further ex-

presssly agrees that nothing in this contract shall be deemed to require the Agency to perform any obligation in conflict with the Master Contract.

The Agency agrees it will not, without the prior approval of the Company, consent to any amendments to the Master Contract which would increase the price of water to the Company under this contract or substantially adversely affect the Agency's ability to deliver the water provided for herein.

Article 5. Agency to Construct Project.

Upon obtaining sufficient financing, the Agency shall construct the following:

(a) A Cross Valley Canal which shall consist of the following three reaches:

(1) Reach 1 shall begin with a turnout on the California Aqueduct near Tupman and extend northeasterly for approximately 5 miles to a turnout to be constructed near the NW 1/4 of the SW 1/4 of Section 2, T30S, R25E. This reach will include a pumping plant or plants and a major crossing under Interstate Highway 5 and shall be designed and constructed to have a minimum instantaneous flow capacity of 736 cubic feet per second.

(2) Reach 2 shall begin at the terminus of Reach 1 and extend easterly approximately 9 miles to a turnout to be constructed near the crossing of Jerry Slough, Section 36, T29S, R26E. This reach will include a pumping plant or plants and a pipe siphon under the Southern Pacific Railway and shall be designed and constructed to have a minimum instantaneous flow capacity of 706 cubic feet per second.

(3) Reach 3 shall begin at the terminus of Reach 2 and extend approximately 2 3/4 miles to the terminus of the Cross Valley Canal located near the southern terminus of the Friant-Kern Canal. This reach will include a pumping plant or plants and will be designed and constructed to have a minimum instantaneous flow capacity of 646 cubic feet per second.

(b) The Extension which shall have a minimum instantaneous flow capacity of 280 cubic feet per second throughout its length and be constructed to allow future installation of pumps to increase the instantaneous flow capacity to 306 cubic feet per second. It will include a pumping plant or plants, crossings under the Friant-Kern and/or Arvin-Edison Canals, the Southern Pacific and Santa Fe railroads, State Highway 99 and other roads, and a terminal structure to divide the water and deliver it to the water treatment plant for Improvement District No. 4 and to Cawelo Water District.

(c) A water treatment plant with sufficient capacity to provide for the treatment to commonly accepted standards of potability of at least 25,000 acre-feet of water annually from the Extension.

(d) The North pipeline and associated pumping plant or plants and delivery structures for the conveyance and delivery of water from the treatment plant to the North of the River Municipal Water District as described in Exhibit A attached hereto and incorporated herein by reference.

(e) The East pipeline and associated pumping plant or plants and delivery structures for the conveyance and delivery of water from the treatment plant to East Niles Community Services District and the Company as described in said Exhibit A.

(f) Facilities for spreading and percolating water for recharging the underground in Improvement District No. 4.

(g) In addition to constructing the above-mentioned facilities, the Agency may determine that in order to meet its commitment pursuant to Resolution No. 16-71, adopted by the Board of Directors of Kern County Water Agency on December 21, 1971, it will construct additional capacity in the treatment plant and treated water conveyance facilities to be constructed in Improvement District No. 4 sufficient to provide for the delivery of 3,000 acre-feet of treated water annually to East Niles Community Services District, in addition to that District's annual entitlement.

Article 6. Allocation of Capital and Operating Costs of Project Features.

Several of the project features will be joint use facilities to be financed by the following six participants: Improvement District No. 4, Arvin-Edison Water Storage District (Arvin-Edison), Cawelo Water District (Cawelo), Rag Gulch Water District (Rag Gulch), Rosedale-Rio Bravo Water Storage District (Rosedale) and Kern-Tulare Water District (Kern-Tulare). The capital and operating costs of the various project facilities described in Article 5 shall be allocated among these participants as hereinafter set forth. For the purpose of these

allocations the maximum annual entitlement and the capacity to be provided for each participant in each reach of the Cross Valley Canal and the Extension shall be deemed to be:

Maximum Annual Entitlement

	Reach 1	Reach 2	Reach 3	Extension
Rosedale	35,000 AF	23,300 AF	0	0
Cawelo	45,000 AF	45,000 AF	45,000 AF	55,000 AF
Rag Gulch	13,300 AF	13,300 AF	13,300 AF	0
I.D. No. 4	77,000 AF	77,000 AF	77,000 AF	77,000 AF
Kern-Tulare	40,000 AF	40,000 AF	40,000 AF	0
Arvin-Edison A	10,000 AF	10,000 AF	10,000 AF	0
Arvin-Edison B	60,000 AF	60,000 AF	60,000 AF	0

Capacity (cubic feet per second)

	Reach 1	Reach 2	Reach 3	Extension
Rosedale	90	60	0	0
Cawelo	135	135	135	165
Rag Gulch	40	40	40	0
I.D. No. 4	141	141	141	141
Kern-Tulare	120	120	120	0
Arvin-Edison A	30	30	30	0
Arvin-Edison B	180	180	180	0

The terms "Arvin-Edison A," "Arvin-Edison B," and "A" and "B" capacity refer to the various priorities of use and cost responsibilities allocated to Arvin-Edison. "Arvin-Edison A" and "A" capacity refer to the portion of the Cross Valley Canal use and costs allocated to Arvin-Edison on a full proportionate use basis from the inception of the contract between Arvin-Edison and the Agency. "Arvin-Edison B" and "B" capacity refer to the portion of the Cross Valley Canal use and costs allocated to Arvin-Edison initially on an incremental basis.

As of the date of this contract, Arvin-Edison does not have a firm supply of water to be delivered through the

Cross Valley Canal. Because of this fact, the share of the capital and operating costs of the Cross Valley Canal for Arvin-Edison's "B" capacity shall be determined on an incremental basis, as provided for in subdivision (a) of this article, until such costs are reallocated on the proportionate use basis, as provided for in subdivisions (b) and (c) of this article, or Arvin-Edison's right to use "B" capacity is terminated pursuant to subdivision (d) of Article 2 of Arvin-Edison's contract.

(a) Cross Valley Canal - Allocation on Incremental Basis

Until the capital and operating costs of the Cross Valley Canal for Arvin-Edison's "B" capacity are reallocated pursuant to subdivisions (b) and (c) of this article, the capital and operating costs for each reach of the Cross Valley Canal, not recovered from any entities that have withdrawn as participants, shall be determined by the Agency and then allocated among the remaining participants as follows:

(1) The incremental capital costs of providing the last 180 cubic feet per second capacity (Arvin-Edison's "B" capacity) in each reach, as determined by the Agency, shall be allocated to Arvin-Edison.

(2) The remaining capital costs of each reach shall be allocated among the participants, including Arvin-Edison, in proportion to the average of the following two ratios: (i) The ratio of the participant's maximum annual entitlement to be delivered from or through the reach to the total of the maximum annual entitlements of all participants to be

delivered from or through the reach, and (ii) the ratio of the capacity provided in the reach for the transport and delivery of water to the participant to the total capacity provided in the reach for the transport and delivery of water to all participants served from or through the reach. In making this allocation, Arvin-Edison's "A" capacity and entitlement shall be included in determining each participant's share, but not its "B" capacity or entitlement.

(3) The operating costs of each reach shall be allocated among all the participants in proportion to their respective shares of the capital costs.

Incremental costs shall mean the costs which would not be incurred by the Agency if it constructed the Cross Valley Canal without capacity for Arvin-Edison and shall be determined by the Agency on the basis of the difference between the lowest responsible bids received for a Canal with a maximum capacity of 556 cubic feet per second and for a Canal with a maximum capacity of 736 cubic feet per second. The Agency will install pumping equipment for Arvin-Edison's "B" capacity only if, as and when Arvin-Edison deposits funds, in addition to the deposits required by Article 12 of Arvin-Edison's contract to cover the costs of installing such equipment.

(b) Conversion of "B" Capacity Costs from Incremental to Proportionate Use Basis

Whenever Arvin-Edison enters into a long-term contract for the exchange of water to be delivered through Arvin-Edison's "B" capacity, the capital and operating costs for that portion of Arvin-Edison's "B" capacity to be used

pursuant to that contract shall be converted from an incremental basis to a proportionate use basis of allocation. For the purpose of these reallocations, 3 cubic feet per second of "B" capacity and 1,000 acre-feet of "B" entitlement shall be converted from the incremental to the proportionate use basis for each 1,000 acre-feet of water to be exchanged on an average annual basis pursuant to such contracts. Any such reallocations shall become effective on the January 1 next following the date of the contract causing the reallocation.

(c) Cross Valley Canal - Allocation on Proportionate Use Basis

Whenever a reallocation is required pursuant to subdivision (b) of this article, the Agency shall reallocate the capital costs of each reach of the Cross Valley Canal among all the participants, including Arvin-Edison, in the following manner:

(1) The capital cost of all pumping equipment required to provide for the pumping of Arvin-Edison's "B" capacity which Arvin-Edison requests to have installed after the initial installation of pumping equipment in the Canal and all the costs required to be paid by Arvin-Edison pursuant to Article 29 of Arvin-Edison's contract shall be borne by Arvin-Edison.

(2) The prorated portion of the incremental costs, as determined by subdivision (a) of this article, that are not to be reallocated shall continue to be allocated to Arvin-Edison.

(3) All other capital costs of the Cross Valley Canal as determined by the Agency shall be reallocated among the participants, including Arvin-Edison, in proportion to the average of the two ratios set forth in subdivision (a) of this article, namely the ratio of the maximum annual entitlements and the ratio of the capacities provided in the reach for each participant. In making this allocation, Arvin-Edison's "A" capacity and entitlement and that portion of its "B" capacity and entitlement to be reallocated shall be included.

(4) All operating costs incurred after the effective date of a reallocation, shall be allocated among all the participants in proportion to that reallocation of the capital shares.

(d) Extension

(1) The capital and operating costs of the Extension, other than (1) the incremental capital costs of increasing the capacity for Cawelo from 135 cubic feet per second to 165 cubic feet per second, and (2) the incremental capital costs of providing the added capacity described in subdivision (g) of Article 5, shall be determined by the Agency and fifty percent (50%) shall be allocated to Cawelo and the remaining fifty percent (50%) to Improvement District No. 4; provided that Cawelo shall not be responsible for the capital and operating costs of pumping units installed to provide an instantaneous flow capacity in excess of 280 cubic feet per second, as provided for in subdivision (b) of Article 5.

(2) In addition to all other payments required under its Cross Valley Canal contract with the Agency, Cawelo shall pay the incremental capital costs incurred by the Agency in increasing the capacity in the Extension for Cawelo from 135 cubic feet per second to 165 cubic feet per second, as determined by the Agency.

(e) Article 5(g) Incremental Costs

In addition to all other payments required under this contract, if the Agency determines to perform the construction described in subdivision (g) of Article 5, the Agency shall allocate the incremental capital costs of providing such added capacity to the above named six participants in proportion to each participant's share of the total capital costs of all three reaches of the Cross Valley Canal; provided, that the following participants shall not be required to pay in excess of the amounts designated below, if all the participants remain in the project:

Arvin-Edison	$ 68,000
Cawelo	$ 61,000
Kern-Tulare	$ 54,000
Rag-Gulch	$ 18,000
Rosedale	$ 29,000

provided, further, that if Kern-Tulare ceases to be a participant the following participants shall not be required to pay in excess of the amounts designated below for such costs:

Arvin-Edison	$ 82,229
Cawelo	$ 73,766
Rag-Gulch	$ 22,000
Rosedale	$ 33,000

Article 7. Completion of Project.

The first year in which water will be made available to the Company is presently estimated to be 1976. Subject to the availability of funds, the Agency shall make all reasonable efforts consistent with sound fiscal policies, reasonable construction schedules, and proper operating procedures to complete the project in such a manner and in such time that water will be available to the Company in or before this year. To the extent practicable, the Agency shall notify the Company of any change in this estimate.

Article 8. Contract Entitlement.

Each year after the project is completed, the Agency shall make available for delivery to the Company the Company's annual entitlement to water. During the year in which the project is completed the Agency shall make available for delivery to the Company that percentage of the Company's annual entitlement that is equal to the percentage of the year remaining after the date of completion.

Article 9. Delivery Structures, Conveyance Facilities, Measuring Devices and Cost Thereof.

(a) Capital Costs of Delivery Structures

All water to be furnished pursuant to this contract will be delivered to the Company through pipelines from the treatment plant at turnouts to be constructed with funds provided by the Company at the time of initial construction. The turnouts to be constructed with Company funds shall include the T, the gate valve and any other facilities requested and

paid for by the Company. If the Company desires to change its point or points of delivery or install additional points of delivery, it may do so either by furnishing all funds to cover any Agency expenses involved, or by undertaking the construction at its own expense; provided, the Company shall not undertake any such construction until it has first obtained Agency approval of the plans and specifications for such work. Upon the receipt of a request for such a change in place of delivery or installation of additional places and the deposit of the required funds, the Agency shall diligently proceed to make such a change or installation. Upon completion of the construction of any delivery structures, the Agency shall refund any monies deposited by the Company not expended for such construction.

(b) Operating Costs of Conveyance Facilities

The annual operating costs, other than pumping costs, of each pipeline, pumping plant and delivery structure used in delivering water from the treatment plant to the Company shall be borne by the Company and any other customers taking water through such conveyance facilities in proportion to the annual quantities of water delivered to each customer through each such facility. On or before April 1 of each year the Agency shall notify the Company in writing of the estimated amount of operating costs it must pay for the next succeeding year for each conveyance facility to be used by it. The Company shall pay one-fourth of such estimated costs on or before each of the following dates during the succeeding

year: July 1, October 1, January 1 and April 1. At the end of each year each customer's share of operating costs for that year shall be recalculated as soon as possible by substituting the actual costs incurred by the Agency and the actual quantities of water delivered to each customer. Any adjustments in the Company's payments required to reflect this recalculation shall be made in the Company's next quarterly operating cost payment due after the recalculation.

(c) Pumping Costs for Delivering Water

The monthly and annual pumping costs for each pumping plant used in delivering water from the treatment plant shall be borne by the Company and any other customers taking water through the pumping plant in proportion to the quantities of water delivered to each customer through the pumping plant during the month and the year, as the case may be. As soon as possible after the close of each month the Agency shall notify the Company in writing of the amount of pumping costs it must pay for the preceding month. The Company shall pay this amount within ten days after receiving such a statement of charges from the Agency.

(d) Recalculation and Adjustment of Pumping Costs

As soon as possible after the end of each year the pumping costs for each pumping plant shall be recalculated by dividing the actual pumping costs incurred by the Agency

for that year for all water delivered through that pumping plant by the actual quantities of water delivered through the pumping plant and multiplying the resulting acre-foot rate by the total quantity of water delivered during the year through that pumping plant to each customer. Any adjustments in the Company's payments required to reflect this recalculation shall be made in the Company's first monthly pumping cost payment due after the recalculation.

(e) Measuring Devices

All water furnished pursuant to this contract shall be measured by the Agency at mutually agreed upon points with equipment satisfactory to the Agency and the Company. All such equipment shall be installed and maintained by the Agency. The Agency shall pay for the installation and maintenance of such equipment. All determinations relative to the measuring of water shall be made by the Agency, and upon request by the Company, the accuracy of such measurements shall be investigated by the Agency. Any errors appearing thereon will be adjusted. The Company may inspect such measuring equipment for the purpose of determining the accuracy thereof.

Article 10. Delivery Schedules.

The amounts, times, and rates of delivery of water to the Company during any year shall be in accordance

with a water delivery schedule determined in the following manner:

(a) On or before August 1 of each year, the Company shall submit in writing to the Agency a preliminary water delivery schedule indicating the amounts of water desired by the Company during each month of the succeeding six years.

(b) Upon receipt of a preliminary schedule, the Agency shall review it and after consultation with the Company shall make such modifications in it as are necessary to ensure that the amounts, times, and rates of delivery to the Company will be consistent with the available supply of water from the treatment facilities, considering each customer's annual entitlement and the then current delivery schedules of all other customers. On or before December 31, of each year, the Agency shall determine and furnish to the Company a water delivery schedule for the next succeeding calendar year which shall show the amounts of water to be delivered to the Company during each month of that calendar year. If the Agency determines it has water available, such schedules may provide for the delivery of water in excess of the Company's annual entitlement.

(c) A water delivery schedule may be amended by the Agency upon the Company's written request. Proposed amendments shall be submitted by the Company within a

reasonable time before the desired change is to become effective, and it shall be subject to review and modification by the Agency in like manner as the schedule itself.

(d) In no event shall the Agency be obligated to deliver water to the Company in any month in excess of the Company's demand for that month as set forth in the approved delivery schedule, or twelve and one-half percent (12.5%) of its annual entitlement, whichever is the lesser.

(e) In no event shall the Agency be obligated to deliver water to the Company in excess of 24.0 cfs which is the maximum instantaneous flow capacity to be provided for the Company in the pipeline and associated pumping plant or plants.

Article 11. Responsibilities for Delivery and Distribution of Water.

Neither the Agency nor its officers, agents, or employees shall be liable for the control, carriage, handling, use, disposal, or distribution of water supplied to the Company pursuant to this contract after such water has passed the points of delivery established in accordance with Article 9; nor for claim of damages of any nature whatsoever, including but not limited to property damage, personal injury, or death, arising out of or connected with the control, carriage, handling, use, disposal, or distribution of such water beyond

said delivery structures; and the Company shall indemnify and hold harmless the Agency and its officers, agents, and employees, from any such damages or claims of damages.

Article 12. Water Shortage.

At times there may occur a shortage during any year in the quantity of water available for delivery to the Company by the Agency pursuant to this contract. However, if the Agency can prevent or diminish a shortage in treated water by temporarily halting or curtailing its spreading of water for recharging the underground in Improvement District No. 4, it shall do so.

No liability shall accrue against the Agency or any of its officers, agents or employees for any damage, direct or indirect, arising from a shortage on account of drought, or unavoidable causes. In any year in which such a shortage may occur for any cause so that the total quantity of water available to the Agency for distribution to the Company and other customers taking water from the treatment facilities is less than the total of all quantities contracted for by the Company and other customers, the Agency shall apportion the available treated water among the Company and other customers in proportion to their monthly entitlements as set forth in the approved delivery schedules.

The Agency shall give the Company written notice as far in advance as possible of any such reduction in delivery to it.

Article 13. Curtailment of Delivery for Maintenance Purposes.

The State of California or the Agency may temporarily discontinue or reduce the amount of water to be furnished the Company for the purposes of maintaining, repairing, replacing, investigating or inspecting any of the facilities necessary for furnishing of water to the Company. Insofar as it is feasible, the Agency will give the Company due notice in advance of any such temporary discontinuance or reductions, except in the case of emergency, in which case no notice need be given. In the event of such discontinuance or reduction, the Agency will upon resumption of service, deliver, as nearly as may be feasible after consultation with the Company, and to the extent water is furnished to it by the State of California, or other sources, the quantity of water which would have been furnished to the Company in the absence of such discontinuance or reduction. The Agency shall schedule its routine maintenance of project facilities so that whenever possible any such discontinuances or reductions in delivery will occur during the months of December or January each year.

Article 14. Water Quality.

All water delivered to the Company under this contract shall meet all applicable Federal, State of California and Kern County minimum water quality requirements for water for domestic use.

Article 15. Cost of Water.

The Company and all other customers, shall pay the following charges to be determined and set annually by the Agency.

(a) Charges for Water Delivered

Each year after the project is completed, the charge for each acre-foot of water delivered to the Company, and all other customers, shall be five dollars ($5.00) more per acre-foot than the highest groundwater charge levied in Improvement District No. 4 for that year in accordance with the Agency's Resolution No. 17-71. In the year in which the project is completed the charge for each acre-foot of water delivered to the Company during that year shall be twenty-five dollars ($25.00).

(b) Charges for Failure to Take Annual Entitlements

Beginning in the 1980-81 year and each year thereafter the Company and all other customers, shall pay the rate per acre-foot provided for in paragraph (a) of this article times either the water delivered to them or their annual entitlement, whichever is greater.

Commencing with the first full year that water is made available and each year thereafter prior to 1980-81 if the Company or any other customer, fails to take its annual entitlement, the customer failing to take its annual entitlement shall pay five dollars ($5.00) for each acre-foot of annual entitlement not taken by it; provided, however, if other customers have paid for the delivery of 25,000 acre-feet of water and the Agency determines on the basis of its estimates that the proceeds from the charges for water de-

livered and any groundwater charges and taxes levied in Improvement District No. 4 will be sufficient to meet the expenses for the Improvement District for that year, customers failing to take their annual entitlement shall not be required to pay said five dollars ($5.00) charge; provided further, however, if the Agency has levied a twenty dollar ($20.00) per acre-foot groundwater charge for Improvement District No. 4 and anticipates levying a tax in Improvement District No. 4 for the same year of not less than twenty cents ($.20) per one hundred dollars ($100.00) of assessed valuation or the maximum tax rate permitted by law without an election, if such maximum is less than twenty cents, and determines on the basis of its estimates that the proceeds from all charges and taxes levied in the Improvement District will be insufficient to meet the estimated expenses for the Improvement District for that year, the Company and all other customers, shall pay, at a uniform rate for each acre-foot of annual entitlement not taken by them, the amount necessary to meet such expenses; provided, that said uniform rate shall be not less than five dollars ($5.00) nor more than twenty-five dollars ($25.00) per acre-foot.

(c) Credit for Annual Entitlement Not Taken

Beginning in the 1980-81 year and each year thereafter, if any customer pays for the delivery of more than its

annual entitlement in any year, any other customer which took delivery of less than its annual entitlement shall be entitled to a credit. The total amount of such credits to be given to all customers entitled thereto shall equal the rate per acre-foot provided for in paragraph (a) of this article times either the total number of acre-feet of water delivered to all customers in excess of their annual entitlements or the total number of acre-feet of annual entitlements not taken by customers, whichever is the lesser. The total amount of such credits shall be allocated among those customers entitled thereto in proportion to the number of acre-feet of annual entitlement each such customer failed to take.

(d) Surcharges

If the Agency has levied a twenty dollar ($20.00) per acre-foot groundwater charge for Improvement District No. 4 and anticipates levying a tax in Improvement District No. 4 for that same year of not less than twenty cents ($.20) per one hundred dollars ($100.00) of assessed valuation or the maximum tax rate permitted by law without an election, if such maximum is less than twenty cents, and the proceeds from these and the other charges provided for in this article are estimated by the Agency to be insufficient to meet the estimated expenses for Improvement District No. 4 for that year, the Agency shall charge the Company, and all other customers, a surcharge. The total amount of the sur-

charges to the Company and all other customers shall be one-fourth of the estimated deficit. The amount of the Company's and each customer's surcharge shall be determined by the Agency by dividing one-fourth of the estimated deficit by 25,000 acre-feet and multiplying the result by the Company's or the other customer's annual entitlement for that year.

To the extent it may legally do so without an election, the Agency will raise funds for the remaining three-fourths of the deficit by levying an ad valorem tax in Improvement District No. 4. If the Agency is legally prevented from raising that amount by ad valorem taxes, it shall immediately enter into negotiations with the Company and all other customers in an effort to find a way to raise the remaining three-fourths of the deficit that is acceptable to all parties. If no mutually satisfactory way to raise that amount can be agreed upon, either the Agency or the Company may terminate this contract upon six months written notice.

Article 16. Time of Payment.

(a) Payment of Charges for Year in Which Project Is Completed

On or before the tenth day of each month during the year in which the project is completed, the Agency shall send the Company a statement of charges for all water delivered to the Company during the preceding month. The Company shall pay such statements within twenty (20) days after they are received.

(b) Payment of Charges for Annual Entitlement for Each Year after the Year in Which Project Is Completed

On or before June 1 of the year in which the project is completed and June 1 of each year thereafter, the Agency shall notify the Company of its estimated charges for annual entitlement water for the ensuing year. These estimates shall be prepared by the Agency on the basis of the delivery schedules provided for in Article 10, the Agency's estimates of the revenues and expenses for Improvement District No. 4 and the Agency's estimates of any credits due as provided for in Article 15 and shall provide for both the payments to be made for water to be delivered and for that portion of the annual entitlement not requested for delivery. The Company shall pay sixty percent (60%) of these charges on or before July 1 of each year and the remainder on or before January 1 of that year.

(c) Payment of Charges for Deliveries in Excess of Annual Entitlement

On or before the tenth day of each month the Agency shall send the Company a statement of charges for all water delivered to the Company during the preceding month in excess of the Company's annual entitlement for that year. The Company shall pay such statements within twenty (20) days after they are received.

Article 17. Recalculation and Adjustment of Cost of Water.

At the end of each year, the charges for water

for that year required by Article 15 shall be recalculated by the Agency by substituting as soon as possible actual figures for the estimates made pursuant to Article 16. Also, if the Agency charged the Company a surcharge and did not, as anticipated, levy a tax in Improvement District No. 4 for that year of at least twenty cents ($.20) per one hundred dollars ($100.00) of assessed valuation or the maximum tax rate permitted by law without an election, if such maximum is less than twenty cents, such surcharge shall be refunded to the Company. Any adjustments in the Company's payments required to reflect these recalculations shall be made in the Company's first semiannual payment due after the recalculations.

Article 18. Default.

The Company shall cause to be levied and collected all necessary fees and charges and will use all the authority and resources of the Company to meet its obligations hereunder, to make in full all payments to be made pursuant to this contract on or before the date such payments become due and to meet its other obligations under this contract. In the event of any default by the Company in the payment of any money required to be paid to the Agency hereunder, the Agency in its discretion may suspend delivery of water during the period when the Company is delinquent in its payments or obligations due to the Agency under the terms of this contract; provided that during any such

period of delinquency or suspension the Company shall remain obligated to make all payments required under this contract. Action taken pursuant to this article shall not deprive the Agency of or limit any remedy provided by this contract or by law for the recovery of money due or which may become due under this contract.

Article 19. Obligation to Make Payments.

(a) Character of Obligation

The obligation of the Company arising out of or pursuant or incidental to this contract including, without limiting the generality of the foregoing, the obligations of the Company to pay to the Agency the sums becoming due the Agency for water furnished hereunder, shall constitute a general obligation of the Company and the Company shall use all the powers and resources available to it under the law to collect the funds necessary for and to pay its obligations to the Agency under this contract. The Company is obligated to pay to the Agency the payments becoming due under this contract, notwithstanding any individual default by its water users, constituents or others in the payment to the Company of charges levied by the Company.

(b) Refusal of Water Does Not Affect Obligation

Except as provided in Article 15(b) and except in the year in which the project is completed, the Company's failure or refusal to accept delivery of water to which it is entitled under this contract shall in no way relieve the Company of its obligation to make payments to the Agency as provided for herein.

Article 20. Penalty for Late Payment.

Upon each charge to be paid by the Company to the Agency pursuant to this contract which shall remain unpaid after the same shall have become due and payable, interest shall accrue at the rate of one-half (1/2) of one (1) percent per month of the amount of such delinquent payment from and after the date when the same becomes due until paid, and the Company hereby agrees to pay such interest.

Article 21. Remedies Not Exclusive.

The use by either party of any remedy specified herein for the enforcement of this contract is not exclusive and shall not deprive the party using such remedy of, or limit the application of, any other remedy provided by law.

Article 22. Amendments.

This contract may be amended at any time by mutual agreement of the parties, except insofar as any proposed amendments may adversely affect other customers or be in any way contrary to applicable law or inconsistent with the provisions of the Master Contract. The Agency shall make available to the Company at all times during the normal hours of business at the Agency offices for the Company's inspection copies of all contracts now or hereafter executed by the Agency with all other customers and the participants referred to in Article 6 and of any amendments thereto. The Agency agrees that each contract for the supply of treated water now or hereafter executed with all other customers in Improvement District No. 4 shall contain provisions substantially similar to those herein set forth and shall not contain any

provisions of a material nature more favorable to any other customer than the provisions herein applicable to the Company.

Article 23. Opinions and Determinations.

Where the terms of this contract provide for action to be based upon opinion, judgment, approval, review or determination of either party hereto, such terms are not intended to be and shall never be construed as permitting such opinion, judgment, approval, review or determination to be arbitrary, capricious, or unreasonable.

Article 24. Waiver of Rights.

Any waiver at any time by either party hereto of its rights with respect to a default or any other matter arising in connection with this contract, shall not be deemed to be a waiver with respect to any other default or matter.

Article 25. Notices.

All notices that are required either expressly or by implication to be given by either party to the other under this contract shall be signed for the Agency and for the Company by such officers as they may, from time to time, authorize in writing to so act. All such notices shall be deemed to have been given and delivered if delivered personally or if enclosed in a properly addressed envelope and deposited in a United States Post Office for delivery by registered or certified mail. Unless and until formally notified otherwise, all notices shall be addressed to the parties at their addresses as shown on the signature page of this contract.

Article 26. Assignment.

The provisions of this contract shall apply to and bind the successors and assigns of the respective parties, but no assignment or transfer of this contract, or any part hereof or interest herein, shall be valid until and unless approved by the Agency. The Agency shall not approve any such assignment or transfer to any person or entity that is not a customer unless and until the proposed assignment or transfer has been first offered to and refused in writing by all customers. The offer of any such assignment or transfer shall be on the same basis to all customers and if more than one customer desires to accept the offer, the contract or portion thereof to be assigned shall be prorated among them in proportion to the flow capacities provided for each of them in the facilities involved in the assignment or transfer. Notwithstanding any other provisions of this article to the contrary, the Agency's approval shall not be required for an assignment by the Company of all or part of this contract to a public agency with the power of eminent domain, if such public agency expressly assumes all or part of the obligations of this contract. If such public agency assumes only a portion of the obligations of the Company under this contract, the Company shall remain obligated for the remainder of such obligations.

Article 27. Inspection of Books and Records.

The proper officers or agents of the Company shall have full and free access at all reasonable times to the

account books and official records of the Agency insofar as the same pertain to the matters and things provided for in this contract, with the right at any time during office hours to make copies thereof, and the proper representatives of the Agency shall have similar rights in respect to the account books and records of the Company.

Article 28. Validation.

After the execution and delivery of this contract the Agency may file a proceeding in mandamus or other appropriate proceeding or action for the judicial examination, approval, and confirmation of this contract and the validity of the provisions thereof.

Article 29. Areas Served by the Company.

Water delivered to the Company pursuant to this contract shall not be sold or otherwise disposed of by the Company for use outside the boundaries of Improvement District No. 4 without the prior written consent of the Agency.

Article 30. Changes in the Company's Service Area.

The Company will furnish the Agency with maps showing the service area or areas of its water distribution system. Throughout the term of this contract, the Company will properly notify the Agency of any changes, either by inclusion or exclusion, in said service area or areas.

Article 31. Sale of Water to Others.

The Agency shall not sell any water from the treatment plant provided for in this contract to other than the customers unless and until it has first offered

to sell such water to the customers at the prices provided for herein. If the customers do not elect to take all the water available from the treatment plant, the unused water may be sold to others at not less than the prices provided for herein; provided, that such sale shall not interfere with the ability of the Agency to make deliveries to the Company and other customers; and further provided, that such sales shall be made only to others who will use the water within Improvement District No. 4.

Article 32. Advisory Committee.

An Advisory Committee shall be created which shall consist of seven members. One member shall be recommended by each of the three customers and appointed by the Agency, one member shall be recommended by the City of Bakersfield and appointed by the Agency, and three members shall be recommended and appointed by the Agency. Each member shall serve at the pleasure of the party responsible for his or her appointment and alternates may be appointed who may serve in the absence of a member.

The Advisory Committee shall be charged with the responsibility of making recommendations to the Agency on such things as plans and specifications for project facilities, construction and operating budgets, operating criteria and use of the project facilities. To the extent reasonably possible the Advisory Committee shall be informed of the details of such matters in a timely manner and,

except in emergencies, the Agency will seek and consider the advice of the Advisory Committee on all such matters. Final decisions concerning the project shall be made by the Agency.

IN WITNESS WHEREOF, the parties hereto have executed this contract on the date first above written.

KERN COUNTY WATER AGENCY

By _____
President

ATTEST:

By _____
Secretary

Kern County Water Agency
1415 - 18th Street, Rm. 418
Bakersfield, California 93301

CALIFORNIA WATER SERVICE COMPANY
A CALIFORNIA CORPORATION

By _____
President

By _____
Secretary

California Water Service Company
1720 North First Street
P. O. Box 1150
San Jose, California 95108

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AGREEMENT BETWEEN KERN COUNTY WATER AGENCY
AND THE CALIFORNIA WATER SERVICE COMPANY
FOR A WATER SUPPLY

This agreement made this 21st day of September, 2005 (hereinafter Agreement), is by and between the Kern County Water Agency, established by chapter 1003 of the 1961 Statutes of the State of California, hereinafter referred to as the "Agency" and the California Water Service Company, a California corporation, duly organized and existing under and by virtue of the laws of the State of California, hereinafter referred to as "Purveyor":

W I T N E S S E T H :

WHEREAS, the Agency and the State of California entered into an agreement entitled "Water Supply Contract Between the State of California Department of Water Resources and Kern County Water Agency" dated November 15, 1963, whereby the State of California has and will furnish a water supply to the Agency; and

WHEREAS, the Agency has obtained an annual State Water Project Table A Supply of 82,946 acre-feet per year, which is within the yield authorized for Improvement District No. 4, which it will allocate to the Urban Bakersfield Area; and

WHEREAS, by Resolution No. 17-71 adopted December 21, 1971, as amended, the Agency formed Improvement District No. 4 of the Kern County Water Agency to undertake the financing, construction, operation and maintenance of works to provide a supplemental water supply for the Urban Bakersfield Area; and

WHEREAS, the lands and inhabitants of the Purveyor to be served by the water provided hereby, all of which will be located in said Improvement District No. 4 prior to service, are in need of surface water for beneficial uses; and

WHEREAS, the Agency has sold water to certain distribution agencies, and desires to continue to sell water to distribution agencies as a method of achieving the purposes of Improvement District No. 4; and

WHEREAS, in order to continue to meet the increasing demands of the distribution agencies within Improvement District No. 4 which will exercise all reasonable efforts to comply with federal, state and local laws regarding water conservation, the Agency plans to expand its treated water supply to meet those increased demands by expanding its facilities as illustrated on attached Exhibit A, under terms and conditions which shall be fair and equitable to all such water distributors and the inhabitants of Improvement District No. 4; and

WHEREAS, Purveyor desires to enter this Agreement with the Agency for a water supply, and increase the amount of the supply, for the benefit of the lands and inhabitants served by the Purveyor within the confines of Agency Improvement District No. 4 and for which the Purveyor will make payments to the Agency upon the terms and conditions hereinafter set forth, and Purveyor accepts this Agreement as meeting the terms of its option for continued service under its existing contract;

NOW THEREFORE, IT IS HEREBY MUTUALLY AGREED by the parties hereto as follows:

Article 1. Definitions.

When used in this Agreement, the following terms shall have the meanings hereinafter set forth:

(A) "Agency Act " shall mean the Kern County Water Agency Act, being Chapter 1003 of the 1961 Statutes of the State of California, as amended.

(B) "Annual Entitlement" shall mean the amounts of treated water, in acre-feet, to be made available to each Customer each Year as shown on Exhibit D, and in accordance with the option arrangement set forth in Article 8. The maximum instantaneous flow capacities to be provided for each Customer in the transmission facilities are shown on Exhibit C.

(C) "Capacity" shall mean the measurement of the capability of a pipeline, canal, Purification Plant, or other facility as measured over a short period utilizing the full operational capability of the facility, and where referencing the Purveyor's or other Customer's share of Capacity shall mean that share allocated by this Agreement either textually or as specified in the incorporated Exhibits.

(D) "Capital Costs" shall mean all costs incurred by the Agency which are properly chargeable, in accordance with generally accepted accounting practices, to the development of, construction of and the furnishing of equipment for the various project facilities, including the costs of surveys, engineering studies, exploratory work, designs, preparation of construction plans and specifications, acquisitions, acquisition of lands, easements and rights-of-way, relocation work, and essential legal, administrative and financial work in connection therewith.

(E) "Capital Facilities Charge" shall mean that charge to Purveyor and other

Customers which repays the Expanded Capital Costs, including the interest on financing of such costs, trustee fees, remarketing fees, credit enhancement costs, arbitrage rebate, any amount required to replenish a debt service reserve fund to its required amount, costs for financing or refunding, other ongoing financing or re-financing costs, any payments required pursuant to Article 19 hereof, any amount necessary to comply with a debt service coverage covenant for a financing, and other capital costs including, but not limited to, payments on obligations issued on the Expanded Capital Costs.

(F) "Capital Facilities Account" shall mean a restricted account within the ID4 Enterprise Fund to receive payments of Capital Facilities Charges and to disburse payments to service the debt incurred for the Expanded Capital Costs and other Capital Costs, including but not limited to, payments on Certificates of Participation issued in 2000 and 2005, and in subsequent years as required to finance the Expansion Project.

(G) "Cross Valley Canal" shall mean the concrete lined canal approximately 17 miles in length extending from the California Aqueduct near Tupman easterly to the Arvin-Edison Canal, together with the turnout from the California Aqueduct, the pumping plants necessary to lift water through a static head of approximately 84 feet and such road crossings, utility relocations, fences and other facilities necessary for its construction and operation.

(H) "Customers" shall mean each of the following water distributors that contract to buy treated water from the project including: North of the River Municipal Water District, East Niles Community Services District, California Water Service Company and the City of Bakersfield.

(I) "Distribution Component" means that portion of the Expansion Project which is set forth in Article 5(B)(2).

(J) "Enterprise" means the Purveyor's Bakersfield District water system, including all facilities, works, properties and structures of the Purveyor's Bakersfield District for the treatment, transmission and distribution of water, excluding wastewater and all facilities for the collection and treating of wastewater, but including all contractual rights to water supplies, transmission capacity, supply, easements, rights-of-way and other works, property or structures necessary or convenient for such facilities, together with all additions, betterments, extensions and improvements to such facilities or any part thereof hereafter acquired or constructed.

(K) "Expanded Capital Costs" shall mean that subset of Capital Costs which are due to the Expansion Project, exclusive of Cross Valley Canal expansion capital costs and other capital costs.

(L) "Expansion Project" shall mean the project to be undertaken by the Agency to increase treated water capacity and delivery capability more particularly described in Article 5(B).

(M) "Extension" shall mean the lined and unlined canal reaches beginning at the eastern terminus of the Cross Valley Canal at the afterbay of Pumping Plant No. 6 and extending easterly approximately 4.5 miles to a point near the Henry C. Garnett Water Purification Plant, which point is approximately 1240 feet upstream from the Cawelo Water District's Pump Station "A," together with a pumping plant necessary to lift water through a static head of approximately 30 feet and such road crossings, utility relocations, fences and other facilities necessary for its construction and operation.

(N) "Groundwater Charge" is the governmental exaction levied in Improvement District No. 4 under the authority of the Kern County Water Agency Act (Uncodified Act 99, West's Annotated California Water Code) and resolutions of the Kern County Water Agency Board.

(O) "Improvement District No. 4" or "ID4" shall mean Improvement District No. 4 of the Kern County Water Agency created by Resolution No. 17-71 of the Board of Directors of the Kern County Water Agency adopted December 21, 1971, as amended.

(P) "ID4 Enterprise Fund" is that fund created within the Agency for accounting of revenues and expenses of the Improvement District No. 4 enterprise, including restricted accounts for the payment of the Expanded Capital Costs.

(Q) "Maintenance and Operation Costs" of the Enterprise means the reasonable and necessary costs and expenses paid by the Purveyor for maintaining and operating the Enterprise, as determined in accordance with generally accepted accounting principles (GAAP), including but not limited to (a) the reasonable expenses of management and repair and other costs and expenses necessary to maintain and preserve the Enterprise in good repair and working order, (b) administrative costs of the Purveyor attributable to the Enterprise and the financing thereof, and (c) amounts due Improvement District No. 4 under the Agreement including, but not limited to, the Treated Water Charge and Capital Facilities Charge; but excluding (x) depreciation, replacement and obsolescence charges or reserves therefore, (y) in any Fiscal Year prior to setting aside an amount equal to the Capital Facilities Charge for such Fiscal Year, capital expenditures other than as set forth in subsection (A) above, and (z) amortization of intangibles or other bookkeeping entries or a similar nature.

(R) "Master Contract" shall mean that contract between the Agency and the State of California entitled "Water Supply Contract Between the State of California Department of Water Resources and the Kern County Water Agency" dated November 15, 1963, as amended to date and any revisions or amendments hereafter made.

(S) "New Customer" shall mean the City of Bakersfield.

(T) "New Entitlement" is that portion of the Annual Entitlement which Customers have acquired through the execution of this Agreement and the Expansion Project.

(U) "Operating Costs" shall mean all necessary costs, other than pumping costs, for the operation, maintenance, repair, replacement and administration of the various project facilities, including Expansion Project facilities.

(V) "Original Customers" shall mean Customers other than the City of Bakersfield.

(W) "Original Entitlement" is that portion of the Annual Entitlement which Customers held by pre-existing contract.

(X) "Original Project" shall mean the project previously undertaken by the Agency for the benefit of Improvement District No. 4 and others as described in said Resolution No. 17-71, including the features more particularly described in Article 5(A) hereof.

(Y) "Point of Delivery" means the physical location at which delivery of the water from the Agency to Purveyor is deemed to occur which is the geometric plane intersecting the lumen of the delivery structure as water moves from the Agency pipeline to the delivery structure.

(Z) "Pumping Costs" shall mean all necessary energy and standby costs incurred by the Agency for pumping water for the Original Project and Expansion Project with the exception of such costs necessary to move water to the treated water pump station.

(AA) "Purification Plant" shall mean the Henry C. Garnett Water Purification Plant.

(BB) "Purification Plant Expansion Component" means that portion of the Expansion Project defined at Article 5(B)(1).

(CC) "Purveyor Revenues" means all gross income and revenue received or receivable by the Purveyor from the ownership and operation of the Enterprise, calculated in accordance with GAAP, including all rates, fees and charges (including connection fees to the degree permissible under Article XIII C and XIII D of the California Constitution) received by the Purveyor for Water Service and all other income and revenue howsoever derived by the Purveyor from the Enterprise or arising from the Enterprise, together with all other legally available funds from the Enterprise; provided, however, that (i) any specific charges levied for the express purpose of reimbursing others for all or a portion of the cost of the acquisition or construction of specific facilities, or (ii) customers' deposits or any other deposits subject to refund until such deposits have become the property of the Purveyor, are not Purveyor Revenues.

(DD) "State Project Water" shall mean water made available to the Agency from the California Aqueduct, a portion of the State Water Resources Development system.

(EE) "Treated Water Charge" is that charge established by Article 15 of the Agreement, including any surcharges thereon established pursuant to Article 15.

(FF) "Water Service" means the service made available or provided by the Enterprise.

(GG) "Year" shall mean the twelve (12) month period from July 1 of any year to June 30 of the following year.

Article 2. Term.

This Agreement shall become effective when all Customers have executed this Agreement with the Agency and, except as provided for in Article 15(D), shall remain in effect through January 1, 2035, or until the repayment in full of any bonds or similar instruments issued for financing of the Expansion Project, whichever is later. This Agreement supersedes the contract of June 13, 1974, between the Agency and Purveyor.

Article 3. Option for Continued Service.

After the expiration of the term of this Agreement, Purveyor shall be entitled to continued service under the following conditions unless otherwise agreed to:

(A) Service of water in annual amounts equal to the Purveyor's total Annual Entitlement.

(B) Service of water under the same physical conditions of service, including time, place, amount and rate of delivery, as are provided hereunder.

(C) Service of water at prices to be mutually agreed upon.

Other terms and conditions of the continued service shall be reasonable and equitable and shall be mutually agreed upon. In the event that said terms and conditions provide for continued service for a limited number of years only, the Purveyor shall have the same option to receive continued service as provided here upon the expiration of that and each succeeding period of continued service.

Article 4. Relationship to Master Contract.

This Agreement is subject to the obligations and limitations imposed by the Master Contract and is intended to be in conformance and harmony with it. The Master Contract is hereby incorporated herein by this reference in all respects as though set forth in full at this point. The Purveyor hereby expressly agrees to the provisions of the Master Contract imposing obligations and limitations upon it and further expressly agrees that nothing in this Agreement shall be deemed to require the Agency to perform any obligation in conflict with the Master Contract.

The Agency agrees it will not, without the prior approval of the Purveyor, consent to any amendments to the Master Contract which would increase the price of water to the Purveyor under this Agreement or substantially adversely affect the Agency's ability to deliver the water provided for herein.

Article 5. Integration of Original Project and Expansion Project.

(A) The following are the components of the Original Project:

(1) Cross Valley Canal Reach 1 which begins with a turnout on the California Aqueduct near Tupman and extends northeasterly for approximately five (5) miles to a turnout constructed near the NW 1/4 of the SW 1/4 of Section 2, T30S, R25E, MDB&M. This reach includes two (2) pumping plants and a major crossing under Interstate Highway 5 and is designed and constructed to have a minimum instantaneous flow capacity of 922 cubic feet per second, of which Improvement District No. 4 has a capacity of 184.36 cubic feet per second, with a scheduled expansion not related to this Agreement to 1422 cubic feet per second.

(2) Cross Valley Canal Reach 2 which begins at the terminus of Reach 1 and extends easterly approximately nine (9) miles to a point east of Pumping Plant No. 5 (at the Rosedale-Rio Bravo Water Storage District Turnout No. 2). This reach includes three (3) pumping plants and five (5) pipe siphons under the Sunset Railway, two (2) gas pipelines, Stockdale Highway and Jerry Slough, and is designed and constructed to have a minimum instantaneous flow capacity of 843 cubic feet per second, which Improvement District No. 4 has a capacity of 174.33 cubic feet per second, with a scheduled expansion unrelated to this Agreement to 1343 cubic feet per second.

(3) Cross Valley Canal Reach 3 which begins at the terminus of Reach 2 and extends approximately two and three-quarters (2 ¾) miles to the terminus of the Cross Valley Canal located near the southern terminus of the Friant-Kern Canal. This reach includes one (1) pumping plant, designed and constructed to have a minimum instantaneous flow capacity of 812 cubic feet per second, of which Improvement District No. 4 has a capacity of 185.17 cubic feet per second, with a scheduled expansion unrelated to this Agreement to 1312 cubic feet per second.

(4) Cross Valley Canal Extension which has a minimum instantaneous flow capacity of 342 cubic feet per second, of which Improvement District No. 4 has a capacity of approximately 168.74 cubic feet per second. It includes a pumping plant and pipe siphons under the Friant-Kern and Arvin-Edison Canals, the Southern Pacific and Santa Fe railroads, State Highway 99 and other roads, and turnouts into the Kern River and Calloway Canal. The Extension ends near the Henry C. Garnett Water Purification Plant approximately 860 feet upstream of Cawelo Water District's Pump Station "A."

(5) The original water Purification Plant with sufficient Capacity to provide for the treatment to commonly accepted standards of potability of at least 25,000 acre-feet of water annually from the Extension, and any existing rights in other canal conveyance facilities that feed the Henry C. Garnett Water Purification Plant.

(6) The North Pipeline and associated pumping plant and delivery structures for the conveyance and delivery of water as described in Exhibit C attached hereto and incorporated herein by reference.

(7) The East Pipeline and associated pumping plants and delivery structures for the conveyance and delivery of water as described in said Exhibit C.

(8) Facilities for spreading and percolating water for recharging the underground in Improvement District No. 4, including three (3) Cross Valley Canal turnouts to the Kern River and one (1) Calloway Canal turnout.

(9) The Improvement District No. 4 share of Pioneer Project facilities and rights as shown and described on attached Exhibit B attached hereto and incorporated herein by reference.

(10) The Improvement District No. 4 share of Kern Water Bank Authority facilities and rights as shown and described on attached Exhibit B.

(11) Other district facilities as specified on Exhibit B, including but not limited to rights in the City of Bakersfield 2800-Acre Recharge Facility.

(B) The following are the components of the Expansion Project:

(1) Expansion of the Henry C. Garnett Water Purification Plant from a maximum instantaneous flow Capacity of 38 MGD to 71.9 MGD (the "Purification Plant Expansion Component"). Such expansion shall also incorporate modifications,

replacements and repairs to original facilities to ensure continued reliability and operation.

(2) The "Distribution Component" of the Expansion Project consists of the following:

(a) Construction of a Northwest Pump Station and Pipeline designed to convey up to 32.0 MGD to the northwest portion of Improvement District No. 4.

(b) Expansion of the East Pipeline which will include improvements to the existing pipeline necessary to increase the delivery Capacity from 21.7 MGD to 28.8 MGD.

(c) Expansion of the North Pipeline which will include improvements to the existing pipeline necessary to increase the delivery Capacity from 11.4 MGD to 22.1 MGD.

(C) The facilities described in subdivisions (A) and (B) of this Article are intended to operate as an integrated project except as specifically set forth herein in other Articles. When reference is made herein to costs or revenues that are not specifically identified as belonging to the Original Project or Expansion Project, then the reference shall be presumed to be to the integrated composite of the two.

Article 6. Allocation of Capital and Operating Costs of Project Features.

(A) The Cross Valley Canal reaches and Extension are joint use facilities financed in respective part by the following Cross Valley Canal participants, including Improvement District No. 4, as identified for each reach and the Extension. The Improvement District No. 4 share of such costs is specified in Agency policy on allocation of costs to Improvement District No. 4 and Purveyor's Agreement:

(1) Reach 1: Improvement District No. 4, Arvin-Edison Water Storage District (Arvin-Edison), Cawelo Water District (Cawelo), Rag Gulch Water District (Rag Gulch), Rosedale-Rio Bravo Water Storage District (Rosedale), Kern-Tulare Water District (Kern-Tulare), Kern County Water Agency (KCWA), Kern Delta Water District (Kern Delta) and the Fresno-Tulare Group, which consists of the Hills Valley Irrigation District, Tri-Valley Irrigation District, Pixley Irrigation District, Lower-Tule River Irrigation District, County of Tulare, and the County of Fresno.

(2) Reach 2: Improvement District No. 4, Arvin-Edison, Cawelo, Rag Gulch, Rosedale, Kern-Tulare, KCWA, Kern Delta and the Fresno-Tulare Group.

(3) Reach 3: Improvement District No. 4, Arvin-Edison, Cawelo, Rag Gulch, Rosedale, Kern-Tulare, KCWA, Kern Delta and the Fresno-Tulare Group.

(4) Extension: Improvement District No. 4 and Cawelo.

(5) The Improvement District No. 4 share of the capital, operating and other costs of the Cross Valley Canal facilities specified in subdivision (A) of this Article shall be paid from the ID4 Enterprise Fund.

(B) A summary of the allocation of estimated Capital Costs among the Customers for the Expansion Project, exclusive of CVC and Extension expansion costs, is shown on attached Exhibit E. Exhibit A, attached hereto and incorporated herein by reference, reflects the resulting percentage allocations and Capacities. Exhibit F, attached hereto and incorporated herein by reference, sets forth the description and an initial estimate of the amount of each fee and cost that Purveyor will be required to pay under this Agreement and a reference to the Article and section of this Agreement that provides for such cost or fee. Exhibits A, E and F shall be adjusted to reflect actual costs and

Capacities when known. Expanded Capital Costs, other than those paid directly or financed by Improvement District No. 4 for its reserved Capacity, shall be financed by the Customers, including Purveyor, by payment of a Capital Facilities Charge which shall be accounted for in the Capital Facilities Account designated for payment of the Expanded Capital Costs. Capital costs allocated to Improvement District No. 4 for Cross Valley Canal and Extension facilities, including but not limited to costs related to Improvement District No. 4's share of the expansion of Cross Valley Canal facilities, are to be paid for out of the ID4 Enterprise Fund described herein.

(C) The Capital Costs, Operating and other costs of the Improvement District No. 4 share of the Pioneer Project (as set forth in the Pioneer Project Participation Agreement) and Kern Water Bank Authority (as set forth in the Joint Powers Agreement for the Kern Water Bank Authority) are to be paid for out of the ID4 Enterprise Fund described herein.

(D) Improvement District No. 4, through the ID4 Enterprise Fund, will pay for the following costs incurred by Agency prior to execution of this Agreement in developing the Expansion Project, and the following additional costs associated with design of conveyance facilities:

(1) Costs associated with financing of the Expansion Project as estimated, subject to revision to actuals, as identified in Exhibit E.

(2) Costs associated with the engineering and design of the Northwest Feeder Project as identified in Exhibit E.

(3) Costs associated with the engineering and design of the North Pipeline expansion as identified in Exhibit E.

(4) Costs associated with the engineering and design of the East Pipeline expansion as identified in Exhibit E.

(E) Charges for capital costs of delivery structures, operating and other costs of conveyance are set forth in Article 9.

(F) Charges for the cost of water, including treatment costs.

(G) Prior to the acceptance of bids on contracts for construction or the issuance of financing instruments for the Distribution Component, of the Expansion Project, as defined in Article 5 (whichever shall occur first) and prior to the acceptance of bids on construction contracts or the issuance of financing instruments for the Purification Plant Expansion Component of the Expansion Project, if the projected costs are more than one hundred and twenty-five percent (125%) of those estimated herein, Purveyor shall have the option of withdrawing from either component of the Expansion Project by providing written notice hand-delivered to the Agency General Manager and to each other Customer within twenty (20) days of the opening of construction bids, for the specified component of the Expansion Project. In the event of withdrawal, Purveyor shall pay all fees and other payments specified herein based upon the allocation formulas specified herein utilizing Purveyor's currently existing Capacity and entitlement, if any, for the component from which Purveyor has withdrawn, and shall be entitled only to benefits and rights based upon Purveyor's currently existing Capacity and entitlement, if any, for the component from which Purveyor has withdrawn. In the event of the withdrawal hereunder of any other Customer, Purveyor shall pay based upon the recalculated amounts after the withdrawal of Customers electing not to participate in an Expansion Project component and shall be entitled to a share, based on such recalculation, of the

withdrawing Customer's Capacity, entitlement and other rights and privileges under the Agreement from which such Customer is withdrawing. Agency and Purveyor shall take all actions and execute all documents reasonably required to evidence the foregoing changes in Purveyor's entitlement, rights and obligations. If a withdrawal occurs, the Agency shall require a renegotiation of contract terms, and may reject all bids or delay financing.

Article 7. Completion of Expansion Project.

Water and distribution conveyance Capacity are currently available to Original Customers from the Original Project. The estimated completion and start-up date for the Expansion Project is July 1, 2008. Subject to the availability of funds, the Agency shall make all reasonable efforts consistent with sound fiscal policies, reasonable construction schedules and proper operating procedures to complete the Expansion Project in such a manner and in such a time that some water from a component of the Expansion Project will be available to Purveyor by July 31, 2007. To the extent practicable, the Agency shall notify the Purveyor of any change in this estimate.

Article 8. Contract Entitlement.

(A) Each Year after the Expansion Project is completed, the Agency shall make available for delivery to the Purveyor the Purveyor's Annual Entitlement to water as shown on Exhibit D, as provided in Article 10, and as described by the terms and conditions of this Agreement. During the Year in which the Expansion Project is completed, the Agency shall make available for delivery to the Purveyor that percentage of New Entitlement of the Purveyor that is equal to the percentage of the Year remaining

after the date of completion (in addition to the Original Entitlement as provided in paragraph (B) below).

(B) Each Year of this Agreement through the Year of completion of the Expansion Project, the Agency shall make available for delivery to the Purveyor, the Purveyors' Original Entitlement to water. Each year of this Agreement through the Year of completion of the Expansion Project or if the Expansion Project is not substantially completed, the Agency shall make available for delivery to the Customers that water that may be available in the judgment of the Agency in addition to that which is contracted for by Original Customers from the Original Project. Allocation of this additional available water is in proportion to the Customers' Annual Entitlement. The additional water from the Original Project may be transported through Capacity available in the Original Project available to Purveyor, or such share of new Capacity as may be constructed at the time, subject to proration among other Customers with the need for transportation Capacity.

(C) During the Year following the Year in which the Expansion Project is completed, and each Year thereafter for the term of this Agreement, the Agency shall make available, for delivery to the Purveyor, the Purveyors' Annual Entitlement as defined by the terms and conditions of this Agreement.

(D) If an option for increased service is specified for Purveyor in Exhibit D, Purveyor shall provide to Agency in writing a commitment to add the specified option amount to its Annual Entitlement within six (6) months of the execution date of this Agreement, and subsequently all amounts specified herein shall be determined based on Purveyor's Annual Entitlement as increased by the option amount. If Purveyor has not provided the commitment in writing within the six (6) month period, Purveyor shall be

deemed to have rejected the offer for additional entitlement and all determinations shall be made upon the Annual Entitlement specified without including the option amount. All Exhibits, cost allocations, and other formulas may be adjusted by the Agency to match the final amounts of increased service accepted by Purveyor and other Customers.

Article 9. District Facilities and the Costs Thereof.

(A) Delivery Structures, Conveyance Facilities, Measuring Devices and Cost Thereof:

All water to be furnished pursuant to this Agreement will be delivered to the Purveyor through facilities of the Original Project and Expansion Project, and delivery structures to be provided by Purveyor as follows:

(1) Capital Costs of Distribution Component. All necessary connections to these facilities are to be constructed with funds provided by the Purveyor proportional to Purveyor's Capacity in the facility. The turnouts to be constructed with Purveyor funds shall include the tee, the gate valve and any other facilities requested and needed by Purveyor for delivery of the Purveyor's water from Improvement District No. 4 facilities. If the Purveyor desires to change its point or points of delivery or install additional points of delivery, it may do so either by furnishing all funds to cover any Agency expenses involved, or by undertaking the construction at its own expense; provided, the Purveyor shall not undertake any such construction until it has first obtained Agency approval of the plans and specifications for such work. Upon receipt of a request for such a change in place of delivery or installation of additional places and the deposit of the required funds, the Agency shall diligently proceed to make such a change or installation. Upon

completion of the construction of any delivery structures, the Agency shall refund any monies deposited by the Purveyor not expended for such construction.

(2) Capital Costs of Distribution Component Facilities. The Purveyor has requested that the Northwest Feeder Pipeline described in Exhibit C hereof be constructed with Capacity for the Purveyor of 23.2 cubic feet per second requiring a diameter of approximately 42 inches, the size being based on Purveyor's estimates of required Capacity. Purveyor shall be responsible for its proportionate share of the pipeline Capital Costs (prorated according to Purveyor's Capacity stated herein in relation to total Purveyor requested Capacity of 32.5 cubic feet per second) regardless of whether the Capacity therein is actually required for delivery of Purveyor's water. Such proportionate share shall be included in Purveyor's Capital Facilities Charge. Such amounts shall be paid at the time set forth in Article 16 hereof. Capacity shall be for use within Improvement District No. 4, including areas which have been annexed to Improvement District No. 4 in accordance with Article 25, during the term of the Agreement. The Purveyor shall also pay its proportionate share of improvements to the Oswell Reservoir and Booster Pumping Facility, based upon its current contracted capacity, as shown on Exhibit E. The Agency shall have the right to construct incremental Capacity and future connections to any of the facilities described herein for use within Improvement District No. 4.

(3) Operating Costs of Conveyance Facilities. The annual Operating Costs, other than pumping costs, of each pipeline, pumping plant and delivery structure used in delivering water from the Purification Plant to the Purveyor shall be borne by the Purveyor and any other Customers taking water through such conveyance facilities in

proportion to the annual quantities of water delivered to each Customer through each such facility. On or before June 1 of each Year, the Agency shall notify the Purveyor in writing of the estimated amount of operating costs it must pay for the next succeeding Year for each conveyance facility to be used by it. The Purveyor shall pay one-fourth (1/4) of such estimated costs on or before each of the following dates during the succeeding Year: July 1, October 1, January 1 and April 1.

(4) Recalculation and Adjustment of Operating Costs of Conveyance Facilities. At the end of each Year, each Customer's share of Operating Costs for that Year shall be recalculated as soon as possible by substituting the actual costs incurred by the Agency and the actual quantities of water delivered to each Customer. Any adjustments in the Purveyor's payments required to reflect this recalculation shall be made in Purveyor's next quarterly operating cost payment due after the recalculation.

(5) Pumping Costs for Delivering Water. The monthly and annual pumping costs for each pumping plant used in delivering water from the Purification Plant shall be borne by the Purveyor and any other Customers taking water through the pumping plant in proportion to the quantities of water delivered to each Customer through the pumping plant during the month and the Year, as the case may be. As soon as possible after the close of each month, the Agency shall notify the Purveyor in writing of the amount of pumping costs it must pay for the preceding month. The Purveyor shall pay this amount within thirty (30) days after receiving such statement of charges from the Agency.

(6) Recalculation and Adjustment of Pumping Costs. As soon as possible after the end of each Year, the pumping costs for each pumping plant shall be recalculated by dividing the actual pumping costs incurred by the Agency for that Year

for all water delivered through that pumping plant by the actual quantities of water delivered through the pumping plant and multiplying the resulting acre-foot rate by the total quantity of water delivered during the Year through that pumping plant to each Customer. Any adjustments in the Purveyor's payments required to reflect this recalculation shall be made in the Purveyor's first monthly pumping cost payment due after the recalculation.

(7) Measuring Devices. All water furnished pursuant to this Agreement shall be measured by the Agency at mutually agreed upon points with equipment satisfactory to the Agency and the Purveyor. All such equipment shall be installed and maintained by the Agency at the expense of Purveyor. All new meters shall conform to American Water Works Association standards (or the standards of the successor organization) for meter design and accuracy and shall be equipped with a digital readout, which records flow in Million Gallons per Day (MGD) and totals in MG. All determinations relative to the measuring of water shall be made by the Agency, and upon request by the Purveyor, the accuracy of such measurements shall be investigated by the Agency. Any errors appearing thereon will be adjusted. The Purveyor may inspect such measuring equipment for the purpose of determining the accuracy thereof.

(B) Purification Plant Expansion Component and other Facilities and the Costs Thereof.

(1) Purification Plant Expansion Component Capital. The Capital Costs of the Purification Plant Expansion Component, and other costs attributable to the Capital Facilities Account, shall be paid by Purveyor through the Capital Facilities Charge as set forth in Article 16, and through other provisions set forth herein.

(2) Improvement District No. 4 Banking Facilities. All costs of Improvement District No. 4 water banking facilities including, but not limited to the Pioneer Project, shall be paid by Improvement District No. 4 with costs to be paid by the ID4 Enterprise Fund when used for the general benefit to Improvement District No. 4. Customers benefiting from such facilities shall pay for costs related to the provision of specific benefits for a Customer, subject to mutual agreement between participating Customers and the Agency.

(3) Purification Plant Operation and Maintenance and Costs of Other Facilities. All costs of Improvement District No. 4 other than as specified above shall be payable from the ID4 Enterprise Fund, as set forth in Article 15.

Article 10. Delivery Schedules.

The amounts, times, and rates of delivery of water to the Purveyor during any Year shall be in accordance with a water delivery schedule determined in the following manner:

(A) On or before August 1 of each Year, the Purveyor shall submit in writing to the Agency a preliminary water delivery schedule indicating the amounts of water, in acre-feet, desired by the Purveyor during each month of the succeeding six (6) years.

(B) On or before December 1 of each Year, the Purveyor shall submit in writing to the Agency a water balance demonstrating, subject to the approval of the Agency which shall not be unreasonably withheld, that the current demand for Purveyor's contracted entitlement within its service area in Improvement District No. 4 is greater than or equal to Purveyor's current contracted entitlement deliveries.

(C) Upon receipt of a preliminary schedule, the Agency shall review it and after consulting with the Purveyor, shall make such modifications as are necessary to ensure that the amounts, times and rates of delivery to the Purveyor will be consistent with the available supply of water from the treatment facilities, considering each Customer's Annual Entitlement and Capacity, and the then current delivery schedules of all other Customers. On or before December 31 of each Year, the Agency shall determine and furnish to the Purveyor a water delivery schedule for the next succeeding year which shall show the amounts of water to be delivered to the Purveyor during each month of that year.

(D) A water delivery schedule may be amended by the Agency upon the Purveyor's written request. Proposed amendments shall be submitted by the Purveyor within sixty (60) days before the desired change is to become effective, and shall be subject to review and modification by the Agency in like manner as the schedule itself, provided that, Purveyor shall provide the Agency one (1) year's notice for any increase in deliveries above the previous level of Annual Entitlement and peaking stated herein to reach its available Annual Entitlement and peaking Capacity subject to associated increases in operations and maintenance and pumping costs through the charges specified herein.

(E) In no event shall the Agency be obligated to deliver water to the Purveyor in any month in excess of the Purveyor's demand for that month as set forth in the approved delivery schedule, as specified in Exhibit D, or the amount of water that can be delivered within the Purveyor's contracted peaking Capacity, as specified in Exhibit C, during the

month, whichever is the lesser. Agency, at its sole discretion, may deliver water in excess of the obligation specified herein.

(F) In no event shall the Agency be obligated to deliver water to the Purveyor in excess of Purveyor's Capacities for facilities and Annual Entitlement as specified herein.

(G) If the Agency determines there is excess or unused Capacity and the Customers request such Capacity, the Agency may allocate any excess or unused Capacity to the Customers based upon their percentage of the then contracted Capacity through the Purification Plant.

Article 11. Responsibilities for Delivery and Distribution of Water.

Neither the Agency nor its officers, agents, or employees shall be liable for the control, carriage, handling, use, disposal, or distribution of water supplied to the Purveyor pursuant to this Agreement after such water has passed the points of delivery established in accordance with Article 9; nor for claim of damages of any nature whatsoever including but not limited to property damage, personal injury, or death, arising out of or connected with the treatment, control, carriage, handling, use, disposal, or distribution of such water beyond said delivery structures; and the Purveyor shall indemnify and hold harmless the Agency and its officers, agents, and employees, from any such damages or claims of damages. The foregoing shall not apply to any claims, damages, or liabilities to the extent arising out of the failure of water delivered by the Agency to the Point of Delivery to meet applicable federal, State of California and Kern County minimum drinking standards.

Neither the Purveyor nor its officers, agents, or employees shall be liable for the control, carriage, handling, use, treatment, disposal, or distribution of water supplied to

the Purveyor by the Agency pursuant to this Agreement before such water has passed the Points of Delivery established in accordance with Article 9; nor for claim of damages of any nature whatsoever including but not limited to property damage, personal injury, or death, arising out of or connected with the control, carriage, handling, use, treatment, disposal, or distribution of such water before said delivery structures or the failure of such water to meet applicable federal, State of California and Kern County minimum drinking water standards before it reaches the Point of Delivery; and the Agency shall indemnify and hold harmless the Purveyor and its officers, agents and employees, from any such damages or claims of damages. The amounts to satisfy any of the foregoing liabilities of the Agency set forth in this Article 11 shall first be paid from proceeds of the insurance described below and thereafter, or to the extent the claim is not covered by such insurance, from the ID4 Enterprise Fund and Purveyor shall remain responsible for its allotted share of payments for such fund. The Agency shall obtain insurance from an insurer or insurers having a Best's rating of A or higher, or participate in the Association of California Water Agencies Joint Powers Indemnity Association, or similar joint self-insurance entity, to protect Purveyor, other Customers and the ID4 Enterprise Fund with commercially reasonable coverage limits, and the cost of such insurance or joint indemnification agreements shall be reimbursable as an Operations and Maintenance expense for each facility

Article 12. Water Shortage.

(A) At times there may occur a shortage during any year in the quantity of water available for delivery to the Purveyor by the Agency pursuant to this Agreement. However, if the Agency can prevent or diminish a shortage in treated water by

temporarily halting or curtailing its spreading of water for recharging the underground in Improvement District No. 4, it may do so at its discretion. The Agency may use Improvement District No. 4 groundwater banking projects or in-district wells for reducing shortages subject to a separate agreement with the Purveyor.

(B) To eliminate or reduce shortages, Customers may secure and deliver non-Improvement District No. 4 surface water to the Henry C. Garnett Water Purification Plant for treatment under the following terms:

(1) A request for delivery and subsequent treatment of any non-Improvement District No. 4 surface water shall require Agency approval.

(2) A request to deliver non-Improvement District No. 4 water shall be submitted in writing to the Agency for review ninety (90) days prior to the expected date of delivery. Such request shall include information as to the quantity, quality and origin of the source water. Requesting Customer shall provide all information pertaining to the source as requested by Agency.

(3) Improvement District No. 4 shall be responsible for the scheduling of all non-Improvement District No. 4 surface water and shall coordinate the delivery of non-Improvement District No. 4 surface water with Customer. The point of delivery for any non-Improvement District No. 4 surface water shall be the headworks of the Henry C. Garnett Water Purification Plant or any other point of delivery available to Customer and Improvement District No. 4 which is mutually agreeable.

(C) No liability shall accrue against the Agency or any of its officers, agents, or employees for any damage, direct or indirect, arising from a shortage on account of drought or other unavoidable causes. In any year in which such a shortage may occur for

any cause so that the total quantity of water available to the Agency for distribution to the Purveyor and other Customers taking water from the treatment facilities is less than the total of all quantities contracted for by the Purveyor and other Customers, the Agency shall apportion the available treated water among the Customers in proportion to their Total Annual Entitlements, for the current year, as set forth in Exhibit D and pursuant to Articles 8 and 10.

(D) The Agency shall give the Purveyor written notice as far in advance as reasonably possible of any such reduction in delivery to it.

Article 13. Curtailment of Delivery for Maintenance Purposes.

The State of California or the Agency may temporarily discontinue or reduce the amount of water to be furnished the Purveyor for the purposes of maintaining, repairing, replacing, investigating or inspecting any of the facilities necessary for furnishing of water to the Purveyor. Insofar as it is feasible, the Agency will give the Purveyor due notice in advance of any such temporary discontinuance or reductions, except in the case of emergency, in which case no notice need be given. In the event of such discontinuance or reduction, the Agency will, upon resumption of service, deliver, as nearly as may be feasible after consultation with the Purveyor, and to the extent water is furnished to it by the State of California, or other sources, the quantity of water which would have been furnished to the Purveyor in the absence of such discontinuance or reduction. The Agency shall attempt to schedule its routine maintenance on Project Facilities so that whenever possible, any such discontinuance or reductions in delivery will occur during periods of reduced demand.

Article 14. Water Quality.

(A) The Agency shall use all reasonable efforts to ensure that all water delivered by the Agency from the Purification Plant into the distribution pipelines described in Exhibit C hereof shall meet all applicable federal, State of California and Kern County minimum drinking water quality requirements.

(B) In the future, the Purveyor may use the distribution pipelines to deliver water from its wells, as well as for delivering water from the Purification Plant. Any request by the Purveyor for the use of the distribution pipelines for conveyance of water, other than that originating from the Henry C. Garnett Water Purification Plant, shall be made by providing written notice ninety (90) days prior to the requested date of use, provided that such notice period may be shortened upon a finding of an emergency by the Agency. The Agency reserves the right to approve or deny any request received, provided that all costs and risks associated with, or arising from, the delivery of such water shall be borne by Purveyor in accord with a supplementary written agreement between Agency and Purveyor.

(C) When the Purveyor puts water from any source other than the Henry C. Garnett Water Purification Plant in the distribution pipelines, the Agency will be absolved of responsibility for the quality and quantity of any water delivered to the Purveyor after it leaves the Purification Plant, unless the liability results from the quality of water leaving the Purification Plant failing to meet federal, State of California or Kern County minimum drinking water quality requirements. The burden of proof that such water fails to meet such requirements shall rest with Purveyor, provided that Agency shall permit all reasonable testing and review of the Agency's records reasonably

necessary to meet such burden of proof. When the Purveyor ceases to put water from another source in the distribution pipeline, the Agency will resume responsibility for the quality and quantity of water delivered to the Purveyor through the Agency's distribution pipelines when and if the conditions set forth in subdivisions (1) and (2) are met: (1) Purveyor advances sufficient funds to the Agency to cover the cost of inspection and testing, and (2) such inspection and testing shows to the satisfaction of the Agency that other waters are either no longer co-mingled in the distribution pipelines with the water supply from the Purification Plant or if co-mingled, the combined waters meet all applicable requirements.

(D) Such assumption of responsibility shall become effective only if and when the Agency notifies the Purveyor in writing that the results of such inspection and testing demonstrate to the satisfaction of the Agency that all applicable water quality requirements have been met.

(E) During any period(s) between the time the Purveyor commences to introduce water into the distribution pipelines and the time the Agency resumes responsibility for the quality of water in those pipelines, neither the Agency nor its officers, agents, or employees shall be liable for the impacts from the introduction of such water by Purveyor on the quality or quantity of water supplied to the Purveyor through the distribution pipelines, nor for claim of damages of any nature whatsoever arising out of or connected in any way with the quality or quantity of such water introduced by the Purveyor or the impacts thereof, and the Purveyor shall indemnify and hold harmless the Agency, its officers, agents, and employees from any such damages or claims of damages. The foregoing shall not limit the Agency's liability under paragraph (C) of this Article 14.

The burden of proof that such Agency water fails to meet such requirements shall rest with Purveyor, provided that Agency shall cooperate to permit all testing and review of Agency records reasonably necessary to meet such burden of proof. If Agency voluntarily permits other Customers to introduce water into a pipeline serving Purveyor after the execution of this Agreement, Agency will require such Customer to accept responsibility for any loss resulting thereby, and obtain a commitment to hold the Agency, Improvement District No. 4, and Purveyor harmless from any loss thereby.

(F) Existing agreements, attached as Exhibit G and incorporated herein by reference, with North of the River and California Water Service Co. and East Niles Community Services District for introduction of water into the North and East Pipelines shall remain in effect, and the term of each is amended to be consistent with the term of this Agreement.

Article 15. Cost of Water.

The Purveyor, and all other Customers, shall pay the following charges to be determined and set annually by the Agency:

(A) Treated Water Charge.

The amount of the charge for each acre-foot of water ("Treated Water Charge") payable by the Purveyor, and all other Customers, shall be One Hundred and Thirty-Six Dollars ($136), subject to the surcharges specified in this Article. The revenues received from payment of the Treated Water Charge shall be accounted for utilizing a separate Agency fund identified as the ID4 Enterprise Fund. The amount of the Treated Water Charge shall be subject to modification by mutual agreement of the parties in a periodic

ten (10) year review, provided that this provision does not alter the ability of the Agency to impose surcharges pursuant to subdivision (D) of this Article.

(B) Payment of the Treated Water Charge.

The Purveyor, and all other Customers, shall pay the amount of the Treated Water Charge provided for in paragraph (A) times either the quantity of water delivered to them or their Annual Entitlement for the Year as set forth in Article 8 and Exhibit D, whichever is greater.

(C) Credit for Annual Entitlement Not Taken.

If Purveyor complies with Article 10, regarding scheduling of Annual Entitlement, the Agency shall use reasonable efforts to sell any of Purveyor's Annual Entitlement not taken to other Customers at the Treated Water Charge rate, including surcharges, or such other rate as may be paid by Customers, for delivery during the Year the Annual Entitlement was not taken by Purveyor. Funds received from other Customers for the Annual Entitlement of the Purveyor, less administrative charges of the Agency, shall offset Purveyor's obligation.

(D) Surcharges.

Notwithstanding any other provision of this Agreement, if the Agency reasonably determines that the ID4 Enterprise Fund is insufficiently funded to meet the estimated expenses for Improvement District No. 4 for that year, including any amount necessary to pay debt service or comply with a debt service coverage covenant not met by the Capital Facilities Charge, the Agency shall notify Purveyor and make an effort to reduce its estimated expenses to be consistent with its estimated revenues. If, after thirty (30) days from notice to Purveyor of its estimate, the Agency has reviewed and where appropriate

reduced expenses, it still projects a deficit with respect to estimated revenues, it shall provide the relevant financial information to the Purveyor and all other Customers along with all other information supporting a specified short-term surcharge to Purveyor, and all other Customers. The total amount of the short-term surcharges to the Purveyor and all other Customers shall be sufficient to eliminate the estimated deficit through the Year in which the estimate is made and the following Year. The amount of the Purveyor's and each Customer's short-term surcharge shall be determined by the Agency by dividing the estimated deficit by the current year contracted Annual Entitlement for all Customers and multiplying the result by the Purveyor's or the other Customers' Annual Entitlement for that year. The Agency shall use its best efforts to provide warning of such necessity one Year in advance; however, the failure to provide such advance warning shall not relieve Purveyor of the responsibility to pay such surcharge, nor excuse nor affect in any way the obligation to make such payment in the manner set forth in this Agreement.

Upon implementation of a short-term surcharge, in consultation with the Purveyor and other Customers, the Agency may develop a financial plan considering future long-term revenues and costs of Improvement District No. 4 and establishing an annual long-term surcharge on the Treated Water Charge paid by Purveyors to provide sufficient funding for the five (5) Years following the period of a short-term surcharge. The Agency shall provide at least ninety (90) days notice of the intent to impose a long-term surcharge including the provision of a draft financial plan. In consultation with Customers, Agency shall adopt the financial plan, as modified, no sooner than thirty (30) days after the date set for consultation.

Such charges shall be billable to and payable by Purveyor in the same manner as the Treated Water Charge.

Article 16. Payment of the Capital Facilities Charge.

The Purveyor agrees hereby to pay the Capital Facilities Charge from Purveyor Revenues. The obligation of the Purveyor to pay the Capital Facilities Charge and to pay the included interest thereon and other costs is absolute and unconditional, whether or not the Expansion Project shall be completed, and until such time as all of the Capital Facilities Charges shall have been fully paid, the Purveyor will not, under any circumstances, discontinue, abate or suspend any Capital Facilities Charge payment required to be made by it under Article 19 when due, whether or not the Enterprise or any part thereof is operating or operable or has been completed, or whether or not the Enterprise is condemned, damaged, destroyed or seized or its use is suspended, interfered with, reduced or curtailed or terminated in whole or in part, and such payments shall not be subject to reduction whether by offset, counterclaim, defense, recoupment, abatement, suspension, deferment or otherwise and shall not be conditional upon the performance or nonperformance by any party of any agreement or covenant contained herein for any cause whatsoever. If the Agency is able to reduce Capital Costs, or obtains funds that can be applied to reduce Capital Costs, it may, at its discretion, provide credits to Customers and, if credits are made, it shall credit the Purveyor a proportionate share of the reduction in the same percentage that the Purveyor's share of the Capital Costs bears to total Capital Costs unless it determines that the funds available for credit are uniquely attributable to specific portions of the Capital Facilities. If the Agency refinances the debt for Capital Costs, then any savings from refinancing shall be used to reduce the

Capital Facilities Charge. All condemnation proceeds, all casualty insurance recoveries, and all funds derived from the Enterprise Fund for the purpose of repair, restoration or modification of the Henry C. Garnett Water Purification Plant or any distribution lines or other facilities or equipment that provide a water supply pursuant to this Agreement, shall be applied to repair and reconstruct the Henry C. Garnett Water Purification Plant and distribution or other facilities to which they relate and if such repair or reconstruction is not reasonably feasible, or excess funds become available, all such condemnation proceeds, insurance proceeds and other funds shall be applied to reduce the Capital Facilities Charge of each Customer in the ratio of such Customer's Cost Allocation set forth in Exhibit E. All repair and reconstruction shall be conducted with diligence in order to assure restoration of services at the earliest reasonable date.

Article 17. Time of Payment.

(A) Payment of Charges for Annual Entitlement/Treated Water Charge.

On or before June 1 of each Year, the Agency shall notify the Purveyor of its estimated charges for Annual Entitlement water for the ensuing Year. These estimates shall be prepared by the Agency on the basis of the delivery schedules provided for in Article 10, the Agency's estimates of the revenues and expenses for Improvement District No. 4 and the Agency's estimates of any credits due as provided for in Article 15, and the estimate shall provide for both the payments to be made for water to be delivered and for that portion of the Annual Entitlement for that Year not requested for delivery. The Purveyor shall pay sixty percent (60%) of these charges on or before July 10 of each year, and the remainder on or before January 10 of the following year. If the Expansion Project is completed after bills have been issued, a supplementary bill shall be issued by

the Agency, and is payable by Purveyor within thirty (30) days of mailing of the supplementary bill, for estimated charges for the proportion of New Entitlement provided by the Expansion Project before the year covered by the next regular annual billing.

(B) Payment of Charges for Deliveries in Excess of Annual Entitlement.

As soon as possible after the end of each Year, the Agency shall send to the Purveyor a statement of charges for all water delivered to the Purveyor in the preceding Year in excess of the Purveyor's Annual Entitlement for that Year. The Purveyor shall pay such statements within thirty (30) days after they are received.

(C) Payment of Capital Facilities Charge.

On or before June 1 of each Year, the Agency shall send the Purveyor a statement of Capital Facilities Charges for all costs of Capital Facilities, and payment of principal and interest due on financing for Capital Facilities which shall be due during the ensuing year as allocated pursuant to Article 6, Exhibit A, and other provisions herein. To the extent necessary in any given year, Purveyor's and each other Customer's yearly charge shall be increased by one-fifth (1/5) to augment the Capital Facilities Account to prevent a default on financing payments. The Purveyor shall pay sixty percent (60%) of these charges on or before July 10 of each Year and the remainder on or before January 10 of each Year.

Article 18. Recalculation and Adjustment of Treated Water Charge.

As soon as possible after the end of each Year, the charges for water for that Year required by Article 15(B) shall be recalculated by the Agency by substituting actual deliveries for the estimated deliveries made pursuant to Article 16. Any adjustments in

the Purveyor's payments required to reflect these recalculations shall be made in the Purveyors first semiannual payment due after the recalculations.

Article 19. Default.

(A) The Purveyor shall cause to be levied and collected all necessary fees and charges and will use all the authority and resources of the Purveyor to meet its obligations hereunder, to make in full all payments to be made pursuant to this Agreement on or before the date such payments become due and to meet its other obligations under this Agreement. In the event of any default by the Purveyor in the payment of any money required to be paid to the Agency hereunder, the Agency in its discretion may suspend delivery of water during the period when the Purveyor is delinquent in its payments or obligation due to the Agency under the terms of this Agreement; provided, that during any such period of delinquency or suspension the Purveyor shall remain obligated to make all payments required under this Agreement. Action taken pursuant to this article shall not deprive the Agency of or limit any remedy provided by this Agreement or by law for the recovery of money due or which may become due under this Agreement.

(B) In the event of default continuing ninety (90) days beyond written notice to Purveyor to the address specified herein, the Agency may, without abandoning any other remedy provided by this Agreement or California law, transfer Purveyor's Annual Entitlement, Capacity, other rights and obligations hereunder to any other Customer, and if no other Customer accepts an offer of such transfer within thirty (30) days of mailing, then Agency may transfer such Annual Entitlement, Capacity, rights and obligations to any water distributor in Kern County; provided, that priority shall be given to distributors

within Improvement District No. 4. In the event of such transfer, all financial obligations of Purveyor under this Agreement shall continue except to the extent they are offset by amounts received from the transferee.

(C) In the event of default by another Customer, as provided in Article 19 hereof, and if the Capacity of that defaulting Customer in facilities, constructed as part of the Expansion Project, has not been acquired by another Customer (including the Purveyor) or entity, Purveyor agrees to purchase its pro rata portion (based on its Capacity in each facility) of said defaulting Customer's Capacity in each facility on the following terms:

(1) Payment for the additional Capacity provided to Purveyor shall be made by assumption by Purveyor of the pro-rata portion of the Capital Facilities Charge due from the defaulting Customer.

(2) The purchase price for said Capacity shall not be less than the payment of the balance of the Capital Facilities Charge of the defaulting Customer attributable to the Capacity being purchased.

(3) The aggregate amount of the defaulting Customer's Capacity in each facility to be purchased does not exceed twenty-five percent (25%) of the then existing Capacity of Purveyor in each facility.

(D) In the event of default by other Customers, Agency shall use all reasonable efforts to recover from such defaulting Customers all delinquent Capital Facilities Charge, Maintenance and Operations Costs, Treated Water Charge, other amounts due under this Agreement, attorney's fees and other costs. To the extent not recovered from the defaulting Customer, Capital Facilities Charge due from such Customer will be paid

from the Capital Facilities Fund and attorney's fees and costs will be paid from the Enterprise Fund.

(E) In the event of a default under this Agreement by the Agency, Purveyor and each other Customer, acting singly or jointly, may exercise any and all rights available under their respective Agreements with the Agency or under applicable laws.

Article 20. Obligation to Make Payments.

(A) Character of Obligation.

The obligation of the Purveyor arising out of or pursuant or incidental to this Agreement including, without limiting the generality of the foregoing, the obligations of the Purveyor to pay to the Agency the sums becoming due the Agency for water furnished hereunder, including but not limited to the Capital Facilities Charge, shall constitute a general obligation of the Purveyor and the Purveyor shall use all the powers and resources available to it under the law to collect the funds necessary for and to pay its obligations to the Agency under this Agreement which meets the terms of its option for continued service under prior contract for a water supply entered on June 13, 1974. The Purveyor as a whole is obligated to pay to the Agency the payments becoming due under this Agreement, notwithstanding any individual default by its water users, constituents or others in the payment to the Purveyor of tolls, or other charges levied by the Purveyor.

(B) Refusal of Water Does Not Affect Obligation.

Failure of the Agency to deliver water, or the Purveyor's failure or refusal to accept delivery of Annual Entitlement for each Year under this Agreement shall in no way relieve the Purveyor of its obligation to make payments to the Agency as provided for herein, provided that failure to deliver water due to Improvement District No. 4

negligence or misconduct in the operations of its facilities which would constitute a breach of contract shall excuse payment of the Treated Water Charge and shall excuse the Agency's obligation to deliver that portion of the Annual Entitlement not delivered, but in such instances Agency shall use good faith efforts to make delivery of any Annual Entitlement not delivered within the Year of the failure for which Purveyor shall pay all costs.

Article 21. Against Encumbrances.

The Purveyor hereby covenants that there is no pledge of or lien on Purveyor Revenues senior to the payment of Maintenance and Operation Costs other than those disclosed to Agency.

Article 22. Maintenance and Operation of the Enterprise; Budgets.

The Purveyor will maintain and preserve the Enterprise in good repair and working order at all times and will operate the Enterprise in an efficient and economical manner and will pay all Maintenance and Operation Costs of the Enterprise as they become due and payable.

Article 23. Amount of Rates and Charges.

(A) Purveyor shall seek, with all due diligence under its customary practice, the approval by the Public Utilities Commission of its Bakersfield District rates for the amounts required to be paid by Purveyor under this Agreement. Subject to the approval of the PUC, the Purveyor will fix, prescribe and collect rates, fees and charges in connection with the Enterprise's Bakersfield District so as to yield Purveyor Revenues at least sufficient, after making reasonable allowances for contingencies and errors in the estimates, to pay one hundred and twenty-five percent (125%) of the following amounts

in the order below set forth, provided that rates, fees and charges each year to Customers of the Enterprise need not be set at levels sufficient to return the foregoing one hundred and twenty-five percent (125%) if reserves and other legally available revenues of Purveyor, together with those rates, fees and charges which are set, provide the specified funding level as follows:

(1) All Maintenance and Operation Costs of the Enterprise;

(2) All amounts due on obligations payable from the Purveyor Revenues on a basis subordinate to payment of Maintenance and Operation Costs; and

(3) All payments required to meet any other obligations of the Purveyor which are charges, liens, reserves, encumbrances upon, or which are otherwise payable from the Purveyor Revenues during such Fiscal Year.

(B) If the rate structure provided in subdivision (A) is not approved by the PUC, then Purveyor shall charge those rates approved by the PUC.

Article 24. Operation of Enterprise; Collection of Rates and Charges.

The Purveyor will continue to operate the Enterprise and shall have in effect at all times rules and regulations requiring all users of the Enterprise to pay the rates, fees and charges applicable to the Enterprise provided or made available to such users, and providing for the billing thereof and for a due date and a delinquency date for each bill. In each case where such bill remains unpaid in whole or in part after such bill becomes delinquent, the Purveyor, in accordance with law, may refuse to provide or make available the services provided by the Enterprise to such premises until all delinquent rates, fees, charges and penalties have been paid in full.

Article 25. Improvement District No. 4 Boundary Expansion.

(A) Water delivered to the Purveyor pursuant to this Agreement shall not be sold or otherwise disposed of by the Purveyor for use outside the boundaries of Improvement District No. 4 without the prior written consent of the Agency.

(B) The Purveyor may request a boundary expansion to allow it to deliver additional treated water supplies outside the boundaries of Improvement District No. 4 existing at the time of the request. The Agency shall cooperate with Purveyor in taking steps necessary to annex new areas to Improvement District No. 4, but Purveyor shall be responsible for all costs incurred in attempting such boundary expansion as specified below. The Agency retains the right to approve or disapprove the adequacy of measures taken to achieve expansion. If the Purveyor provides a proportional amount of additional new (non-Improvement District No. 4 State Water Project) surface water supply to Improvement District No. 4 for use in the expanded areas, the zone of benefit boundary may not need to be expanded if the Purveyor enters an agreement satisfactory to the Agency to be responsible for all costs for such supply; provided, however, that such supply must be acquired by Purveyor and the agreement with the Agency entered within six (6) months of the date of this Agreement. If, however, the Purveyor is unable to secure a new surface supply for the expansion, the Purveyor may request that Improvement District No. 4 purchase additional State Water Project entitlement at the current market cost, if available, provided that Purveyor shall be responsible for the full cost of such entitlement if such cost is not legally charged to a Zone of Benefit. The area to be annexed must also be subject to the Groundwater Charge existing through other portions of Improvement District No. 4, and shall take all steps necessary to ensure the applicability of the Groundwater Charge to the annexed area. Purveyor shall be

responsible for the amount of such Groundwater Charge which would otherwise be levied if the charge is invalidated. The Customer requesting a boundary expansion will assist Improvement District No. 4 with any administrative proceedings, environmental compliance, or any other approvals or processes that may be necessary to comply with a boundary expansion. All costs incurred complying with, or attempting to comply with, the request for a boundary expansion shall be paid for by the requesting Customer. Any request for boundary expansion may also result in the assessment of an annexation fee by the Agency to the Purveyor. The Agency does not guarantee the success of any boundary expansion efforts, or the success of implementation of a zone of benefit levy or expansion of the Groundwater Charge to an annexed area, and the parties acknowledge that pursuit of an expansion of Improvement District No. 4's service and supply are subject to the discretion of the Kern County Water Agency's Board.

Article 26. Covenants Relating to Bond Issuance.

(A) INTENTIONALLY BLANK

(B) INTENTIONALLY BLANK

(C) In order to assist with the issuance of the debt obligations , the Purveyor hereby covenants to execute an agreement to provide annual reports, as required by Rule 15c2-12 of the Securities and Exchange Commission, in a form to be mutually agreed upon between the Purveyor and the Agency, agreement not to be unreasonably withheld.

(D) In connection with the issuance of the debt obligations, the Purveyor hereby covenants to provide, in a form acceptable to the Agency, (i) an opinion of counsel as to the validity and enforceability of this Agreement, and (ii) certifications customarily delivered in connection with financings such as the debt obligations.

Article 27. Penalty for Late Payment.

Upon each charge to be paid by the Purveyor to the Agency pursuant to this Agreement, which shall remain unpaid after the same shall have become due and payable, shall accrue interest at the rate of one-half of one percent (.5%) per month of the amount of such delinquent payment from and after the date when the same becomes due until paid. The Purveyor hereby agrees to pay such interest, provided that such late charge shall not apply until thirty (30) days after the Agency invoices Purveyor for the underlying charge.

Article 28. Remedies Not Exclusive.

The use by either party of any remedy specified herein for the enforcement of this Agreement is not exclusive and shall not deprive the party using such remedy of, or limit the application of, any other remedy provided by law.

Article 29. Amendments.

This Agreement may be amended at any time by mutual agreement of the parties, except insofar as any proposed amendments may adversely affect other Customers or be in any way contrary to applicable law or inconsistent with the provisions of the Master Contract. The Agency shall make available to the Purveyor at all times during the normal hours of business at the Agency offices for the Purveyor's inspection copies of all contracts now or hereafter executed by the Agency with all other Customers and the participants referred to in Article 6 and of any amendments thereto. The Agency agrees that each contract for the supply of treated water now or hereafter executed with all other Customers in Improvement District No. 4 shall contain provisions substantially similar to

those herein set forth and shall not contain any provisions of a material nature more favorable to any other Customer than the provisions herein applicable to the Purveyor.

Article 30. Opinions and Determinations.

Where the terms of this Agreement provide for action to be based upon opinion, judgment, approval, review or determination of either party hereto, such terms are not intended to be and shall never be construed as permitting such opinion, judgment, approval, review or determination to be arbitrary, capricious, or unreasonably delayed or conditioned.

Article 31. Waiver of Rights.

Any waiver at any time by either party hereto of its rights with respect to a default or any other matter arising in connection with this Agreement, shall not be deemed to be a waiver with respect to any other default or matter.

Article 32. Notices.

All notices that are required to either expressly or by implication to be given by either party to the other under this Agreement shall be signed for the Agency and for the Purveyor by such officers as they may, from time to time, authorize in writing to so act. All such notices shall be deemed to have been given and delivered if delivered personally or if enclosed in a properly addressed envelope and deposited in a United States Post Office for delivery by registered or certified mail, or by confirmed delivery by recognized national delivery service. Unless and until formally notified otherwise, all notices shall be addressed to the parties at their addresses as shown on the signature page of this Agreement.

Article 33. Assignment.

The provisions of this Agreement shall apply to and bind the successors and assigns of the respective parties, but no assignment or transfer of this Agreement, or any part hereof or interest herein, shall be valid until and unless approved by the Agency as to all lawful factors within its discretion, including but not limited to the satisfaction of all covenants and conditions for all bonds or other financing for the Expanded Capital Costs, provided that such approval shall not be unreasonably withheld. The Agency shall act upon a requested approval of a proposed assignment within sixty (60) days of receiving all relevant requested information. Upon Agency approval of assignment, the assignee shall assume all rights and obligations of this Agreement and the assignor shall be relieved of all rights and obligations. The Agency shall not approve any such assignment or transfer to any person or entity that is not a Customer unless and until the proposed assignment or transfer has been first offered to and refused in writing by all Customers. The offer of any such assignment or transfer shall be on the same basis to all Customers and if more than one Customer desires to accept the offer, the Agreement or portion thereof to be assigned shall be prorated among them in proportion to the flow capacities provided for each of them in the facilities involved in the assignment or transfer. Notwithstanding any other provisions of this article to the contrary, the Agency's approval shall not be required for an assignment by the Purveyor of all or part of this Agreement to a public agency with the power of eminent domain, if such public agency expressly assumes all or part of the obligation of this Agreement. If such public agency assumes only a portion of the obligations of the Purveyor under this Agreement, the Purveyor shall remain obligated for the remainder of such obligations.

Article 34. Inspection of Books and Records.

The proper officers or agents of the Purveyor shall have full and free access at all reasonable times to the account books and official records of the Agency insofar as the same pertain to the matters and things provided for in this Agreement, with the right at any time during office hours to make copies thereof, and the proper representatives of the Agency shall have similar rights in respect to the account books and records of the Purveyor.

Article 35. Negotiation or Mediation of Disputes.

(A) The parties will attempt in good faith to resolve controversies or claims arising out of or relating to this Agreement by prompt negotiations between the senior executives of the parties subject to subdivision (B) of this Article. A party may invoke this Article by providing written notice of the dispute to the chief executive of the other party specifying the nature of the dispute and the position of the invoking party, whereupon the chief executive of the responding party shall provide written notice of the responding party's position within twenty (20) days of receipt of the invoking party's notice. Within thirty (30) days of the notice invoking this Article, the chief executive officers or responsible Vice-President of the parties shall meet in Bakersfield, California, for the purpose of negotiating a resolution of the dispute. If no resolution can be negotiated, the parties may agree upon a mediator and mediation process to further attempt resolution of the dispute.

(B) Provided, however, that this Article shall not limit any party's ability to proceed at any time with other remedies available to it, including but not limited to the initiation of litigation.

Article 36. Changes in the Purveyor's Service Area.

The Purveyor will furnish the Agency with maps showing their entire water distribution service area. Throughout the term of this Agreement, the Purveyor will properly notify the Agency of any changes, either by inclusion or exclusion, and in said service area or areas.

Article 37. Sale of Water to Others.

The Agency shall not sell any water from the Purification Plant provided for in this Agreement to other than the Customers unless and until it has first offered to sell such water to the Customers at the prices provided for herein. If the Customers do not elect to take all the water available from the Purification Plant, the unused water may be sold to others at not less than the prices provided for herein; provided, that such sale shall not interfere with the ability of the Agency to make deliveries to the Purveyor and other Customers; and further provided, that such sales shall be made only to others who will use the water within Improvement District No. 4 except as provided for in Article 19.

Article 38. Advisory Committee.

An Advisory Committee shall be created which shall consist of nine (9) members who shall serve terms of one (1) year. One (1) member shall be recommended by each of the Customers; one (1) member shall be recommended by sub-contractors to Customers; one (1) member shall be recommended by the City of Bakersfield; and three (3) members shall be recommended by Agency staff. Recommendations shall be made prior to the final Agency Board meeting of each calendar year, or by the relevant recommending party upon the existence of a vacancy, and the Agency Board of Directors shall consider the recommendations and make appointments during the final Agency Board meeting of each calendar year. During his or her term, each member of the Advisory Committee

shall serve at the pleasure of the party responsible for his or her appointment and alternates may be appointed who may serve in the absence of a member.

The Advisory Committee shall be charged with the responsibility of making recommendations to the Agency on those portions of the Agency's annual budget pertaining to the Purveyor and other Customers, Agency water supply and water quality plans, programs, actions and issues pertaining to the Purveyor and other Customers' plans and specifications for project facilities, construction and operating budgets, operating criteria and use of the project facilities. Voting on the Advisory Committee is on the basis of one (1) person, one (1) vote. To the extent reasonably possible, the Advisory Committee shall be informed of the details of such matters in a timely manner and, except in emergencies, the Agency will seek and consider the advice of the Advisory Committee on all such matters. Four (4) members of the Advisory Committee shall be considered a quorum for the committee acting in its advisory capacity. Final decisions concerning the project, including but not limited to, matters reviewed by the Advisory Committee, shall be made by the Agency.

A member of the Urban Bakersfield Advisory Committee shall be elected by the Advisory Committee, and appointed by the Agency Board, to sit on the Cross Valley Canal Advisory Committee to represent the interests of Improvement District No. 4 on the Cross Valley Canal. An alternate will be selected by the Advisory Committee from the Advisory Committee at the first meeting of each year, provided that if the alternate is not available for any meeting, the alternate position for the meeting will be filled by the Improvement District No. 4 Manager.

Article 39. Review by California Public Utilities Commission.

The rights and obligations of Purveyor under this Agreement are subject to review by the California Public Utilities Commission ("CPUC") in the course of rate review proceedings. In the event CPUC fails to approve rates established for the Enterprise, or finds such charges imprudent, as a result of this Agreement, then Agency and Purveyor shall immediately begin negotiations to amend the Agreement in a mutually satisfactory manner in an attempt to resolve issues resulting in such CPUC action, provided that neither party shall be excused from performance of the Agreement.

Article 40. Integration.

This Agreement represents the entire understanding of Agency and Purveyor as to those matters contained herein. No prior oral or written understanding shall be of any force or effect with respect to those matters covered hereunder. This Agreement may not be modified or altered except by an amendment to this Agreement evidenced in writing and executed by the parties hereto.

Article 41. Governing Law.

This Agreement is entered into in the State of California. The law governing the Agreement is agreed to be that of the State of California and such federal law as may apply.

Article 42. Time.

Time is of the essence with respect to the performance of each of the covenants and agreements contained in this Agreement.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement on the date first above written.

KERN COUNTY WATER AGENCY

By _____
President

ATTEST:

_____
Secretary

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

CALIFORNIA WATER SERVICE COMPANY

By Peter C. Nelson
President

_____
Secretary

California Water Service Company
1720 North First Street
San Jose, California 95112

Exhibit A
Treated Water Capacity Expansion Project Cost Allocation Summary

1	2	3	4	5	6	7	8

Treated Water Capacity Expansion Participation Summary

Project			California Water Service	City of Bakersfield	East Niles CSD	North of the River MWD	KCWA Improvement District No. 4
Henry C. Garnett WPP Expansion			x	x	x	x	
North Feeder Expansion Project						x	
East Feeder Expansion Project					x		
East Feeder Oswell Bypass Project			x		x		
Northwest Feeder Project			x	x			x

Treated Water Production Allocation Summary

Project Participant	Existing Annual Entitlement (AF/YR)	Incremental Annual Entitlement (AF/YR)	Total Annual Entitlement (AF/YR)	Existing Peaking Capacity (MGD)	Incremental Peaking Capacity (MGD)	Total Peaking Capacity (MGD)	Avg of Ratio Capacity & Entitlement[1] (%)
California Water Service	11,500	9,000	20,500	15.0	15.0	30.0	35.4%
City of Bakersfield	0	6,500	6,500	0.0	6.0	6.0	19.3%
East Niles CSD	5,000	6,000	11,000	6.7	7.1	13.8	19.9%
North of the River MWD	8,500	6,500	15,000	11.4	10.7	22.1	25.4%
Improvement District No. 4		0	0	0.0	0.0	0.0	0.0%
	25,000	**28,000**	**53,000**	**33.1**	**38.8**	**71.9**	**100.0%**

Distribution Capacity Allocation Summary

Project Participant	North Feeder Pipeline Capacity Allocation (%)	North Feeder Pipeline Capacity Allocation (MGD)	East Pipeline Capacity Allocation (%)	East Feeder Pipeline Capacity Allocation (MGD)	NW Pipeline Capacity Allocation (%)	NW Feeder Pipeline Capacity Allocation (MGD)
California Water Service	0.0%	0.0	0.0%	15.0	46.9%	15.0
City of Bakersfield	0.0%	0.0	0.0%	0.0	18.8%	6.0
East Niles CSD	0.0%	0.0	100.0%	13.8	0.0%	0.0
North of the River MWD	100.0%	22.1	0.0%	0.0	0.0%	0.0
Improvement District No. 4	0.0%	0.0	0.0%	0.0	34.4%	11.0
	100.0%	**22.1**	**100.0%**	**28.8**	**100.0%**	**32.0**

Footnotes:

1) Project participant percent allocation does not directly compare to dept service percent due to different interest rates for taxable and nontaxable interest rates

Exhibit B
ID4 Banking Assets Summary Table

	1	2	3	4	5	
	Kern Water Bank	Pioneer Project[1]	ID4 Banking Wells	ID4 In District Wells	Total	
Total Recharge Capacity	450,000	146,000	0		596,000	Ac-Ft/Yr
Total Recovery Capacity	230,000	99,000	12,000	36,000	377,000	Ac-Ft/Yr
ID4 Percent Interest	9.6%	10.0%	100.0%	100.0%		
ID4 Recharge Capacity	43,290	14,600	0		57,890	Ac-Ft/Yr
ID4 Recovery Capacity	22,126	9,900	12,000	36,000	80,026	Ac-Ft/Yr

Footnotes:

1) Includes City of Bakersfield's 2800 Acre Recharge Facility

Exhibit C
Transmission Pipeline and Turnout Summary Table

1	2	3	4	5	6	7	8	9	10

North Feeder Pipeline

Transmission Pipeline Entitlement

NOR (AF/YR)					(AF/YR)
15,000			0		0
Total Entitlement					15,000

Transmission Pipeline Capacity

NOR					
(MGD)	(CFS)	(MGD)	(CFS)	(MGD)	(CFS)
22.1	34.2				
Total Capacity				22.1	34.2

Transmission Pipeline Turnout Summary

Pipeline Station	Turnout Diameter	Cross Street Location	Owner
34+70	14	Belle Avenue	NOR
55+51	14	Woodrow Avenue	NOR
80+20	12	Diane Drive	NOR
95+03	12	Highland Francis Alley	NOR
118+53	12	Universe Avenue	NOR
155+22	20	Seventh Standard Road (Reservoir)	NOR

East Feeder Pipeline

Transmission Pipeline Entitlement

CWS (AF/YR)	ENCSD (AF/YR)	(AF/YR)
11,500	11,000	0
Total Entitlement		22,500

Transmission Pipeline Capacity

CWS		ENCSD			
(MGD)	(CFS)	(MGD)	(CFS)	(MGD)	(CFS)
15.0	23.2	13.8	21.4		
Total Capacity				28.8	44.6

Transmission Pipeline Turnout Summary

Pipeline Station	Turnout Diameter	Cross Street Location	Owner
54+70	8	Chester Avenue	CWS
103+84	16	Union Avenue	CWS
154+33	16	King Street	CWS
178+33	12	Berger Street	CWS
237+44	15	Wenatchee Avenue	CWS
319+00	16	Fairfax Avenue (Reservoir)	ENCSD
323+70	12	Country Club	ENCSD
353+70	16	College Avenue	ENCSD
353+80	16	College Avenue (Reservoir)	ENCSD

Northwest Feeder Pipeline

Transmission Pipeline Entitlement

CWS (AF/YR)	COB (AF/YR)	ID4[1] (AF/YR)
9,000	6,500	0
Total Entitlement		15,500

Transmission Pipeline Capacity

CWS		COB		ID4	
(MGD)	(CFS)	(MGD)	(CFS)	(MGD)	(CFS)
15.0	23.2	6.0	9.3	11.0	17.0
Total Capacity				32.0	49.5

Transmission Pipeline Turnout Summary

Pipeline Station	Turnout Diameter	Cross Street Location	Owner
32+72	16	Arrow Street	CWS
61+95	14	Standard Street	COB
121+00	14	Mohawk Street	CWS
121+50	16	Mohawk Street	COB
149+50	16	Fruitvale Avenue	CWS
165+90	16	Alken Street	CWS
200+47	16	Patton Way	CWS
300+36	16	Meany Avenue	COB
300+36	16	Meany Avenue	CWS

Footnotes:

1) ID4 NW Feeder Pipeline entitlement to be determined by ID4 at a later date

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Exhibit D
Project Participant Buildout Schedule

1	2	3	4	5	6	7
Fiscal Year	California Water Service	City of Bakersfield	East Niles CSD	North of the River MWD	Improvement District No. 4	Total
Entitlement -AF/YR						
Total Annual Entitlement	20,500	6,500	11,000	15,000	0	53,000
% of Entitlement	38.7%	12.3%	20.8%	28.3%	0.0%	100.0%
Capacity - MGD						
Total Peaking Capacity	30.0	6.0	13.8	22.1	0.0	71.9
% of Capacity	41.7%	8.3%	19.2%	30.7%	0.0%	100.0%
Delivery Schedule -AF/YR						
2004-05	11,500	6,500	6,000	8,500	0	32,500
2005-06	12,500	6,500	6,000	10,000	0	35,000
2006-07	13,000	6,500	7,500	10,100	0	37,100
2007-08	15,500	6,500	7,950	10,200	0	40,150
2008-09	16,000	6,500	8,400	10,300	0	41,200
2009-10	16,500	6,500	8,850	10,400	0	42,250
2010-11	17,000	6,500	9,300	10,500	0	43,300
2011-12	17,500	6,500	9,750	10,600	0	44,350
2012-13	18,000	6,500	10,200	10,700	0	45,400
2013-14	18,500	6,500	11,000	10,800	0	46,800
2014-15	19,000	6,500	11,000	10,900	0	47,400
2015-16	19,500	6,500	11,000	11,000	0	48,000
2016-17	20,000	6,500	11,000	11,100	0	48,600
2017-18	20,500	6,500	11,000	11,200	0	49,200
2018-19	20,500	6,500	11,000	11,300	0	49,300
2019-20	20,500	6,500	11,000	11,400	0	49,400
2020-21	20,500	6,500	11,000	11,500	0	49,500
2021-22	20,500	6,500	11,000	11,600	0	49,600
2022-23	20,500	6,500	11,000	11,800	0	49,800
2023-24	20,500	6,500	11,000	12,000	0	50,000
2024-25	20,500	6,500	11,000	12,250	0	50,250
2025-26	20,500	6,500	11,000	12,500	0	50,500
2026-27	20,500	6,500	11,000	12,750	0	50,750
2027-28	20,500	6,500	11,000	13,000	0	51,000
2028-29	20,500	6,500	11,000	13,250	0	51,250
2029-30	20,500	6,500	11,000	13,500	0	51,500
2030-31	20,500	6,500	11,000	13,750	0	51,750
2031-32	20,500	6,500	11,000	14,000	0	52,000
2032-33	20,500	6,500	11,000	14,250	0	52,250
2033-34	20,500	6,500	11,000	14,500	0	52,500
2034-35	20,500	6,500	11,000	15,000	0	53,000

Exhibit E
Treated Water Capacity Expansion Project Cost Allocation Summary

1	2	3	4	5	6	7	8	9	10

Treated Water Capacity Expansion Cost Summary

Project						Administration & Financing[2] ($)	Feasibility Engineering Cost[1] ($)	Estimated Construction Cost[4] ($)	Total Estimated Cost ($)
Henry C. Garnett WPP Expansion (72 MGD)						635,000	2,050,000	35,638,500	38,323,500
North Feeder Expansion Project							698,625	3,378,125	4,076,750
East Feeder Expansion Project							660,825	3,186,625	3,847,450
East Feeder Oswell Bypass Project								625,000	625,000
Northwest Feeder Project							803,900	14,697,000	15,500,900
			Total			635,000	4,213,350	57,525,250	62,373,600

Treated Water Expansion Cost Allocation Summary[6]

Project Participant		Existing Annual Entitlement (AF/YR)	Incremental Annual Entitlement (AF/YR)	Total Annual Entitlement (AF/YR)	Existing Peaking Capacity (MGD)	Incremental Peaking Capacity (MGD)	Total Peaking Capacity (MGD)	Avg of Ratio Capacity & Entitlement[8] (%)	HCGWPP Cost Allocation ($)
California Water Service		11,500	9,000	20,500	15.0	15.0	30.0	35.4%	13,342,229
City of Bakersfield		0	6,500	6,500	0.0	6.0	6.0	19.3%	7,288,617
East Niles CSD		5,000	6,000	11,000	6.7	7.1	13.8	19.9%	7,486,357
North of the River MWD		8,500	6,500	15,000	11.4	10.7	22.1	25.4%	9,571,297
Improvement District No. 4		0	0	0	0.0	0.0	0.0	0.0%	635,000
	Total	25,000	28,000	53,000	33.1	38.8	71.9	100.0%	38,323,500

Distribution Cost Allocation Summary

Project Participant	North Feeder Pipeline Capacity Allocation[2] (%)	North Feeder Pipeline Capacity Allocation (MGD)	North Feeder Pipeline Cost Allocation ($)	East Pipeline Capacity Allocation (%)	East Feeder Pipeline Capacity Allocation (MGD)	East Feeder Pipeline Cost Allocation[7] ($)	NW Pipeline Capacity Allocation[3] (%)	NW Feeder Pipeline Capacity Allocation (MGD)	NW Feeder Pipeline Cost Allocation[9] ($)
California Water Service	0.0%	0.0	0	0.0%	15.0	432,028	46.9%	15.0	9,755,000
City of Bakersfield	0.0%	0.0	0	0.0%	0.0	0	18.8%	6.0	3,902,000
East Niles CSD	0.0%	0.0	0	100.0%	13.8	3,379,597	0.0%	0.0	0
North of the River MWD	100.0%	22.1	3,378,125	0.0%	0.0	0	0.0%	0.0	0
Improvement District No. 4	0.0%	0.0	698,625	0.0%	0.0	660,825	34.4%	11.0	1,843,900
	100.0%	22.1	4,076,750	100.0%	28.8	4,472,450.0	100.0%	32.0	15,500,900

Project Participant Total Capital Project Cost

Project Participant	Total Project Cost ($)
California Water Service	23,529,256
City of Bakersfield	11,190,617
East Niles CSD	10,865,954
North of the River MWD	12,949,422
Improvement District No. 4	3,838,350
	62,373,600

Footnotes:
1) Costs approved to date for engineering, analysis and design of the conveyance system. Approval does not include plant expansion design
2) Allocation calculated by the average of the ratios between percentage of incremental entitlement and percentage of incremental capacity
3) Allocation calculated by percentage of incremental capacity
4) Includes cost of financing Treated Water Capacity Expansion Project
5) Does not include the cost of bond insurance
6) Based in ID4 incremental participation in the NW Feeder Project. Includes ID4 payment of 100% NW Feeder design cost
7) Includes Oswell Bypass Project Cost not funded through the $1,200,000 DWR State Revolving Fund Loan
8) Project participant percent allocation does not directly compare to dept service percent due to different interest rates for taxable and nontaxable interest rates
9) Construction costs include 35% contingency

Exhibit F
Treated Water Capacity Expansion Project Billing Summary

1	2	3	4	5	6	7

Project Participant Billing Schedule Summary

	Frequency	Date	Due[1]
Power	Monthly	January through December	30 Days
Operation & Maintenance	Quarterly	July 1 October 1 January 1 April 1	30 Days
Treated Water Charge	Semiannually	July 10 January 10	30 Days
Capital Facilities Charge	Semiannually	July 10 January 10	30 Days

Project Participant Billing Cost Summary

	Power Cost[5]	Operation & Maintenance[5]	Treated Water Charge[2]	Capital Facilities Charge[3]		
	Conveyance	Conveyance	Treatment	Conveyance	Treatment	Total
Frequency	Monthly	Quarterly	Semiannually		Semiannually	
California Water Service	Actual	Actual	1,394,000	411,448	564,167	975,615
City of Bakersfield[4]	Actual	Actual	442,000	138,027	270,732	408,760
East Niles CSD	Actual	Actual	748,000	119,548	278,077	397,625
North of the River MWD	Actual	Actual	1,020,000	119,496	355,521	475,017
Improvement District No. 4			36,788		0	36,788
			$3,604,000	$825,307	$1,468,498	$2,293,805

Footnotes
1) Bills due within 30 days of postmarked date on invoice
2) Based on $138/Ac-Ft multiplied by the purveyor's entitlement on a semiannual basis
3) Estimated charges include principle, interest, reserve, underwriter discount and insurance
4) Bond interest based on nontaxable rate
5) O,M & P Costs for treatment paid for by the ID4 Enterprise Fund

6

AGREEMENT

BETWEEN NORTH OF THE RIVER MUNICIPAL WATER DISTRICT

AND

THE KERN COUNTY WATER AGENCY

This agreement entered this 22 day of November, 1996, between the Kern County Water Agency ("Agency"), and the North of the River Municipal Water District ("NORMWD") regarding construction and operation of NORMWD Well #3 discharge pipeline connection to the Agency 27 inch north pipeline.

RECITALS

WHEREAS, the Agency, on behalf of its improvement district number 4, owns and operates a 27" diameter water pipeline from its treatment plant to portions of its service area within Improvement District No. 4 (the "North Pipeline");

WHEREAS, NORMWD previously provided additional funding to Agency for enlargement of the capacity of the North Pipeline to allow for potential utilization for well water;

WHEREAS, NORMWD has a proposed potable water well, known as "NORMWD Well #3", located within its service area and Agency Improvement District No. 4 which will be capable of providing potable water of suitable quality for use within NORMWD and Improvement District No. 4; and

WHEREAS, it is in the best interest of the parties to this agreement that a connection be constructed from the proposed NORMWD Well #3 to the 27 inch Agency North Pipeline near 601 Willow Dr., Oildale, so as to allow for the augmentation of NORMWD's water supply and therefore help relieve the peak load on the Agency Improvement District No. 4 water treatment plant.

NOW THEREFORE, for the mutual consideration set forth herein, it is agreed as follows:

1. Agency, for the consideration herein set forth, grants permission to the NORMWD to construct a pipeline connection from its proposed NORMWD Well #3 to the Agency North Pipeline (hereinafter referred to as "Connection) within the Agency's accompanying easement or right-of-way near 601 Willow Dr., Oildale, as shown on Exhibit "A"; consisting of a fabricated flanged outlet attached to the 27" Agency line, valving (including check valve), and appropriate metering equipment; connecting to 10" ductile iron discharge pipe from the well.

2. This contract shall become effective on the date signed below, and shall remain in effect throughout the term provided by Article 2 of the Treated Water Contract dated June 13, 1974, between the Agency and NORMWD, and any extensions, amendments or renegotiations thereto.

3. Detailed plans and specifications shall be prepared by NORMWD for the Connection and related structures subject to approval of the Agency, and shall be subject to the Agency's right-of-way. Record drawings and specifications will be on permanent file at NORMWD.

4. Metering will be by in-line propeller meters, or other AWWA approved device. Provisions will be made for accommodation of transducers, telemetry equipment and the treatment plant SCADA monitoring and control system. Records of the daily and accumulated flows will be maintained by NORMWD. Costs incurred for meeting the requirements of this provision shall be the responsibility of NORMWD.

5. The Connection shall be constructed by NORMWD through force account, and/or licensed contractors, at NORMWD's sole expense. Construction shall be subject to the inspection and approval of the Agency at each stage. NORMWD shall keep Agency fully apprised of the schedule of construction. An encroachment permit issued by the Agency will be obtained by NORMWD prior to the commencement of construction.

6. The Connection shall be operated by NORMWD so as to not interfere with the Agency's treatment plant operations and water deliveries . All produced water from Well #3 will meet all State of California potable water quality requirements.

7. Agency shall have access to the Connection for inspection purposes at any time. Agency will endeavor to provide NORMWD with advance notice of such inspections to the extent practical. The Agency will maintain ownership of the Connection up to, but not including, the isolation valve attached to the flanged outlet. NORMWD will maintain ownership from, and including the isolation valve to the well.

8. Unless operation is requested by the Agency, NORMWD will provide one hour notice to the Agency of its intent to use the Connection to deliver produced water from its Well #3 into the Agency line. In the event of an emergency, notice will be given as soon as practical. Upon notice the Agency may deny permission in accordance with paragraph 9. If conditions require the Agency to shut down Well #3, one hour notice shall be given unless an emergency exists, in which case notice shall be given as soon as practical.

9. The Connection will not be operated under any conditions which are adverse to the operations, finances, and water supply of the Agency and its Treated Water Contractors.

10. NOR shall defend, indemnify, and hold harmless the Agency, its employees, directors, contractors and agents, with respect to any claims or liabilities of all kinds arising out of, or related to the construction or operation of the Connection, including but not limited to all reasonable attorney and consultant fees.

11. In the event of disputes relating to this agreement, the parties shall first submit to mediation in an attempt to resolve such disputes, then such disputes shall be subject to a non-binding arbitration before a mutually agreeable neutral arbitrator, or if no agreement can be reached, before a neutral arbitrator selected by the Kern County Superior Court. In the event of an action after arbitration, the party obtaining a result less favorable than the result obtained in arbitration shall bear the attorneys fees of both parties.

IN WITNESS WHERE OF, the parties hereto have executed this contract on the 2nd day of December, 1996.

Kern County Water Agency

BY: Terry Rogers
Terry Rogers
President, Board of Directors

ATTEST:

BY: Pam Bosworth
Pam Bosworth, Secretary
Kern County Water Agency
P.O. Box 58
Bakersfield, California 93302

North of the River Municipal Water District

BY: Don Cross
Don Cross
President, Board of Directors

BY: William R. Miller
William R. Miller, Secretary
North of the River Municipal Water District
4000 Rio Del Norte Street
Bakersfield, California 93308

AGREEMENT AMONG
CALIFORNIA WATER SERVICE COMPANY
AND
EAST NILES COMMUNITY SERVICES DISTRICT
AND
KERN COUNTY WATER AGENCY/IMPROVEMENT DISTRICT NO. 4

For Construction and Operation of a California Water Service Company (hereinafter referred to as "CWS") "T" Connection and Related Facilities (hereinafter referred to as the "Connection") to the Kern County Water Agency/Improvement District No. 4 (hereinafter referred to as the "Agency") East Pipeline near or at the 23 Corner Tank Facility site

WHEREAS, it is in the best interests of the parties to this Agreement that this Connection be constructed to enable CWS to use the Agency's east transmission pipeline at or near the 23 Corner Tank Facility, for conveying treated water from CWS' new North East Bakersfield Water Treatment Plant (NEBWTP) to customers within the service areas of CWS and East Niles Community Services District (hereinafter referred to as "ENCSD")

WHEREAS, the following benefits expect to be realized as the result of the Connection being constructed and operated in the manner set forth in this Agreement:

(1) ENCSD will receive an excellent quality of treated Kern River water from the NEBWTP;

(2) There will be an increase in treated water supply reliability for all three parties due to the direct connection of the NEBWTP and the Agency's Henry C. Garnett water treatment plant (HCGWTP) to the east pipeline;

(3) ENCSD will experience a significant reduction in costs for electric power consumption due to the elimination or reduction under normal circumstances of pumping water from the HCGWTP to the 23 Corner Tank Facility;

(4) If the Agency is required and able to deliver an additional 3,000 acre-feet per of treated water to ENCSD consistent with the terms and conditions of the existing Treated Water Contract dated June 13, 1974, including the provisions of Agency Resolution No. 16-71 and the Agreement dated August 25, 1983 that implemented this Resolution, CWS will provide ENCSD the additional amount in exchange for the treated water that would have been delivered by the Agency to ENCSD.

(5) ENCSD has the opportunity to participate in and therefore increase the amount of treated water it receives from future expansions of the NEBWTP if it contracts with CWS to pay for its proportional share of capital, operational and maintenance costs of such expansions

WHEREAS, it is recognized by all parties that this Agreement does not amend, change, limit, alter or invalidate any of the terms and conditions of the existing Treated Water Contract dated June 13, 1974, among the Agency, CWS, ENCSD, and other Treated Water Contractors. The duties and obligations of each party and respective assignments of treated water as set forth in the Treated Water Contract and any amendments thereto remain in effect after this Agreement is executed and the Connection is constructed and put into operation

NOW THEREFORE, it is agreed as follows:

1. The Parties agree that the statements set forth in the preceding "Whereas" clauses are true and correct to the best of their knowledge and are being relied upon by the Parties in entering into this Agreement

2. The Agency grants permission to CWS to construct the Connection from its piping system to a tie-in with the Agency's piping system and make use of the Agency's existing easement or right-of-way near 8401 Auburn Ave, as shown and described in Exhibits "A-1, A-2, B-1 and B-2", attached hereto, subject to the conditions set forth in the following sections of this Agreement

3. This Agreement shall become effective on the date signed below, and shall remain in effect throughout the term provided by Article 2 of the Treated Water Contract dated June 13, 1974, between the Agency, CWS, and ENCSD and any extensions, amendments, or renegotiations thereto unless all parties mutually agree to earlier termination

4. Detailed plans and specifications shall be prepared by CWS for the Connection for review and approval by the Agency and ENCSD, and shall be subject to the Agency's right-of-way. Record as built drawings and specifications will be on permanent file at CWS and copies provided to the Agency and ENCSD

5. Metering will be by an AWWA approved device. Provisions will be made for telemetering, transducers, telemetry equipment, and the HCGWTP SCADA monitoring and control system. Records of the daily and accumulated flows will be maintained by both the Agency and CWS. Copies of all flow records will be provided to ENCSD. Costs incurred for meeting the requirements of this provision shall be the responsibility of CWS.

6. The Connection shall be constructed by CWS through force account, and/or licensed contractors, at the sole expense of CWS. Construction shall be subject to the inspection and approval of the Agency at each stage. CWS shall provide the Agency and ENCSD with the schedule of construction and timely updates of construction progress. CWS will obtain an encroachment permit from the Agency prior to commencement of construction. Any shutdowns of the Agency's east transmission pipeline for purposes of construction or disinfection of the Connection will be performed only after prior consent has been obtained from ENCSD and in a manner and under conditions that doe not result in negative or harmful effects on the operations, finances and water supply of ENCSD.

7. The Connection shall be operated by CWS in a manner and under conditions that do not result in negative or harmful effects on the operations, finances, and water supply of the Agency's Improvement District No.4, ENCSD and other Treated Water Contractors. Responsibilities for operations and maintenance of the Connection by CWS and related administrative procedures shall be in accordance with the provisions of the Treated Water Contract dated June 13, 1974. All water delivered to the Connection by CWS from the NEBWTP shall meet all State of California Department of Health Services potable water quality requirements.

8. Agency shall have access to the Connection for inspection purposes at any time. Agency shall provide CWS with advance notice of such inspections to the extent practical. Agency will maintain ownership of the Connection which subject to final design changes will generally consist of the following: _____

9. CWS shall defend, indemnify, and hold harmless the Agency and ENCSD, their employees, directors, contractors and agents, from damages and losses including reasonable attorney fees and consultant fees to the extent caused by the negligence or willful misconduct of CWS, its employees and agents, including without limitation, negligence or misconduct in the design of, construction of, or operation and maintenance of the Connection, or design of the CWS system, and from the day to day management and operations of flow through the Connection to ENCSD.

10. Agency shall defend, indemnify and hold harmless CWS and ENCSD, their employees, directors, contractors and agents from damages and losses including reasonable attorney fees and consultant fees, to the extent caused by the negligence or willful misconduct of the Agency or its employees, directors, contractors or agents, including without limitation, negligence or misconduct in operational control of the Connection.

11. Dispute Resolution

(1) Intent. Agency, ENCSD, and CWS desire and intend to resolve all disputes or other matters arising out of or in connection with this Agreement through reasonable, business like dispute resolution procedures without resort to litigation. Accordingly, any disputes among the parties shall be resolved in accordance with this section, excepting those construction disputes resolved according to the requirements of Public Contract Code sections 20104 et seq., and excepting those disputes where an imminent threat to public health or safety requires immediate judicial action.

(2) Initial Meeting. As a first step, any party may call a special meeting to initially resolve a dispute. The initial meeting shall be held within three (3) working days after delivery of a written request for such a meeting. The written request shall contain a statement of the nature of the dispute. The meeting shall be attended by the authorized representatives of the Agency, ENCSD and CWS. Disclosures made by the parties during such meetings shall be protected as discussions for the resolution of a disputed claim under the California Evidence Code.

(3) Mediation. If the dispute has not been resolved within five (5) working days after the conclusion of the initial meeting, any party may initiate mediation by written notice to the others. All parties shall attend and participate in the mediation that shall be non-binding and without prejudice. The parties shall first attempt to agree upon a mediator. If agreement cannot be reached on selection of a mediator, the parties shall attempt to agree upon a mediation entity, e.g. AAA, JAMS, etc., to appoint a mediator. If agreement cannot be reached, the parties shall petition the Kern County Superior Court for appointment of a mediator. Costs of mediation shall be borne equally by each party.

(4) Failure of Mediation. If mediation fails to resolve the dispute within 30days the parties are free to pursue other legal remedies.

IN WITNESS WHERE OF, the parties hereto have executed this contract on the _____ day of 2001

BY:
Peter Frick
President, Board of Directors
Kern County Water Agency

BY:
Joe Johnson
President, Board of Directors
East Niles Community Services District

ATTEST:

BY:
Secretary
Kern County Water Agency
P.O. Box 58
Bakersfield, California 93302

BY:
Kelly K. Ulrich, Manager and Secretary
East Niles Community Services District
P.O. Box 6038
Bakersfield, Ca. 93386

BY:
Robert Guzzetta
Vice President, Engineering/Water Quality
California Water Service Company

BY:
Paul G. Ekstrom
Secretary
California Water Service Company

B A K E R S F I E L D

Office of the City Clerk · Ex Officio Clerk of the Council

November 14, 2003

CALIFORNIA WATER SERVICE COMPANY
3725 SOUTH H STREET
BAKERSFIELD CA 93304

RE: City of Bakersfield Document # 03-316

Enclosed is (1) one executed original City of Bakersfield document for your files. If you have any questions you may reach me at (661) 326-3074.

Pamela McCarthy, CMC
City Clerk

By _____
Dawn Taylor
Deputy City Clerk

Enclosure

PMC:dt

S:\Document\Council\CCOcontractorltr.doc

City of Bakersfield · City Clerk's Office · 1501 Truxtun Avenue
Bakersfield, California · 93301
(661) 326-3767 · Fax (661)323-3780

AGREEMENT NO. 03-316

CUSTOMER SERVICE AGREEMENT

NOV 05 2003

KERN DELTA WATER DISTRICT, CALIFORNIA WATER SERVICE COMPANY, AND CITY OF BAKERSFIELD

RECITALS:

A. Kern Delta owns and operates certain canal systems diverting and delivering Kern River water. The canal systems are generally described as the Eastside Canal, Kern Island Canal System, Stine Canal, Farmers Canal, and Buena Vista Canal (collectively serving the "Kern Island Service Area"). These canal systems are unlined and seepage losses ("losses") are incurred in the delivery of diverted water. Kern Delta claims the benefit of such losses in its water balance calculations.

B. The City of Bakersfield ("City") and the California Water Service Company ("Cal Water") (the City and Cal Water are collectively referred to herein as "Customers") provide water service to lands overlying the area traversed by the subject canal systems and, in doing so, produce water from the groundwater basin overlying such lands. The City and Cal Water benefit from the losses since the losses maintain the water quality and levels in the local groundwater aquifer.

C. All parties have determined it would be mutually beneficial for the City and Cal Water to enter into a pilot program with Kern Delta whereby they will become customers of Kern Delta and thereafter purchase losses from Kern Delta to insure the continued availability of such water for the uses and purposes of Customers.

D. All parties have determined that a non-precedent setting pilot program of limited duration would be appropriate to allow the parties to better assess their respective needs with respect to a long-term program.

E. This agreement shall not constitute a precedent for any future agreements respecting the subject matter hereof, nor shall this agreement be used or usable in support of any claims that water rights of any party have been gained or lost as a result of the making or performance of this agreement.

AGREEMENT:

1. On behalf of urbanized lands situated within the historic Kern Island Service Area, Customers will submit an application for utility water service to be provided by Kern Delta. Customers will comply with rules and regulations applicable generally to utility customers of Kern Delta.

2. During the term of this agreement, Kern Delta agrees to make available to Customers, and Customers agree to buy from Kern Delta, seepage losses attributable to the diversion and delivery of Kern River water (other than Kern River water acquired by exchange) through the canal systems from the headgate thereof to a point agreed upon by the parties, which generally will be the southern boundary of the urbanized area of the City.

3. The purchase price of water made available to Customers pursuant to this agreement shall be the utility rate established annually for each canal system by Kern Delta, plus an administrative charge of $2.50 per acre foot of water sold. The administrative charge shall be subject to escalation annually using the same index as is applicable to charges imposed by the City for transportation of water from the Carrier Canal into the Arvin-Edison Canal.

4. The term of this agreement is five (5) years commencing January 1, 2004 and ending December 31, 2008; provided, however, if this agreement is not terminated by written notice given by one of the parties prior to the expiration of the initial term, this agreement shall continue in successive one-year terms thereafter until such notice is given and then it shall terminate on December 31 of the year in which the notice is given.

5. The amount of Kern River water to be purchased by Customers will be the actual amount of canal losses occurring in the urban area during each year of operation. In a given year the amount of water diverted into a canal system will be measured at the headgate and at the agreed urban boundary point and the difference (less upstream agricultural deliveries, if any) will be the amount purchased by Customers. In any year in which there is Kern River entitlement for a given canal system, including years in which the system may not operate for some reason, deliveries to Customers for that year will be based on historic activities representing a pro rata share of the annual canal entitlement. Deliveries to Customers can be made at any time during the **same** calendar year. It is intended that Kern Delta will have maximum flexibility in delivering water to Customers.

6. The delivery point of Kern River water made available to Customers is the point of percolation of such water into the groundwater aquifer via the unlined canals of Kern Delta. Kern Delta will not be required to deliver any water pursuant to this agreement to Customers as a surface supply, but this agreement does not preclude such deliveries in the future subject to separate arrangements.

7. It is understood that Kern Delta has and will continue to claim credit for losses in calculating its water balance and diversion right. The sale of water to Customers shall not diminish or defeat such claim.

8. This agreement does not, nor is it intended to, affect, alter or impair in any manner the water rights of the parties hereto, and this agreement will not and shall not act as a waiver, release, acknowledgment, confirmation or compromise of any rights or interests of the parties. This agreement is temporary in nature and is not precedent setting. In the future, the parties may not defend or assert that any claims, rights or causes of action are time barred or otherwise compromised, waived, released or prejudiced as a result of this agreement. This agreement is made and entered into pursuant to Evidence Code §1152 and may not be introduced in evidence in any legal proceeding, except a proceeding to enforce this agreement.

9. The parties agree that this agreement, and any actions taken pursuant to the agreement, are exempt from environmental review pursuant to the requirements of the California Environmental Quality Act ("CEQA"), under applicable exemptions.

10. The validity of this agreement is subject to and dependent upon the approval of the governing boards or bodies of the parties, and, Cal Water's obligations under this agreement may be further conditioned upon the approval by the California Public Utilities Commission of the terms and conditions of this agreement. The parties hereto may rescind this agreement if they are not able to obtain appropriate governmental approvals for the terms and conditions of the agreement.

[SIGNATURE PAGE FOLLOWS]

IN WITNESS WHEREOF, the parties have executed this document the respective signature dates set forth below.

CITY OF BAKERSFIELD

By: _____
HARVEY L. HALL
Mayor

APPROVED AS TO CONTENT:

By: _____
for GENE BOGART
Water Resources Manager

APPROVED AS TO FORM:
BART J. THILTGEN, City Attorney

By: _____
ALAN DANIEL
Deputy City Attorney

COUNTERSIGNED:

By: _____
GREGORY J. KLIMKO
Finance Director

SIGNATURE DATE:
NOV 07 2003

KERN DELTA WATER DISTRICT

By: _____
J. STANLEY ANTONGIOVANNI
President

By: _____
DAVID C. COSYNS
Secretary

APPROVED AS TO FORM:
McMURTREY, HARTSOCK & WORTH

By: _____
GENE R. McMURTREY

SIGNATURE DATE:
9-26-03

CALIFORNIA WATER SERVICE CO.

By: _____ - Vice Pres

By: _____

SIGNATURE DATE:
10/14/03

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K-2: Wastewater Treatment Plant Preliminary Design Report

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PRELIMINARY DESIGN REORT
PROJECT WARE MALCOMB
WASTEWATER TREATMENT PLANT

Prepared for:
Seefried Industrial Properties

Prepared by:
Kimley-Horn and Associates, Inc.
401 B Street, Suite 600
San Diego CA 92101

June 16, 2023

TABLE OF CONTENTS

1. PROJECT BACKGROUND AND UNDERSTANDING 2
2. PERMITTING REQUIREMENTS 2
3. WWTP ELEMENTS AND SIZING 5
4. OPERATIONS AND MAINTENANCE AND LIFE CYCLE COSTS 9
5. RECOMMENDATIONS & CONCLUSIONS 10

LIST OF FIGURES

Figure 1 Project Location Map
Figure 2 Conventional WWTP Footprint
Figure 3 MBR WWTP Footprint

ATTACHMENTS

Attachment 1 Expected Wastewater Generation Rates and Calculations
Attachment 2 Example of Conventional Pre-Package Treatment System
Attachment 3 Example of MBR Pre-Package Treatment System
Attachment 4 U.S.G.S. Soils Report
Attachment 5 Percolation Basin Sizing Calculations
Attachment 6 Small Domestic Permit (2014-0153)
Attachment 7 2022-23 RWQCB Fee Schedule
Attachment 8 Salt and Nitrate Control Programs Notice of Intent and Guidance
Attachment 9 Opinion of Construction Costs and Operations and Maintenance

PRELIMINARY DESIGN REPORT

To: Jason Quintel, Sean Sheppard, Scott Irwin
Seefried Industrial Properties, Inc.

From: Davie Cowan, PE
Renee Chuang, PE
Melany Vina, EIT
Kimley-Horn and Associates, Inc.

Date: June 16, 2023

Subject: Project Ware Malcomb Wastewater Treatment Plant (WWTP)
Preliminary Design Report

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1. PROJECT BACKGROUND AND UNDERSTANDING

Kimley-Horn has been retained by Seefried Industrial Properties to perform planning and due diligence for the Project Ware Malcomb 2 (Project). The Project will be located in Kern County, south of Bakersfield and approximately 2 miles northwest of the SR-99 and SR-223 intersection (**Figure 1**). The Project will be a sorting facility supporting e-commerce order fulfilment. The Project will on average support two shifts with 732 employees per shift, or 1,464 employees per day, and operate 24-hours a day. During peak e-commerce fulfillment season, the Project will support two shifts with 915 employees per shift, for a total of 1830 employees per day, and operate 24-hours a day. The City of Bakersfield and Kern County do not plan to construct a wastewater treatment facility nearby and the Project will be located over 1 mile from the closest municipal sewer system. An onsite wastewater treatment plant (WWTP) has been proposed to serve this facility in perpetuity. The objective of this report is to investigate proposed WWTP alternatives, design sizing, initial requirements, and other planning level details.

2. PERMITTING REQUIREMENTS

The WWTP will solely serve the Project Ware Malcomb 2 and will not be sized for any future facilities in the vicinity. The Project will employ a maximum of 1830 employees a day based on coordination with the end user. It is estimated that each employee will generate 30 gallons per capita per day (gpcpd). As a result, the expected wastewater

generation rate is 54,900, gallons per day (GPD). The wastewater generation rates and calculations are provided in **Attachment 1**.

Figure 1: Project Vicinity Map

The WWTP will be permitted and regulated by the California Regional Water Quality Control Board (RWQCB) – Central Valley Region 5 (the Region). Since the WWTP will be sized for 54,900 GPD, it can enroll under the Small Domestic Permit (2014-0153) which regulates wastewater facilities that discharge a monthly average of 100,000 GPD of domestic wastewater or less, included in **Attachment 6**.

A Report of Waste Discharge (ROWD) will be prepared for review and approval by the RWQCB to enroll under the Small Domestic Permit. The ROWD will discuss project background, as well as describe treatment and disposal methods method to ensure the plant will meet Federal and State requirements. The regulations are intended to protect

the water quality of surface water and groundwater by regulating the treated wastewater (effluent).

Enrollment in the Small Domestic Permit will require an application fee as well as an annual fee. The 2022-23 Fee Schedule is included in **Attachment 7.** Fees are issued based on the Threat to Water Quality as well as Complexity of the system. During an initial discussion with the RWQCB, it was indicated that the proposed WWTP process and location appear similar to a Category 2B classification. A Category 2B discharger has physical, chemical, or biological treatment systems and could impair the designated uses of the receiving water or violate water quality objectives. This categorization, however, cannot be confirmed until the ROWD process is completed.

If the effluent is treated for re-use such as recycled water for irrigation, rapid injection, or recharge basin, Title 22 requirements under "Regulations Related to Recycled Water" would be applied to the WWTP. At this time, the Project is not proposing to treat the effluent for re-use. If it were, a Title 22 report would need to be submitted in addition to the ROWD for review. Title 22 reports are currently reviewed by the California Department of Health and Safety (DHS) and enforced by the RWQCB. The Title 22 report is intended to discuss additional redundant features for the treatment system, application methods of the effluent, public safety methods, and monitoring and sampling requirements. Re-use of treated wastewater typically requires more frequent monitoring and sampling, as well as operators with higher classification requirements. As a result, recycled water operations and maintenance (O&M) costs can be significant and should be compared to the cost savings of recycled water use.

The WWTP is located within RWQCB Region 5 – the Central Valley Region – which has additional salt and nitrate requirements as part of Resolution R5-2018-0034. These requirements are part of the Region's Nitrate and Salt Control Programs, which are programmatic efforts to improve salts and nitrates in the Region's groundwater basins. Each discharger in the Region must submit a Notice of Intent (NOI) for the discharge of both salts and nitrates respectively, as well as select a compliance pathway for each constituent. The pathways for each nutrient are discussed below:

Salts: The two compliance pathways include: Pathway 1 – the Conservative Salinity Permitting Approach and Pathway 2 – the Alternative Salinity Permitting Approach. Pathway 1 typically requires additional studies for a specific site to demonstrate that there will not be any degradation of the groundwater from the discharger's effluent. The studies will take additional effort and coordination, as well as increase the review and permitting timeline. Pathway 2 requires participation in a Prioritization and Optimization Study as well as a financial contribution to the study. In general, **Pathway 2 is recommended** because the Prioritization and Optimization Study primarily requires an annual fee and is typically a less lengthy permit process.

Nitrates: The two compliance pathways include: Pathway A – Individual Permitting Approach and Pathway B - Management Zone Permitting Approach. Pathway A typically requires additional studies to demonstrate that there will not be any degradation of the groundwater from the discharger's effluent. The studies will take additional effort and coordination, as well as increase the review and permitting timeline. Pathway B requires participation in a Management Zone Permitting Approach Group, a collaborative approach between permittees to address nitrate impacts in their local areas. In general, **Pathway B is recommended** because the Nitrate Management Zone Permitting Approach Group primarily requires an annual fee and is typically a less lengthy permit process.

Attachment 8 includes guidance for the NOI of both programs and detailed descriptions of the pathways summarized above.

3. WWTP ELEMENTS AND SIZING

The WWTP will solely serve the Project. While the expected wastewater generation rate is 54,900 GPD, a peaking factor of 2 is assumed to adhere to the Kern County Standards Division Three – Standards for Sanitary Sewers, as well as provide a safety factor. No future growth is anticipated that would impact the influent volumes to this Project. Should the tenant/owner expand employee counts, the WWTP would need to be re-evaluated for sizing capacity and potentially re-permitted. Various wastewater treatment and disposal methods were investigated and discussed below.

Treatment:

1) Conventional Treatment Plant:

A pre-package conventional wastewater treatment system will typically consist of a flow equalization tank, aeration tank, clarifier tank, disinfection system, and sludge holding tank. The footprint for the pre-package system will be approximately 74 feet x 24 feet. An example is provided in **Attachment 2**. Resultant sludge will then be routed to a sludge processing and dewatering system that will produce concentrated sludge and effluent wastewater. The site will require chemical truck access, waste truck access, and maintenance access. An odor control facility is also recommended. The yard footprint is expected to be approximately 2.4 acres and is shown in **Figure 2**. It is recommended that screen walls be provided for security and aesthetic purposes.

Operations & Maintenance:

A conventional activated sludge WWTP requires a staff of knowledgeable, trained, and certified WWTP operators to learn the required operations to maintain a functioning treatment plant and troubleshoot any issues as they arise.

ENTIRE WWTP, PERCOLATION PONDS, AND ACCESS AREA APPROX 2.4 ACRES

MAINTENANCE VEHICLE ACCESS PATH

PROPOSED FENCE

PERCOLATION POND
AREA=0.36 ACRE
DEPTH=3 FT

PERCOLATION POND
AREA=0.36 ACRE
DEPTH=3 FT

EMERGENCY OVERFLOW STORAGE SYSTEM

GRAVEL

CHAIN-LINK FENCE

PROPOSED DRIVEWAY

UV DISINFECTION

ODOR CONTROL

74' X 12' CONVENTIONAL WWTP FACILITY

40' x 20' EQUALIZATION STORAGE

AC PAVEMENT

WASTE RECEPTACLE AREA

SLUDGE PROCESSING AND STORAGE AREA

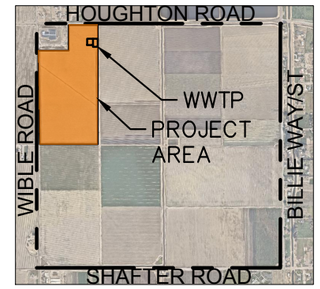
OPERATOR/ELECTRICAL BUILDING (OPTIONAL)

PARKING/STAGING AREA

FUTURE RD

24'

20'



VICINITY MAP
NOT TO SCALE

NORTH

GRAPHIC SCALE IN FEET
0 25 50 100

Kimley»Horn
401 B STREET, SUITE 600, SAN DIEGO, CA 92101
PHONE: 619-234-9411
WWW.KIMLEY-HORN.COM

FIGURE 2 - CONVENTIONAL WWTP FOOTPRINT
PROJECT WARE MALCOMB
KERN COUNTY, CA

Operators and supervisors should be able to check the viability of efficiency of all components in the activated sludge process to prevent system upsets. Maintenance of the treatment plant would be the responsibility of the owner.

2) Membrane Bioreactor Plant:

A pre-package Membrane Bioreactor (MBR) wastewater treatment system will typically consist of a flow equalization storage tank, aeration and anaerobic tanks, a Membrane Bioreactor, and disinfection system. The footprint for the flow equalization tank, the pre-package MBR treatment system, and the disinfection system will be approximately 40 feet by 10 feet, 65 feet by 20 feet, and 42 feet by 8 feet in area, respectively. An example is provided in **Attachment 3**. Resultant sludge will then be routed to a sludge processing and dewatering system that will produce concentrated sludge and effluent wastewater. An odor control facility is also recommended. The site will require chemical truck access, waste truck access, and maintenance access. The yard footprint is expected to be approximately 2.4 acres and is shown in **Figure 3**. It is recommended that screen walls be provided for security and aesthetic purposes.

Operations & Maintenance:

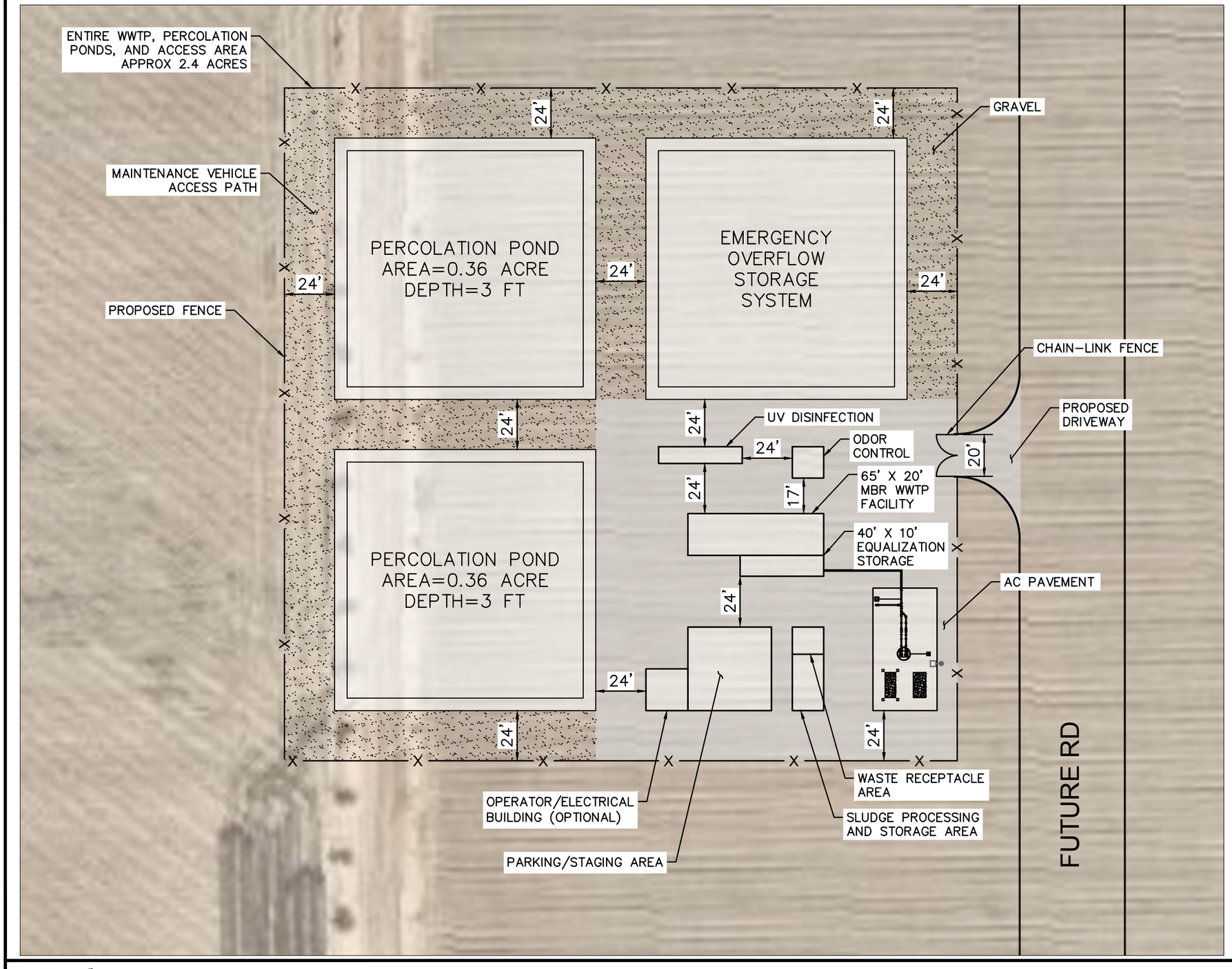
A staff of knowledgeable, trained, and certified operators and supervisors are required to maintain successful operation of the package WWTP. Operations for package MBR WWTPs can be straightforward for operators, as the manufacturer can provide maintenance and support remotely. The manufacturer of the package MBR WWTP can offer the fabrication, assembly, and wet testing of the plant and equipment prior to shipping to the project site.

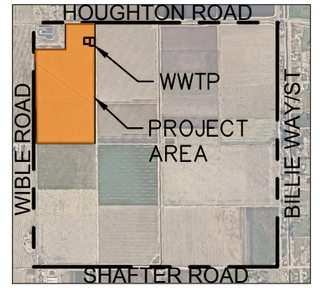
Power Requirements:

The proposed treatment systems will require power to be provided by the future adjacent substation. At this stage of the design process, the total power requirements for the WWTP and sewer lift station are preliminary. The power requirements will vary based on the selected treatment method and associated mixers, blowers, pumps, generator selection, and other equipment. At this stage, Kimley-Horn would expect a 400 Amp, 480 Volt 3-phase service for the future WWTP and associated lift station. This will need to be verified as part of the final design process.

Disposal Methods:

Wastewater by-products will include sludge and effluent. Sludge will be processed to further concentrate the solids for final disposal. Solids will be collected and stored, and regularly hauled offsite by a licensed handler.
The treated wastewater can be disposed through a variety of methods, as follows:





VICINITY MAP
NOT TO SCALE

NORTH

GRAPHIC SCALE IN FEET
0 25 50 100

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FIGURE 3 - MBR WWTP FOOTPRINT
PROJECT WARE MALCOMB
KERN COUNTY, CA

1) Percolation Pond:

A percolation pond collects treated wastewater effluent, and the effluent is disposed of by infiltration into the local soils. The percolation ponds are sized to infiltrate one day's worth of effluent for normal operations, as well as rainfall accumulated during a 100-year 24-hour storm event, within 48 hours to avoid standing water conditions per the RWQCB's Small Domestic Permit in **Attachment 6**. Additionally, two percolation ponds are typically installed to rotate between ponds and maintain pond efficiency as well as to mitigate breeding of mosquitos. Installing two percolation ponds also provides redundancy for long term maintenance.

At the time of this report, a geotechnical report with infiltration data had not been prepared. The soil is expected to be Type B soil based on United States Geological Survey (U.S.G.S.) Soils data (see **Attachment 4**). As a conservative sizing measure, the lowest infiltration rate for Type B soils of 0.57 inches per hour was used to size the percolation pond footprint. A safety factor of 2 was applied in the case that the soil could not infiltrate at 0.57 inches per hour, which results in an effective infiltration rate of 0.285 inches per hour. Once the geotechnical report is complete, the percolation pond size will be refined based on the site soil conditions. *Equation 1* was used to determine the area of the percolation ponds.

(Equation 1): $$A = \frac{V}{t * effective\ infiltration\ rate}$$

A=Area of Percolation Pond
V=Volume of Effluent in a Day plus Rainfall Volume from a 100-Year 24-hour Storm Event
t=time of infiltration
Effective Infiltration Rate

The calculated percolation pond area to treat the desired volume is 0.3 acres. The percolation ponds would require a depth of 1 foot in order to meet drawdown time requirements and 2 feet of freeboard per the Small Domestic Permit, for a total of 3 feet of depth. To account for side slopes and freeboard, the total estimated area for each percolation pond will be 0.36 acres. Detailed calculations are provided in **Attachment 5**. A fence or screen wall is required around the perimeter of the site that contains the percolation ponds. Site access for the percolation must be limited to only trained operators and not the general public to avoid potential contact.

Since percolation ponds are solely intended for disposal, Title 22 regulations are not applicable. Only a ROWD and review by the RWQCB would be required for the Small Domestic Permit. Groundwater monitoring may not be required depending on the groundwater basin's sensitivity to various constituents that could degrade the water quality as well as WWTP location.

Percolation ponds are designed to store ancillary stormwater in order to mitigate the likelihood of overflow and provide a factor of safety during a large storm event. However, they are not designed to be designated stormwater detention facilities. Overall, stormwater and treated wastewater facilities must be kept separate per State Requirements.

2) Recharge Basin:

Recharge basins, similar to percolation ponds, collect effluent for deliberate infiltration into the native soils and recharge groundwater basins. Recharge basins are sized in the same manner as percolation ponds. The calculated percolation pond area to treat the desired volume is 0.3 acres. To account for side slopes and freeboard, the total estimated area for each percolation pond will be 0.36 acres with a depth of 3 feet. See *Equation 1* and **Attachment 5** for detailed calculations. A fence or screen wall is required around the perimeter of the yard that contains the recharge basins.

Unlike percolation ponds, recharge basins are intended to recharge the existing groundwater quality basins. Due to the intended re-use, recharge basins are considered a recycled water application and would require compliance with all Title 22 regulations and review of Title 22 reports. The DHS and RWQCB would have to review the ROWD and Title 22 reports before the WWTP could be enrolled under the Small Domestic Permit. The Title 22 requirements include additional redundant features for the treatment system, application methods of the effluent, public safety methods, and monitoring requirements. Additionally, groundwater monitoring would be required.

3) Irrigation:

The treated wastewater effluent could be used as a source of irrigation water for either onsite landscaping or other offsite uses. Since the effluent would have an intended re-use purpose, this approach would require compliance with all Title 22 regulations and review of Title 22 reports. The DHS and RWQCB would have to review the ROWD and Title 22 reports before the WWTP could be enrolled under the Small Domestic Permit. Title 22 requirements include additional redundancy in the treatment system and other facilities, additional sampling and analysis, additional signage requirements, and compliance with regulations on how the recycled water can be applied by the end-user. Additionally, groundwater monitoring will be required. Irrigation onsite or offsite will also require additional piping, a pump station, and potentially a recycled water storage tank.

Percolation ponds are the recommended method of treated effluent disposal. This method does not require compliance with Title 22 regulations and submittal of Title 22 reports.

It is not recommended to permit the effluent under Title 22 at this time because Title 22 standards include further redundancy, higher standards of effluent quality, groundwater

monitoring, stricter sampling and analyses, and more. The Title 22 review process would increase the permitting timeline for the Project and may require public hearings and notification processes as well.

It shall be noted that designing to Title 22 requirements does allow flexibility for the owner to obtain a Title 22 permit in the future without major upgrades to the system, if a need for irrigation arises.

4. OPERATIONS AND MAINTENANCE AND LIFE CYCLE COSTS

Kimley-Horn has prepared conceptual opinions of probable cost to evaluate Capital Costs, Operations & Maintenance (O&M) Costs, and overall life cycle analysis costs for both Conventional and MBR WWTPs.

Attachment 9 includes estimates for the anticipated construction and operation and maintenance costs associated with both treatment alternatives, assuming percolation ponds as the method of treated effluent disposal.

Operation and maintenance costs include but are not limited to:

- Equipment required for routine maintenance or replacement of damaged parts of all facilities.
- Consumables and chemicals to operate the treatment plant, disinfection system, sludge processing facility, and odor control facility.
- Labor for routine operations, required sampling/analysis, maintenance, and compliance and reporting.
- Electrical power to operate all facilities.
- Hauling and disposal of sludge waste to a licensed handler.

A summary of the costs for Capital Costs, O&M and Total Life Cycle Cost Analyses are provided *Table 1* below:

	Capital Costs	Annual O&M Costs (no escalation)	20-Year Life Cycle Analysis
Conventional WWTP	$5,670,000	$650,000	$18,670,000
MBR WWTP	$6,370,000	$500,000	$16,370,000

Table 1 – Summary of Capital Costs, O&M and Life Cycle Analysis

In general, conventional treatment facilities require more skilled operators and significantly more sampling and monitoring, increasing long-term operation and

maintenance costs. Although pre-package MBR systems have higher upfront costs, it is estimated that the cost difference will be recovered within 5 years of operations.

Kimley-Horn has no control over the cost of labor, materials, equipment, or over the contractor's methods of determining prices or over competitive bidding or market conditions. The opinions of probable costs provided in **Attachment 9** are based on the information known to Kimley-Horn at this time and represent only Kimley-Horn's judgment as a design professional familiar with the construction industry.

Kimley-Horn cannot and does not guarantee that proposals, bids, or actual construction costs will not vary from its opinions of probable costs.

5. RECOMMENDATIONS AND CONCLUSIONS

The proposed WWTP will be sized to treat a monthly average of 54,900 GPD of wastewater generated by the Project. It is recommended to install a pre-package MBR system. Compared to a pre-package conventional wastewater treatment system, a pre-package MBR system has a smaller footprint, requires less maintenance and sampling/monitoring, and has more efficient sludge production resulting in decreased frequency of hauling solid waste offsite; overall decreasing long-term operation and maintenance costs.

The site shall also include an influent pump station, a sludge processing and storage area, an odor control facility, and a small building for electrical and operations and maintenance equipment. It important the site has lighting as well as drive aisles suitable for maintenance vehicles, chemical trucks, and waste hauling trucks to maneuver comfortably around the percolation ponds and all other onsite treatment facilities.

Percolation ponds are sized for a monthly average of 54,900 GPD and rainfall resulting from 24 hours of a 100-year storm event. They are recommended to eliminate Title 22 requirements and additional DHS review that could extend the permitting process and to potentially avoid groundwater monitoring requirements. Two percolation ponds are recommended to maintain infiltration efficiency, prevent standing water, and provide redundancy in the case of maintenance or shutdowns. Finally, an emergency overflow storage basin with a liner is recommended in the case of an emergency event; the basin will be sized to match the percolation ponds but is not intended for infiltration.

It is anticipated that this approach would incur $6,370,00 in construction costs and $500,000 of annual operation and maintenance costs, per **Attachment 9**.

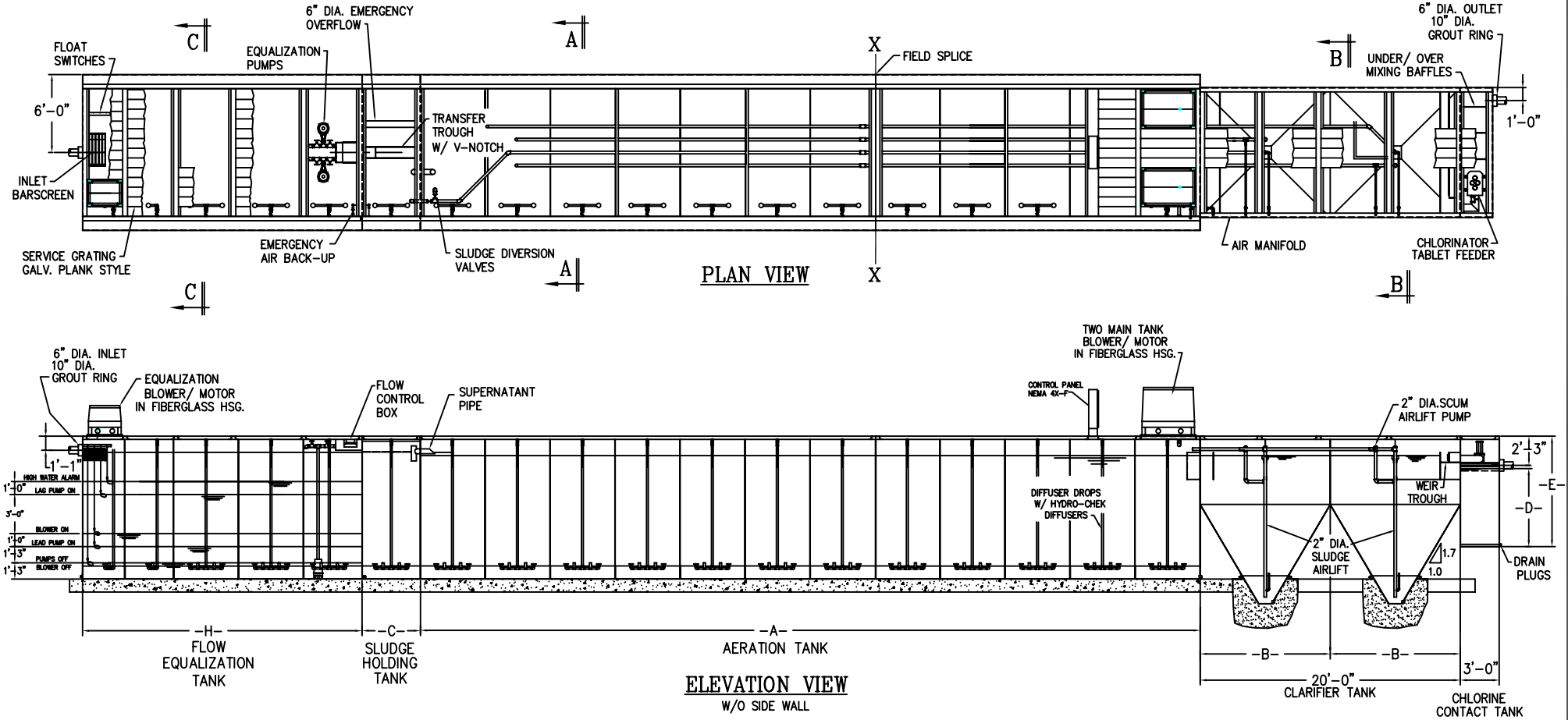
ATTACHMENTS

ATTACHMENT 1: EXPECTED WASTEWATER GENERATION RATES AND CALCULATIONS

Project Ware Malcomb
Expected Wastewater Generation Calculations

Number of Employees During Non-Peak Operations	1,464	employees/day
Number of Employees During Peak Operations	1,830	employees/day
Wastewater Generation per Employee	30	gallons/day
Total Wastewater Generated per Day (Non-Peak Operations)	43,920	gallons/day
Total Wastewater Generated per Day (Peak Operations)	54,900	gallons/day

ATTACHMENT 2: EXAMPLE OF CONVENTIONAL PRE-PACKAGE TREATMENT SYSTEM



PLANT MODEL NUMBER	DESIGN FLOW GPD	AERATION TANK VOLUME	CLARIFIER TANK VOLUME	SLUDGE TANK VOLUME	CHLORINE CONTACT TANK-VOL.	FLOW EQ. TANK VOLUME	FLOW EQ. BLOWER		MAIN AIR BLOWER	
							HP	CFM	HP	CFM

OPTIONAL EQUIPMENT/ MATERIALS/TANKAGE

FULL TANK GRATING	ANCHOR BRK'TS	COMMINUTOR	U V DISINFECTION
BAR TYPE GRATING	MAGNESIUM ANODES	GRINDER PUMPS	
WELDED HANDRAILS	SCH.40 STL. DROP PIPES	PUMP GUIDE RAILS	REMOTE MOUNTED
BOLTED HANDRAILS	GALVANIZED PIPING	EPOXY PAINT SYSTEM	BLOWERS & CONTROLS
HANDRAIL TOEPLATES	STN. STL. DIFFUSERS	DE-CHLORINATION	DOSING TANK
LADDERS/ STAIRWAYS	FROTH SPRAY SYSTEM	GAS CHLORINATION	TERTIARY FILTERS

NOTES:

1.) ALL EXTERNAL PIPING TO THE TANK IS TO BE SUPPLIED AND INSTALLED BY THE INSTALLATION CONTRACTOR.
2.) FOUNDATION PAD MATERIALS AND DESIGN IS DETERMINED BY THE PROJECT ENGINEER AFTER SOIL ANALYSIS IS COMPLETED
3.) MATERIALS FOR ANCHORING OF TANK TO THE FOUNDATION PAD IS TO BE SUPPLIED BY OTHERS
4.) INCOMING ELECTRICAL POWER IAND CONNECTION TO THE THE CONTROL PANEL IS BY THE ELECTRICAL CONTRACTOR.
5.) AERATION TANK MUST HAVE A FIELD SPLICE ON THE X-X AXIS AND WILL REQUIRE FIELD WELDING DUE TO SHIPPING LIMITATIONS. ANY HANDRAILS, LADDERS OR EQUIPMENT MOUNTED ON TOP OF THE TANK MUST SHIP LOOSE FOR FIELD INTALLATION.

REV.	DATE	DESCRIPTION	APPROV.
3	3-26-13	UPDATED BLOWERS AND DROP PIPES	JJM
2	12-12-12	UPDATED EQUALIZATION PUMP PIPING, & GRATING	JJM

SEE DWG. P08B-ESC FOR SECTION VIEWS

PCS Pollution Control Systems, Inc.
5827 Happy Hollow Ln, Suite 1B
Milford, Ohio 45150
(513) 831-1165
E-mail PolConSys @ aol.com

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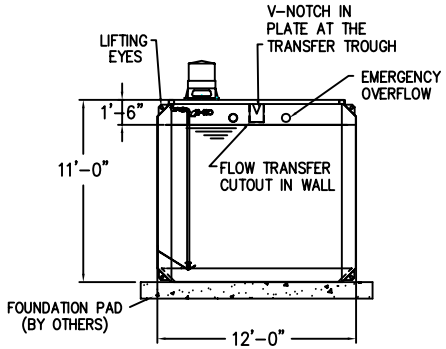
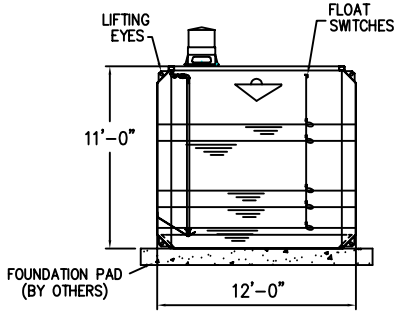
PREFABRICATED PACKAGE WASTEWATER PLANT

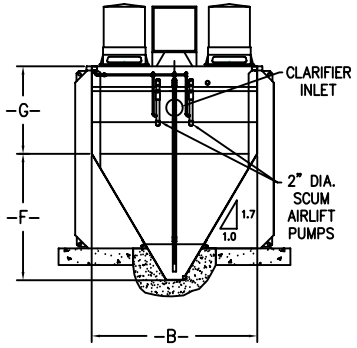
SCALE:	NTS	PROJECT NO.			
DRAWN BY:	JJM	DATE:	6/30/98	SHEET	DRAWING NO.
CHECKED BY:	JJM	DATE:	7/1/98	1 OF 2	P08A-ESC



VIEW A-A



VIEW C-C



VIEW B-B

SEE DWG. P08A-ESC FOR PLAN AND ELEVATION VIEW.

NOTES:

1.) ALL EXTERNAL PIPING TO THE TANK IS TO BE SUPPLIED AND INSTALLED BY THE INSTALLATION CONTRACTOR.

2.) FOUNDATION PAD MATERIALS AND DESIGN IS DETERMINED BY THE PROJECT ENGINEER AFTER SOIL ANALYSIS IS COMPLETED

3.) MATERIALS FOR ANCHORING OF TANK TO THE FOUNDATION PAD IS TO BE SUPPLIED BY OTHERS

4.) INCOMING ELECTRICAL POWER IAND CONNECTION TO THE THE CONTROL PANEL IS BY THE ELECTRICAL CONTRACTOR.

REV.	DATE	DESCRIPTION	APPROV.
2	3-22-13	UPDATED DROP PIPES	KP
1	12-12-12	UPDATED EQUALIZATION PUMP PIPING, DROP PIPES & GRATING	CRM

PCS Pollution Control Systems, Inc.
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Milford, Ohio 45150
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PREFABRICATED PACKAGE WASTEWATER PLANT

SCALE: NTS	PROJECT NO.		
DRAWN BY: JJM	DATE: 6/30/98	SHEET	DRAWING NO.
CHECKED BY: JJM	DATE: 7/1/98	2 OF 2	P08B-ESC

ATTACHMENT 3: EXAMPLE OF MBR PRE-PACKAGE TREATMENT SYSTEM

MEMPAC-M1, MEMBRANE PACKAGE ESTIMATE

PROJECT NAME	**Bakersfield-Kern County Dev**	**ESTIMATE DATE**	**6/2/23**
CONTACT NAME	**Renee Chuang, PE**	**PROJECT NUMBER**	**CL21-068**
CONTACT EMAIL	**Renee.Chuang@kimley-horn.com**	**REVISION NUMBER**	**1**
CONTACT NUMBER	**619 744 0113**	**REVISION DATE**	**N/A**

1 PROJECT INFORMATION

The project is designed as a single treatment train.

1.1 PROCESS FLOW DESCRIPTON

The following describes the process flow of the MEMPAC-M unit:

Headworks

The influent flow will pass through an influent flow meter prior to discharge into an influent screen. The influent screen is a 2MM fine screw screen compactor. Screened solids will be discharged into an endless bagger unit to be dumped into a client provided receptacle. Screened influent will discharge into the anoxic chamber.

Biological Nutrient Removal

Screened influent will mix with return activated sludge (RAS) which has gravity-returned from the pre-anoxic chamber to form “mixed liquor.” Nitrates conveyed by RAS flow from the aeration basin to the oxygen-lean anoxic chamber serve to oxidize some of the influent biological oxygen demand (BOD) by which process these nitrates are converted to nitrogen gas, ultimately lowering effluent total nitrogen (TN).

Secondary Treatment

Mixed liquor proceeds from the anoxic process to the aeration process where nitrification occurs by which process BOD is oxidized and ammonia is converted to nitrates, ultimately lowering their respective effluent concentrations. This is achieved by introducing compressed air through fine bubble diffusers on a carefully designed aeration network.

Membrane Clarification

At the end of the activated sludge process, wastewater is pumped from the aeration process to the individual membranes cassette chambers using forward activated sludge (FAS) pumps. These membrane cassettes have a vacuum applied across them by permeate pumps, pulling clear water “permeate” through the membranes and leaving solids behind, outside of the membranes. The permeate pumps convey their permeate to a “clear well” reservoir of water used for periodic membrane cleaning, i.e. “backpulsing,” and clean-in-place (CIP) procedures which are fully automated.

Waste Sludge

Solids concentration will be monitored by an on-line suspended solids meter located in the FAS Chamber. A sludge wasting pump will remove a calibrated portion of activated sludge to an exterior sludge storage (by others).

2 PROJECT DESIGN

The following are the design parameters of the supplied Cloacina equipment:

2.1 Influent Parameters

Daily Flow (Q)	Average Annual (AAF)	Maximum Daily (MDF)	Peak Daily (PDF)	Peak Hour (PHF)
Peaking Factor	1.0	1.5	2.0	4.0
Gallons per Day	55,333	83,000	110,667	
Gallons per Minute	38	58	77	154

Organic Concentration	BOD5	TSS	TKN	NH3	P
Influent (mg/l)	360	350	58	37	10
Screen Removal %	4%	9%	0%	0%	2%
Screened Influent (mg/l)	346	319	57	37	10

TOTAL ORGANIC LOADING (lbs/day)	BOD_5	TSS	TKN	NH3	P
AAF	159	147	27	17	5
MDF	239	220	41	26	7

Effluent Limitations	BOD5	TSS	TKN	NH3	P
Effluent (mg/l)	<10	<10	<10	<5	N/A

*Engineering to verify once under contract. During due diligence Cloacina may find the need to modify processes and/or scope to achieve effluent requirements.

2.1.1 Flow Definitions

Wastewater flow can be described in a multitude of ways, related to varied time periods, wet and dry weather, seasonal populations, and permit definitions. To ensure that the estimated package meets the project needs, the following terms **shall** be used to define the capacity of the proposed system:

Term	Definition
Average Annual Flow (AAF)	The average flow of a one-day period which is the influent volume in one year divided by the number of days in that year. AAF is typically the nominal capacity of a plant.
Maximum Daily Flow (MDF)	The maximum daily flow occurring over a 24-hour period. Cloacina utilizes MDF for maximum biological design and the maximum sizing of the treatment equipment.
Peak Daily Flow (PDF)	The single greatest flow of a one-day (24hr) period in a year. PDF serves for design of plant hydraulic capacity. Flow rates greater than PDF, including Peak Hour Flow (defined below), are to be equalized to PDF by influent storage (by others) that augments the treatment plant.
Peak Hour Flow (PHF)	The flow over a 60-minute period which is the influent flow of the highest flow hour in the Peak Day. For applications in which influent is screened prior to equalization, screens shall be sized for PHF. In the absence of a PHF specified by the Client, PHF will be calculated as a function of the plant's service population per "Metcalf & Eddy".

2.1.2 Influent Loading

The following outlines the organic loading used to develop this estimate.

Term	Definition
Maximum Daily Flow (MDF) Loading	It is assumed that the influent concentrations outlined below are applied 100% to the Maximum Day Flow (MDF), unless otherwise indicated.
PEAK Daily Flow (PDF)	It is assumed that no additional influent constituent loading is contributed by flows more than MDF. Loading defined for MDF is assumed to be diluted at PDF such that PDF loading shall equal MDF loading multiplied by the ratio of MDF to PDF.
PDF Equation	• $BOD_{PD} = BOD_{MMDF} \times \frac{MDF}{PDF}$ • $TSS_{PD} = TSS_{MMDF} \times \frac{MDF}{PDF}$ • $TKN_{PD} = TKN_{MMDF} \times \frac{MDF}{PDF}$

2.2 PROCESS DESIGN PARAMETERS

Activated Sludge	Design Value (MMF)
Volume Under Aeration (gal)	20,368
Hydraulic Residence Time (hrs)	7.7
Design MLSS (mg/L)	9,000
Design MLSS (lbs)	2,277
MLSS/MLVSS Ratio	0.69
Design MLVSS (lbs)	1,571
Design F/M Ratio	0.15
Design SRT (days)	14.2
Return Activated Sludge Factor (x Q)	4.0
Return Activated Sludge Rate (gpm)	231

Aeration	Design Value (MMF)
Project Altitude (ft)	400
lb O_2 / lb BOD	1.25
lb O_2 / lb NH_3-N	4.60
Design Air Requirement (SCFM)	127
Design Aeration Residence Time (hrs)	5.4

Nutrient Reduction	Design Value (MMF)
Design Anoxic Residence Time (hrs)	2.22

Waste Activated Sludge (WAS)	Design Value (MMF)
lbs WAS / lbs Influent BOD	0.67
Design lbs WAS / day	160.4
Design WAS Concentration (mg/L)	11,250
Design WAS Production Rate (gpd)	1,708

Membrane Clarification	Each Cassette	N	N+1
Cassettes Supplied	1	1	2
Membrane Area (ft^2)	6,880	6,880	13,760
Flux at AAF ($gal/ft^2/day$)	8.0	8.0	4.0
Flux at MMF ($gal/ft^2/day$)	12.1	12.1	6.0
Flux at PDF ($gal/ft^2/day$)	16.1	16.1	8.0
PEAK Permeation per Cassette (gpm)	83	83	42
Design Air Flow (DCFM)*	65	65	130
Estimated Production Time (min/day)	1,329		
Membrane Cassette Type	ZW500D-16/16		
Total Cassettes Supplied	2		

*Design air flow based on LEAP Aeration Protocol

Chemical Usage	Sodium Hypochlorite	Citric Acid
Gallons per CIP Cycle	3.21	2.29
Gallons per Recovery Clean	1.01	0.84
Estimated Gallons per Year	336	120

2.3 Package Parameters

Package Dimensions	Length	Width	Height
Outside Dimensions of Package Tanks and Skids (ft)	60	10	14

Electrical Requirements	Voltage	Phase	Amperage
The FLA's are approximate and subject to change based on actual options/upgrades chosen.	480	3	200

3 SCOPE OF SUPPLY

3.1 Headworks

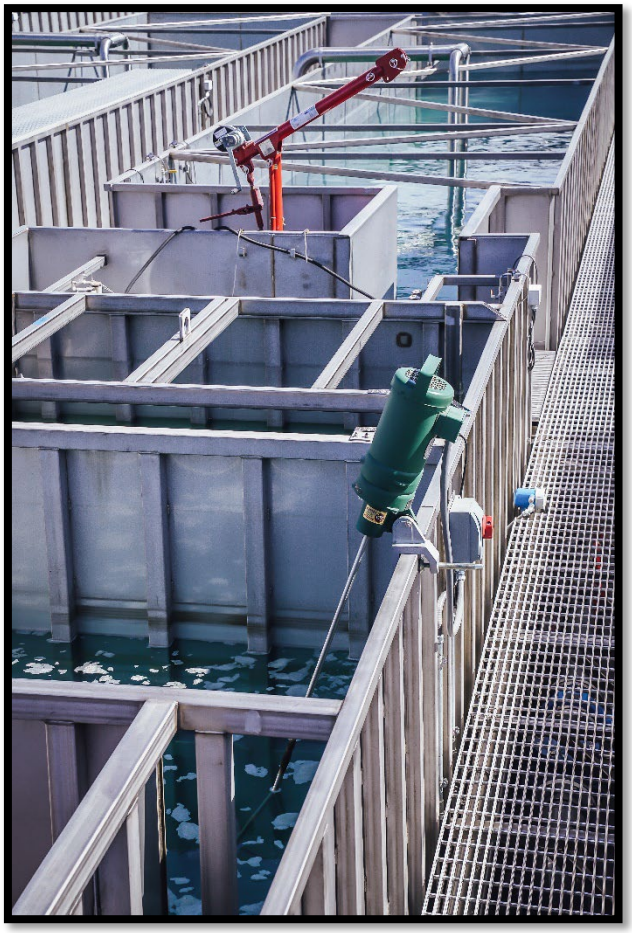
Equipment	Description	Quantity
Influent Flowmeter	Endress+Hauser, electromagnetic flowmeter	1
Influent Screen	2 mm fine bar screen with washer compactor rated at 100 GPM	1

3.2 Anoxic Process

Equipment	Description	Quantity
Level Sensor	Endress+Hauser hydrostatic level transducer	1
ORP Probe	Endress+Hauser, ORP probe	1
Anoxic Mixer	Lightening, top mount mixer	1

3.3 Aeration Process

Equipment	Description	Quantity
Level Sensor	Endress+Hauser, level transducer	1
Dissolved Oxygen Sensor	Endress+Hauser, DO Sensor	1
Aeration Blower	FPZ regenerative blower	2
Blower Pressure Sensor	Endress+Hauser, pressure sensor	4
Aeration Diffusers	OTT, Magnum 2000 Flexsil fine bubble	18



3.4 Membrane Process

3.4.1 Forward Activated Sludge (FAS) Process

Equipment	Description	Quantity
Level Sensor	Endress+Hauser hydrostatic level transducer	1
FAS Pump	Submersible pump with slide rail and base	2
FAS Flowmeter	Endress+Hauser, electromagnetic flowmeter	2

3.4.2 Membrane Equipment

Equipment	Description	Quantity
Level Sensor	Endress+Hauser hydrostatic level transducer	2
Membrane Cassette	SUEZ ZW500S	2
Permeate Pump	Positive Displacement Rotary Lobe Pump	2
Permeate Flowmeter	Endress+Hauser, electromagnetic flowmeter	2
Permeate Pressure Sensor	Endress+Hauser, pressure sensor	2
Air Scour Blower	FPZ regenerative blower	2
Blower Pressure Sensor	Endress+Hauser, pressure sensor	4
Mass Air Flowmeter	Endress+Hauser, thermal mass flowmeter	2

3.4.3 Clean in Place (CIP) Equipment

Equipment	Description	Quantity
Clear Well Level Sensor	Endress+Hauser hydrostatic level transducer	1
Chemical Pump	Peristaltic Metering Pump	4
Injector Solenoid	Hayward SV, True union solenoid valve	4

3.4.4 Waste Activated Sludge (WAS) Process

Equipment	Description	Quantity
MLSS Sensor	Endress+Hauser, TSS Sensor	1
WAS Pumps	Progressive cavity pump	1
WAS Flowmeter	Endress+Hauser, electromagnetic flowmeter	1

3.5 Effluent Equipment

Equipment	Description	Quantity
Effluent Flow Meter	Endress+Hauser, electromagnetic flowmeter	1
Effluent Turbidity	Endress+Hauser, Turbidity Sensor	1

3.6 Utility Equipment

Equipment	Description	Quantity
Probe Wash Solenoid	ASCO Solenoid valve	1
Water Regulator	ZURN Water pressure regulator	1
Water Y-Strainer	HIPCO Y-Strainer	1

3.7 Electrical and Control Equipment

Equipment	Description	Quantity
Control Panel	U.L. Listed 480V, 3-Phase, NEMA 4X, Stainless Steel Panel	1
HMI	Integrated touch screen interface	1
Control Transmitter	Endress+Hauser Liquiline, digital transmitter	1

4 Project Support

4.1 Documents

Document	Description	Quantity
Electrical Control Panel	Equipment drawings	1
Project Submittals	Detailed information for all supplied equipment	1
Factory Acceptance Testing Documents	Detail of all equipment tests prior to shipping	1
Equipment Manual	Detailed Operations and Maintenance Manual	1

4.2 Labor

Scope	Description	Hrs
On-site Startup	On-site startup and commissioning	32
Operator Training	On-site Operator training	8
Remote Support	Phone and web support after completion of startup	20

5 Optional Equipment

5.1 Package Lift Station

Cloacina will provide a packaged lift pump station. The fiberglass pump station will be supplied complete with pumps, slide rails, attached valve vault and controls.

EQUIPMENT	DESCRIPTION	Quantity
Fiberglass Vessel	96” Diameter X 144” Deep pump well	1
Valve Vault	48” X 48” attached valve vault	1
Attached Pipe and Valves	6” PVC piping, check valves and isolation valves	2
Hardware	316 SS studs, hardware, rails and brackets	2
Connection	6” inlet hub (link seal)	1
Non-Traffic Rate Lid(s)	Attached aluminum lid with access hatches	2
Lift Pump	Non-clog pump rated at 250 gpm @ 35’ TDH	2
Pump Base	Attached pump base	2
Controls	Level transducer	1
Controls	Redundant/Alarm Floats	3
Control Panel	Simple duplex control panel with no remote monitoring	1

Note: Assumes lift station will be installed within 200ft of screen inlet.

5.1.1 Lift Station Panel Upgrade

Cloacina can upgrade the Remote-Control Panel to the following and the Lift station controls will be integrated into the MCC supplied with the Cloacina package, utilizing remote I/O:

EQUIPMENT	DESCRIPTION	Quantity
Remote Control Panel	NEMA-4X Control Panel with remote I/O	1

Note: This option is recommended for visibility if there is no equalization storage

5.2 Equalization Storage

Cloacina can provide Equalization tanks integrated and controlled by the Cloacina control panel. *See Figure*

Equipment	Description	Quantity
Equalization Tank	Stainless Steel Equalization Tank (10'W X 10'H X 40'L) for about 32,000 gallons of storage each tank. See *Figure.*	1
Aeration Equipment	Aeration Blower and diffusers Factory installed necessary to keep stored influent fresh.	2 Lot
Submersible Transfer Pumps	Transfer pumps necessary to return stored influent to Phase 1 anoxic process factory mounted on slide rail systems and pre-plumbed with tank interconnects to influent line for metering	2
Controls	All necessary electrical components, sensory, controls and programming necessary to operate Phase 1 EQ equipment in panel expansion of MCC	1 lot
Fittings	3" SS flanges for odor scrubber ducting	2

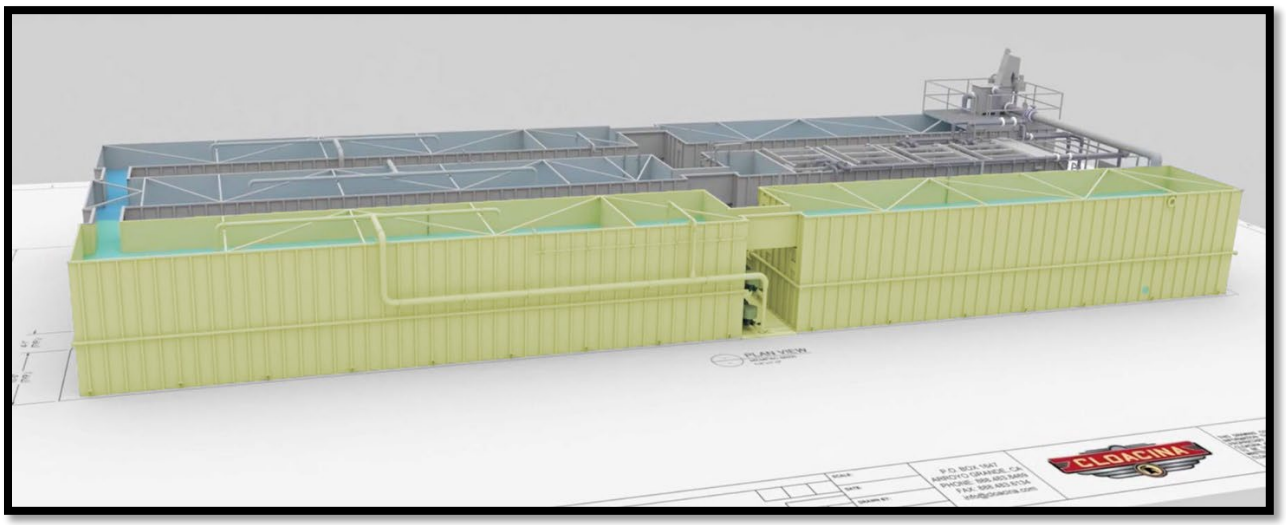


Figure. Example stainless steel equalization tanks provided by Cloacina.

5.3 Duplex Screen on Single Platform

5.3.1 Cloacina will provide a factory installed, completely redundant influent screen. *See Figure*

Equipment	Description	Quantity
Redundant Screen	Self-Cleaning 2MM perforated screen with auger, compaction zone, chute extension, spray wash system and endless bagger system.	1
Installation/Integration	Includes all hardware necessary for mounting on the Cloacina primary screen platform, platform extension, additional grating and handrail, electrical disconnect, integration, controls and Factory Acceptance Testing of equipment.	(1) Lot

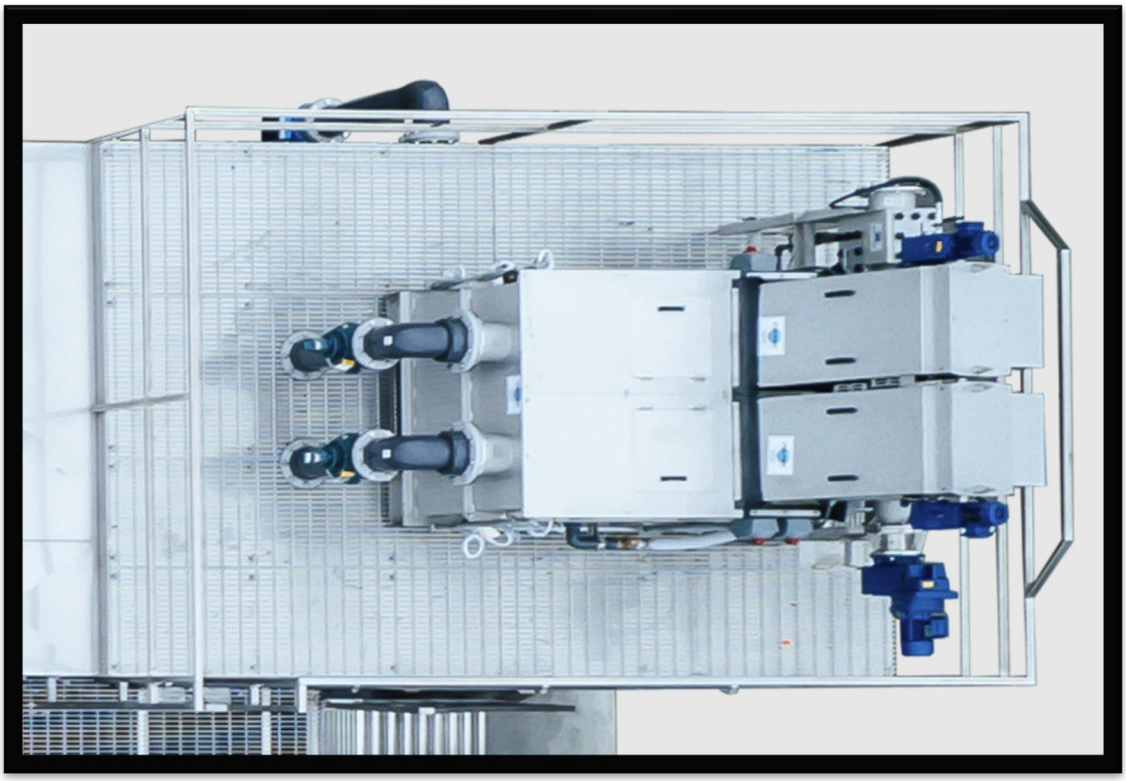


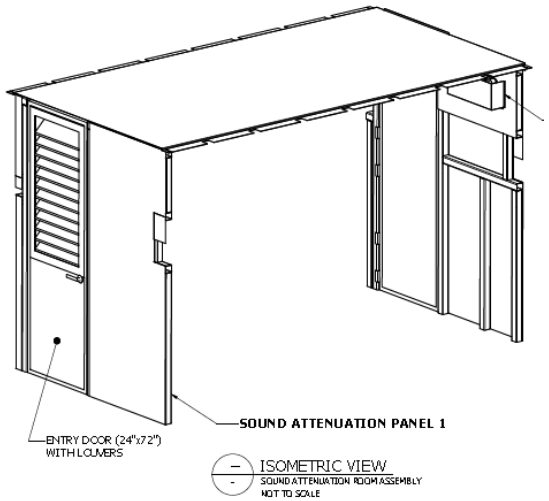
Figure. This is an example Duplex Screen arrangement and is not project specific.

5.4 Sound Attenuated Blower Room

Cloacina will enclose the area between the Anoxic and Aeration Tanks to create an equipment room.

Equipment	Description	Quantity
Enclosures	(1) wall panel with louver, (1) wall panel with man door and lockset, (1) roof panel to go under catwalk/grating.	(1) Lots
Door(s)	30” steel access door	1
Insulation	Sound board mounted on all interior wall/surfaces between verts of the blower corridor walls	(1) Lots
Ventilation	ventilation fan with shutters, louvers and thermal calculations	(1) Lots

5.4.1 ISO View of Sound Enclosure Room



5.5 Effluent Disposal Pump

Effluent Disposal Pump Skid

In addition to the treatment package outlined in this estimate, Cloacina can provide integrated equipment necessary to pump treated effluent to downstream disposal.

Effluent Pump Design

Equipment	Description	Quantity
Effluent Pumps	Multi-Stage Centrifugal Vertical Pumps (TBD)	2
Instrumentation	Effluent Flow Meter	1
Instrumentation	Level Transducer	1
Effluent Pressure Sensor	Endress+Hauser Cerabar, pressure sensor	1
Associated Valves	Isolation Valves, Check Valves, and piping	1
Control Panel	U.L Listed 508A NEMA4X Stainless Steel Control Panel	1

5.5.1 If you cannot flow by gravity out of the clear well downhill to your discharge location, then you have the option to select one of the below effluent pumping skids with associated pricing:
Pricing valid for specific duty point below. Change in duty point will result in additional engineering to finalize scope.

Flow (GPM):	Qty of Pumps	Duty Point	Inlet Size:	Outlet Size:	Price:
0-50	2	60’	2	2	$66,670.00
25-100	2	60’	3	3	$68,150.00
75-150	2	60’	3	3	$70,820.00
100-200	2	60’	4	4	$73,740.00
150-300	2	60’	4	4	$73,740.00
250-750	2	60’	6	6	$82,520.00

5.6 Low-Flow Configuration

Cloacina can provide a low-flow solution which allows the system to operate as low as 15% of the average daily flow. Any typical flow rate less than 20% of the average daily flow will require additional evaluation from engineering. The Low Flow package includes the following:

- Extended Mixer Shaft(s)
- Process modeling/simulations
- Low level interconnect lines
- TEBC motors for permeate systems for maximal turn-down

5.7 UV Disinfection

Cloacina can provide a separate package UV Disinfection system installed on a stainless-steel skid. The skid includes a break tank and cooling loop system in addition to the necessary valves, piping, and instrumentation integrated into the MEMPAC Controls system for alarming, graphing and trending of the UV Disinfection components.

Design Parameters:

Parameter	Value	Unit
PEAK Daily Flow Rate	37	gpm
%UVT	65	%
Dose	80	mj/cm2
Reactor Redundancy	100	%

Equipment	Description	Quantity
Skid	304SS skid with pipe supports, (12'L x 8'W)	1
Cooling loop system	Cooling pump with piping and valves necessary to return flows during low flow periods to reduce bulb striking.	(1) system
Break Tank	Effluent will flow by gravity to and from the break tank sized appropriately for the UV cooling loop system.	1
UV Reactor	Medium Pressure Reactor	2
Instrumentation	Turbidity Probe and Transmitter	1
Instrumentation	UV Transmittance Analyzer	1
Instrumentation	Effluent Flow Meter	1
Control Panels	Vendor supplied control panel(s). Independent NEMA 12* UV Control Panel with all electrical/controls pre-wired	1 per Reactor
Cloacina Control Panel	Cloacina NEMA4X Control Panel provided for integration	1
Spares	Includes: Extra lot of spares; UV Lamp, Quartz thimble, wiper ring, electronic ballast	1 (lot)

*For indoor installation only.

6 Pricing Summary

Section	Equipment/Service	Description	Price
1-4	Base MEMPAC-M	MEMPAC-M50	**$1,535,654.67**
5.1	Package Lift Station	Per Scope	**$74,680.00**
5.1.1	NEMA 4X 304SS Wall Mount panel	Per Scope	**$4,800.00**
5.2	Equalization Storage	Per Scope	**$308,558.20**
5.3	Duplex Influent Screen	Per Scope	**$98,177.45**
5.4	Sound Attenuated Blower Room	Per Scope	**$29,198.70**
5.5	Effluent Disposal Pump	Per Scope	**$68,150.00**
5.6	Low-Flow Configuration	Per Scope	**$62,904.00**
5.7	UV Disinfection System	Per Scope	**$331,062.70**

PRICING VALID FOR 30 DAYS

NOTE: Shipping is not included in the budgetary estimate. You can learn more about Cloacina's shipping process Here!

7 Standard Assumptions

7.1 Domestic Facility

The system will be designed to receive only domestic wastewater, as outlined in Section 2, above.

7.2 Unnecessary Waste

All unnecessary process waste will be diverted from entering the treatment system. Examples of unnecessary process waste are:

- Rainwater, excess flow during rain events should be prevented by identifying areas with potential for Infiltration and Intrusion (I & I).
- Industrial Dischargers, high strength dischargers should be identified, and associated waste streams should be evaluated for impact on the treatment facility. Industrial waste can increase the loading on the treatment facility and result in poor performance or reduction in hydraulic capacity.
- Inorganic Solids, efforts should be made to keep excess dirt and grit from entering the treatment facility.
- Fats, Oils and Greases (FOG) should be prevented from entering the facility by ensuring all restaurants have properly installed and maintained grease traps.

7.3 Effluent Disposal

Effluent will flow by gravity from Clear Well, the final disposal location is to be determined. Effluent pumps can be provided in addition to this package.

7.4 Installation Location

The package will be installed outdoors on an engineered concrete slab. The site will have enough access to allow the delivery of the individual treatment tanks fully assembled.

8 Exclusions

8.1 Taxes are not included in the above pricing

8.2 Equalization

Any diurnal flows needing to be attenuated are by others.

8.3 Installation

Treatment package quoted does not include installation costs.

8.4 Civil Engineering

Site civil engineering is not provided as part of this budgetary estimate.

8.5 Slab

Equipment slab design and construction is not included as part of this budgetary estimate.

8.6 Permitting

Permit costs of any kind are not included as part of this budgetary estimate

8.7 Secondary Containment

Secondary containment is not included in this budgetary estimate.

8.8 Thermal Protection

Thermal protection of hydraulic piping is not included in this budgetary estimate.

8.9 Painting

No surface preparation and/or painting of any surfaces is included in above pricing unless specifically mentioned.

8.10 Security

Safety and security items such as fencing, locking ladders, lighting etc. are not included in this budgetary estimate.

8.11 Shipping

Shipping and crane costs are not included in this budgetary estimate unless otherwise stated.

8.12 Dissolved Solids (TDS)

The unit will not address dissolved solids through biological treatment. Dissolved Solids should be managed through source control.

8.13 Initial Seed Sludge

Adequate and acceptable seed sludge is the responsibility of the Client.

8.14 Bonding

No bonding is included in the estimate.

8.15 Disinfection

Disinfection is not included in the base pricing unless specifically stated or offered as an option.

9 Attachments

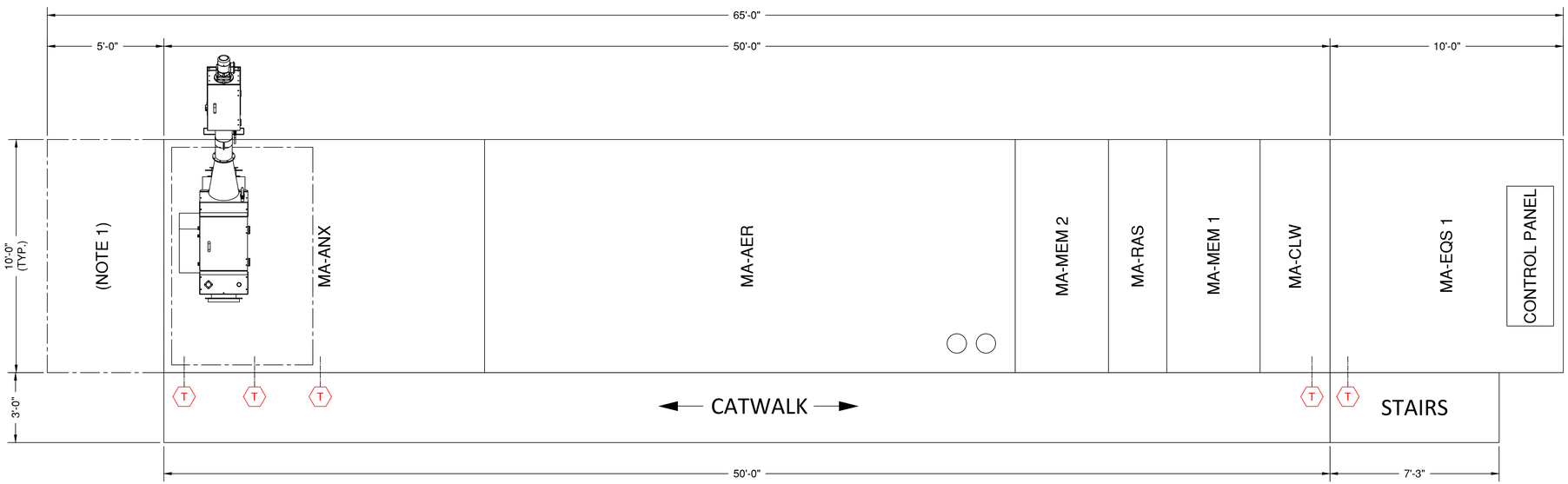
9.1 MEMPAC-M1 General Arrangement Drawing

9.2 MEMPAC-M50 Case study: San Diego Safari Park

9.3 Equipment Lifecycle and O&M Estimate

9.4 Designed By Operators for Operators

9.5 Terms and Conditions



- PLAN VIEW
MEMPAC-M1 MLE
3/16"=1'-0"

ISSUED FOR REVIEW
2023-03-14

0 1' 2' 4' 8'
3/16" = 1'-0"

GENERAL NOTES:

1. RESERVED SLAB SPACE REQUIRED FOR EQUIPMENT MOUNTING.

REFERENCE DRAWINGS	REVISIONS					
	A	ISSUED FOR REVIEW	JS	SEA	AJM	
			2023-03-14			

SCALE: AS NOTED
DATE: 2022-11-14
DRAWN BY:
JOB #: CLXX-XXX

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info@cloacina.com

CLOACINA

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MEMPAC-M1-(MLE)
WASTEWATER TREATMENT PLANT

GENERAL ARRANGEMENT PLAN

REV NO. A

SHEET: M-001
01 OF 01 SHEETS

C:\Users\JoshuaS\AppData\Local\Autodesk\AutoCAD Plant 3D\CollaborationCache\W1927-GEN 4 Layouts - MLE-\PID DWG\M1.dwg - JoshuaS - Mar 14, 2023 - 4:06pm

Cloacina Terms and Conditions

1 Invoicing and Payment Schedule

The pricing quoted in this proposal is based on the following terms of payment:

1.1 30% due upon receipt of executed contract or issuance of Purchase Order

A payment for 30% of the total contract amount, including all upgrades and/or options, must accompany the executed contract or PO in order for any work on the project to commence. Failure to accompany the PO with the deposit check may cause project delays.

1.2 30% due upon approval of submittals and release for fabrication

A payment for 30% of the total contract amount, including all upgrades and/or options, must accompany the approved submittals and release for fabrication. Production of the system will not begin until this payment has been received.

1.3 35% due prior to shipping

A payment for 35% of the total contract amount, including all upgrades and/or options, must be received 7 calendar days prior to scheduled ship date to allow for checks to clear. Cloacina will not allow any equipment to be loaded for shipment to the jobsite or contractor's facility without the 95% payment being received and processed.

1.4 5% due Net 30 days from the date of ready to ship.

A payment for 5% of the total contract amount, including all upgrades and/or options, must be received by Cloacina 30 days from the date of being ready to ship. Retention is not to be held for longer than 30 days for any reason. Should the client/contractor delay payment past 30 days, late fees and penalties will apply as detailed below. Ready to ship is the date in which Cloacina has completed the project such that the FAT, QA/QC process is complete and it's ready to leave the Factory. This does not take into consideration the Client's readiness or ability to receive the unit

1.5 Payment Delay

Any delays in meeting the above payment milestones will cause delays in and/or stoppage of the project and production schedules until the payment has been received. Additionally, any Client delays during the project may result in the Client being charged for items such as: increased materials costs, storage fees, placement of the system in/out of production and/or increased project management costs.

2 Pricing and Payment Terms

2.1 Pricing is valid for 30 calendar days

Pricing is valid for 30 calendar days from the date listed on the coversheet of this document. Cloacina reserves the right to cancel or withdraw this quotation at any time with or without notice or cause prior to acceptance by the Client.

2.2 Bonding

No bonds of any kind are included in the above price. Any required bonds can be provided by Cloacina upon request, but will result in additional charges to the Client.

2.3 Currency

All prices quoted are in United States Dollars (USD).

2.4 Taxes

The above pricing does not include any taxes. Any applicable sales tax, value added tax, local, state/provincial, federal or international taxes, duties and/or tariffs are the sole responsibility of the Client.
Additionally, any future amendments or change orders do not include sales tax, value added tax, local, state/provincial, federal or international taxes, duties and/or tariffs unless specifically stated in the change order or amendment.

2.5 Credit Application

Cloacina may, at its discretion, require the Client to complete a credit application. Cloacina reserves the right to require payment in advance and otherwise modify credit terms should the Client's credit standing not meet Cloacina's acceptance.

2.6 Finance Charge

In the event payment is not made when due, or retention is held longer than 30 days from the date of start-up, the Client agrees to pay Cloacina a service or finance charge of the lesser of 1.5% per month/18% per annum or the highest rate permitted by applicable law on the unpaid balance of the invoice from and after the invoice due date. The Client is responsible for all costs and expenses associated with any checks returned due to insufficient funds. Export shipments will require payment prior to loading for shipment or an appropriate Letter of Credit.

2.7 Changes in Client Status and/or Financial Security

If, during the performance of the contract with the Client, the financial responsibility or condition of Client is such that Cloacina in good faith deems itself insecure or if the Client becomes insolvent, a material change in the ownership of the Client occurs, the Client fails to make any payments in accordance with the terms of this document, then Cloacina is not obligated to continue performance under the contract and may stop equipment in transit and defer or decline to make delivery of equipment, except upon receipt of satisfactory security or cash payments in advance, or Cloacina may terminate the order upon written notice to the Client without further obligation to Client whatsoever.

2.8 Insurance

Cloacina pricing is based on standard insurance coverage being suitable for the project. Any additional riders or policies necessary to meet Contractor/Client requirements will be at the cost of the Client/Contractor.

2.9 Failure to Make Payments

If the Client fails to make payments or fails to furnish security satisfactory to Cloacina, then Cloacina shall also have the right to enforce payment of the full contract price of the work completed and in process. Acceptance by Cloacina of less than full payment shall not be a waiver of any of its rights hereunder. The Client shall not assign or transfer this agreement or any interest in it, or monies payable under it, without the written consent of Cloacina. Any assignment made without such consent shall be null and void.

In the event that the Client has failed to make payments in accordance with the terms and conditions set out herein Cloacina reserves the right to do any or all of the following after 30 days' notice; remove the project from the Cloacina design/production schedule, charge handling and storage fees, charge financing fees, resell the product to another Client, put the product into a rental/leasing fleet. Should the latter of these occur, Cloacina will reimburse the Client for the actual labor (burden rate) and materials for the build portion of the product/project only. Mark-up and overhead will not be reimbursed, nor the project specific design/project management labor. In the event that the Client settles the outstanding balance, but any of the actions have already been taken, the costs to perform the above tasks will be added to the Client's outstanding balance.

2.10 Price Escalations

Material prices are volatile in nature, especially those associated with Steel/Stainless Steel. As such, we do not cover pricing escalations from the time the project is bid to when the PO's are issued and raw materials are released for purchasing. As such, Cloacina will utilize the following major cost indexes for the purposes of determining delta increase/decreases from the date of proposal to purchase order/contract execution. The following CI's shall be the determining indexes;

2.10.1 Stainless Steel:

https://www.atimetals.com/specialtyrolledproducts/Pages/stainless-steels-surcharge-report.aspx

2.10.2 Material Sub-Vendors

In the event that sub-vendors have passed along material escalations, Cloacina will provide proof of these escalations for factoring into escalations.

2.11 Engineering and Design Deposit

If an engineering and design deposit is made part of the project, then the above payment schedule will only be applied after the point in which the system is released. Engineering and Design Deposits will either be lump sum or progress billed and will be spelled out in the contract documents. In the event they are not specified, they will be lump sum due at the time of signing the contract.

2.11.1 If the project design parameters change, require re-engineering of work already performed, additional equipment is requested by the Client, or additional unanticipated equipment is required to meet the project goals then the re-design and engineering required to make these changes will be billed as either a lump sum or time and materials change order.

2.11.2 If the engineering and design deposit option is provided and selected and the Client wishes to hold back the release of equipment once the engineering and design is complete, then the Client will be responsible for any material escalations between the time the project was ready to release by Cloacina's engineering and design team and when it is released for fabrication. If there were project/Client related reasons that stopped Cloacina from progressing on the engineering and design portion of the work then it will be assumed that 30 days is the reasonable time frame that it would have been completed within for the purposes of comparing material/labor escalation CPI's.

3 Conditional Offering and Client's Warranty

The Client understands that this proposal has been issued based upon the information provided by the Client, and made available to Cloacina, as of the date on the cover sheet of this document. Any changes or discrepancies in site conditions (Including but not limited to system influent characteristics, changes in Environmental Health and Safety (EH&S) conditions and/or newly discovered EH&S concerns, the Client's financial standing, Client's requirements and/or any other relevant change or discrepancy in the factual basis upon which this proposal was created, may lead to changes in the offering, including but not limited to changes in pricing, warranties, quoted specifications and/or terms and conditions.

Client warrants the accuracy of any and all information relating to the details of its operating conditions and project understanding and that Cloacina can justifiably rely upon the accuracy of the Client's information in its performance. Should the Client's information prove inaccurate, the Client agrees to reimburse Cloacina for any losses, liabilities, damages and expenses that Cloacina may have incurred as a result of any inaccurate information provided by the Client to Cloacina.

4 Loading, Packing, Shipping, Delivery, and Inspection

4.1 Loading

4.1.1 Factory Pick-Up

Equipment craning and loading onto the trailer of the shipping agent at the Cloacina factory is included in the above pricing. Cloacina will only lift and set the equipment on the trailer – no assistance will be provided with strapping, securing and/or tarping the load. Any damage as a result of improper strapping, securing and/or tarping will be the responsibility of the shipping agent and Cloacina shall not be liable. Title and ownership transfers to the Client immediately upon Cloacina setting the equipment on the trailer of the third party shipping agent and Cloacina is not liable for any damage to the equipment or caused by the equipment from that time forward.

4.1.2 Cloacina as the Shipping Agent

Should Cloacina act as the shipping agent, title, ownership, liability for damage to the equipment or caused by the equipment, the risk of loss of the material and repair/replacement costs shall pass to the Client upon commencement of third-party rigging or removal/lifting of the equipment from Cloacina's trailer by the crane/forklift operator. Cloacina or agent will unstrap and/or un-tarp the load upon arrival but will not provide the crane/forklift operator with assistance and/or direction in removal of the unit from the trailer. Cloacina is not liable for any damage sustained during rigging, forklift positioning and/or removal/lifting. Damage to the unit during rigging, removal and/or lifting may void the Equipment Warranty and/or Process Guarantee, and the client will be responsible for making repairs according to written instruction by Cloacina.

4.2 Packing

The above price includes standard packing and preparation for shipping according to Cloacina's specifications. Standard packing does not include provisions for inclement weather. Should the Client require weather-resistant packing, Cloacina can provide it for an additional cost at the explicit request by the Client. It is the Clients responsibility to notify Cloacina of any special shipping requirements for transit to the jobsite. All costs and taxes associated with special packing requested by the Client, including packing for international exports, shall be paid by the Client as an additional charge. Shipping and packing prices are subject to change without notice.

4.3 Shipping

4.4 Freight on Board (FOB)

Unless otherwise noted in the Cloacina proposal and a specific price is given for shipping, all projects are FOB Cloacina's factory located at:

2385 Precision Drive
Arroyo Grande, CA 93420

4.5 Schedule

Due to the volatility in project schedules, vendor delays, materials availability and logistics issues, Cloacina and the Client will arrange a kick-off meeting after contract acceptance to develop a project schedule. Expedited project completion and shipping may be available for an additional cost to the Client.

4.6 Delays for Shipping

If Cloacina completes production of the equipment prior to the Client being ready on the site and the Client cannot yet receive the equipment, Cloacina may at its option choose to move the equipment into long-term/short-term storage in one of the Cloacina storage yards/areas. The minimum charge for moving a tank is $1,000.00 for single tank systems. Multiple tank systems will be billed at a rate of $1,000.00 per tank. Long-term and short-term storage fees will be billed at $250/month per equivalent 400 square foot tank.

5 Delivery

5.1 Production Schedule

The delivery schedule presented is based on current workload backlogs and production capacity. This estimated delivery schedule assumes no more than two weeks for Client review of the Equipment Submittal Package. Any delays in Client approval or requested changes may result in additional charges to the Client and/or a delay to the production schedule and delivery date.

5.2 Client Acceptance

Cloacina's price and delivery schedule assume that the Client will take delivery as and when foreseen by the schedule. When this is not the case, Cloacina and the Client must agree in advance on an alternative place of delivery, failing which Cloacina will be entitled to move the equipment to storage. In such cases, the Client shall be liable for all moving, storage and relocation fees.

5.3 Delivery Date

Delivery dates are estimates, and time is not of the essence. Cloacina shall not be responsible to the Client for any loss, whether direct, indirect, incidental, or consequential in nature, including without limitation loss of profits arising out of or relating to any failure of the goods to be delivered by the specified delivery date. In the absence of specific instructions, Cloacina has the option to select the shipping agent, the equipment will be shipped COD and the shipping charges will be due and payable by the Client upon delivery.

5.4 Additional Costs

The Client shall be responsible for any additional costs resulting from inaccurate delivery information, lack of delivery or equipment placement instructions and/or omission of special or unique delivery details such as dirt roads, steep grades, etc. Additional costs may include, but are not limited to, storage, insurance, protection, re-inspection, and redelivery expenses. Client further agrees that any payment due on delivery shall be made on delivery into storage as though the equipment had been delivered in accordance with the order. Claims for loss of or damage to equipment in transit must be made to the shipping agent, not to Cloacina. Cloacina requires that the Client and/or the Client's agent, contractor or engineer meets the shipping agent at the time of delivery to inspect the condition of all Cloacina-provided equipment.

5.5 American Iron and Steel Requirements

If a project manager/engineer provides a subjective opinion that the Cloacina plant is subject to AIS requirements, either an adder for this will be applied to the project costs or a justification letter for exemption based on specific exclusions allowed for in AIS. Cloacina does not as a standard provide AIS stainless steel due to the limited domestically available SS sources. Additionally, packaged membrane bioreactors are specifically excluded in the AIS.

5.6 Damage

Any visible damage to equipment or components during shipping must be declared to Cloacina and the shipping company prior to unloading. In the event of damage to equipment, authorization to unload must be received by Cloacina in writing only. Unloading equipment that may have been damaged during shipment, without express written permission from Cloacina may void the Equipment Warranty and Process Guarantee, and the Client takes responsibility for remedying any necessary repairs. The Client shall have the right to inspect all Cloacina-provided equipment upon their receipt and shall notify Cloacina in writing of any nonconformity of the equipment with this agreement within seventy-two hours of delivery by the shipping agent at the client's job-site, other agreed upon location or to storage, regardless of whether the Client and/or their agent, contractor or engineer is there to receive the equipment in person. Failure to give such notice shall constitute a waiver of the Client's right to inspect and/or reject the equipment for nonconformity and shall be equivalent to an irrevocable acceptance of the equipment by the Client.

6 Installation, Start-up and Commissioning

6.1 Installation

6.1.1 Responsibility

Installation is the sole responsibility of the Client and costs to install the Cloacina-provided equipment are not included in the above pricing. The Client may have installation performed by a contractor, engineer or their own mechanical staff. Cloacina can provide contact information for factory-authorized installers, upon request. Cloacina assumes no liability for the quality of workmanship in any installation, regardless of who installs the equipment.

6.1.2 Guidelines

Should the Client and/or their agent, contractor, engineer or staff install the equipment contrary to Cloacina's installation guidelines or direct a factory-authorized representative to do so, the Equipment Warranty and Process Guarantee may become void.

6.2 Start-up and Commissioning

6.2.1 General Provisions

Equipment start-up and commissioning may be included in the above pricing. Additional eight-hour days are available for $1,600.00 per day plus travel costs and per diem.

6.2.2 Procedures

Cloacina requires that all factory-supplied equipment be installed and started-up in strict accordance with Cloacina's installation and start-up procedures and/or in accordance with local/state/federal building codes (Whichever is more stringent) to maintain the validity of Cloacina's Equipment Warranty. Start-up must be performed by a Factory Service Technician or authorized Cloacina representative. Should start-up occur outside the presence of an authorized Cloacina representative and without the prior written consent of Cloacina, Cloacina's Equipment Warranty and Process Guarantee are void.

6.2.3 Engineering Oversight

If the Client hires an engineer for start-up supervision, such engineer will function in a supervisory capacity only. Cloacina's start-up technician shall not follow start-up directions from engineers that are contrary to Cloacina's Standard Start-Up Procedures, SOP's or industry standards. Cloacina requires the Client to have a licensed electrician on-site at all times during start-up, the cost of which will be paid by the Client.

6.2.4 Start-up and Commissioning Scheduling

To schedule a start-up/commissioning date, the Client must notify Cloacina at least four weeks prior to the date they desire start-up/commissioning services. Should the Client need to cancel and/or reschedule a start-up date once a date has been scheduled, the Client must notify Cloacina in writing and will be responsible for any costs Cloacina incurs to cancel and/or reschedule, including, but not limited to: airline ticket cancelation/change fees, rental car cancelation/change fees, hotel cancelation/change fees, etc.

6.3 Delays

Should a Cloacina start-up technician arrive at the Client's job-site on the agreed upon start-up date and find the site, Cloacina-provided equipment, equipment provided by others and/or the Client not ready to start-up the equipment, upon arrival, for any reason, Cloacina will count that day as day 1 of the included start-up days, regardless of whether Cloacina directs the start-up technician to remain on-site or return to the Cloacina office, which shall be at Cloacina's discretion. Cloacina will count every day until the start-up technician arrives at the office as a day of commissioning. Should the Client then require more start-up days than the balance remaining, it will be at the additional per day/travel/per Diem costs outlined above.

7 Equipment Warranty

7.1 Overview

Cloacina expects and plans for a successful project with each client. Each system is designed and built using only the highest quality components that have a proven track record in the wastewater industry. As a result, each treatment plant comes standard with one year warranty on all Cloacina-provided equipment.

7.2 Warranty Period

Cloacina warrants its materials and workmanship for a period of twelve (12) months from the date of start-up/beneficial occupancy of the plant, or fifteen (15) months from the date of equipment shipment, or fifteen months from the date of notice of production completion, whichever occurs first. Extended warranties are available for an additional cost to the Client. Extended warranties must be purchased 1 month prior to the unit leaving the Cloacina facility.

Beneficial occupancy is defined as: the date in which the plant is turned on and can produce any benefit. Whether that's for permitting purposes, regulatory purposes, funding purposes, fiscal purposes, any benefit to the Client is the start of the date of beneficial occupancy, whether or not the plant or appurtenances are fully on-line.

7.3 Warranty Changes

No additional warranty, either expressed or implied, is to be construed as binding. Any changes to this warranty must be issued in writing by Cloacina and will be issued as an addendum to this document.

7.4 Damage

Cloacina's Equipment Warranty expressly excludes any liability for damage to equipment caused during shipping or under any other circumstances once title for the equipment has passed to the Client.

7.5 Equipment Storage

All materials, once delivered to the jobsite, are required to be stored in a protected area and tarped during times of inclement weather. In severe weather, climate control may be necessary.

7.6 Consumables

Cloacina does not warranty consumables.

7.7 Communication of Warranty Related Issues

Client will be required to communicate any warranty related issues by submitting a ticket through the Cloacina portal. Instructions will be given to the Client during the commissioning/training period. A warranty related ticket will be assigned to the issue, and tracked for the life of the problem. Verbal expressions and/or letters/email will not be accepted nor addressed.

7.8 Cloacina Portal

The Client may be provided with a Cloacina or 3rd party portal. In that event the Client will be required to communicate any requested data through a Cloacina provided portal. Failure to fully fill out the data at the requested interval will violate the Cloacina warranty.

7.9 Equipment Repair or Replacement

Cloacina shall, at its option and at no cost to the Client, either repair or replace any product which fails to conform to the Equipment Warranty; provided, however, that under either option, Cloacina shall not be obligated to remove the defective product or install the replaced or repaired product. The Client shall be responsible for all other costs, including, but not limited to, service costs, shipping fees and expenses. Cloacina shall have complete discretion as to the method or means of repair or replacement. Client's failure to comply with Cloacina's repair or replacement directions shall constitute a waiver of its rights and render the Equipment Warranty void. Any parts repaired or replaced under the Equipment Warranty are warranted only for the balance of the warranty period on the parts that were repaired or replaced. The Equipment Warranty is conditioned on the Client giving written notice to Cloacina of any defects in material or workmanship of warranted equipment immediately after any defects are first manifest.

7.10 Change of Ownership

The Equipment Warranty is extended to the original Client/end-user only and is not transferrable to new owners and/or other third parties.

8 Exclusions:

Cloacina shall have no warranty obligations to the Client with respect to any product or parts of a product where one or more of the following applies:

8.1 De-rating of Equipment

In the event that one of the following conditions exist, there will be a commensurate de-rating of all effected downstream equipment;

8.1.1 Influent Screening

-In the event the TSS exceeds the stated influent assumptions, then a commensurate de-rating of the screens stated flows will occur.
-In the event that the influent is ground, chopped, macerated, cut, or materially changed beyond that of raw influent, then a de-rating of the screen will occur and the Client will be responsible for putting in a finer screen to increase the removal rate due to finer material having a propensity to pass through at a higher rate, otherwise an increased burden associated with more frequent membrane cleaning will be required.

8.2 Strength of Influent

If the influent materially differs from the assumed influent characteristics using composited samples as the basis for the differentiation then a re-rating of the plant may be necessary for the purposes of determining total loading of the plant. Contaminant variances may have one or all of the following unintended consequences which will be part of the re-rating in order to meet effluent targets;

- Process setpoints
- Re-rating of flows as a function of the loading
- Chemical addition for alkalinity and/or load balancing/supplementation for proper BNR
- Programming changes to effect the above
- Expansion of the plant to meet build-out goals
- Re-screening
- More frequent cleaning of membranes/sensory/equipment

8.3 Standards Compliance

If an inspector requests changes due to their interpretation of State, Federal, internal, trade standards or 3rd Party regulations which are different than how Cloacina builds as a standard, the Client will be responsible for any delta costs to comply with this requirement/request. Cloacina reserves the right to consult with a trade specific Engineer/Expert regarding the request. The direction received from that Engineer/Expert will determine any course of action, if required. If a 3rd party or the Client requires changes which deviate from that Engineers direction to be made due to subjective interpretation on the part of the 3rd party or Client, these costs will be borne solely by the Client and not Cloacina.

8.4 Third Party Repairs

The equipment has been repaired by third parties other than Cloacina and/or without Cloacina's written approval.

8.5 Misuse or Damage

The equipment has been subject to intentional or unintentional misuse, misapplication, neglect, alteration, accident or physical damage.

8.6 Use Contrary to Instructions

The equipment has been used in a manner contrary to Cloacina's instructions for installation, operation and/or maintenance.

8.7 Wear, Tear and Corrosion

The equipment has been damaged from ordinary wear and tear, corrosion, biological or chemical attack.

8.8 Abnormal Conditions

The equipment has been damaged due to abnormal conditions, vibration, failure to properly prime or operation without flow.

8.9 Improper Electrical Conditions

The equipment has been damaged due to a defective power supply or improper electrical protection.

8.10 Non-Cloacina Ancillary Equipment

The equipment has been damaged from the use of ancillary equipment not sold by Cloacina or not approved by Cloacina in connection with products supplied by Cloacina. **Cloacina strongly recommends that, prior to installation of any ancillary equipment, the Client contacts their Cloacina representative to ensure that the desired ancillary equipment is compatible with the Cloacina-provided equipment and treatment process.**

8.11 Liability Limitations

The foregoing warranty is exclusive and in lieu of any and all other express or implied warranties, guarantees, conditions or terms of whatever nature relating to the equipment provided hereunder, including without limitation any implied warranties of merchantability and fitness for a particular purpose, which are hereby expressly disclaimed and excluded. Client's exclusive remedy and Cloacina's aggregate liability for breach of any of the foregoing warranties are limited to repairing or replacing the product and shall in all cases be limited to the amount paid by the client as outlined above. In no event is Cloacina liable for any other form of damages, whether direct, indirect, liquidated, incidental, consequential, punitive, exemplary or special damages, including but not limited to loss of profit, loss of anticipated savings or revenue, loss of income, loss of business, loss of production, loss of opportunity or loss of reputation.

9 Process Guarantee

Cloacina's treatment systems are guaranteed to function properly and to meet the Design Criteria specified in the contract documents for a period of twelve months from the date of initial start-up performed by an authorized Cloacina representative. For the Process Guarantee to remain in full effect, the Client must never exceed the Design Criteria and comply with all the following subcategories:

9.1 Reports

The Client and/or their agent must provide operational and lab reports as required in the warranty compliance sampling schedule or any other written documentation provided to the Client. These samples and their results are to be provided to Cloacina monthly during the first 12 months of operation for the Process Guarantee to remain in full effect. Emailed reports or raw files uploaded to the Cloacina portal/server are acceptable.

9.2 Operations

The Client and/or their agent must operate the treatment system in accordance with the Design Specifications outlined in the contract documents and within all Cloacina OMMs and equipment manuals.

9.3 Operations and Maintenance Manual

The Client and/or their agent must adhere to the operations and maintenance procedures as set forth in the OMM and/or provided with the treatment plant upon start-up.

9.4 Internet

The Client and/or their agent must provide and maintain a reliable high-speed Internet connection (Minimum speed of 400Kbps) to the Cloacina-supplied SCADA Controls Computer. It is the Client's responsibility to provide the necessary network security clearances for Cloacina to access the system remotely using GoToMyPC or Teamviewer or other third-party remote desktop software. In addition, the Client and/or their agent shall maintain Port 25 for SCADA's use for alarm text/email notification of alarm conditions.

9.5 Maintenance

The Client and/or their agent shall perform all routine equipment maintenance in accordance with the SCADA System Maintenance Module, the OMM, and/or the respective equipment manufacturers' recommendations, whichever is the most stringent.

9.6 Lab Work

The Client and/or their agent shall perform all process control lab work applicable and enter all data into SCADA History, portal or if those are unavailable emailing them to the Cloacina PM. The Client must also include lab results in the weekly/monthly reports. Cloacina will provide the required sampling constituents and schedule as part of the submittal package.

9.7 Non-Identified Constituents

If a constituent or combination of constituents that Cloacina did not explicitly identify as being managed in the influent compounds causes unintended consequences, the Client shall be solely responsible for mitigating these constituent(s) such that they are within acceptable range(s) for the process warranty to be in full force. Examples of such unintended constituent side effects may be;

- Precipitation
- Mineralization
- Deposition
- Scaling
- Fouling

9.8 Compliance

Should the client fail to comply with any of the above criteria, the Process Guarantee will be void from the date of the Client's non-compliance. From that date forward, Cloacina will not be responsible for any system upsets, effluent violations, the Client's inability to reuse effluent and/or any fines or other costs, including lost revenue or ancillary costs that may be incurred, including costs to repair or cure any damage to the system because of noncompliance.

9.9 Pretreatment Program

For domestic systems, the Client must implement a pretreatment program and submit it to Cloacina for approval. In the absence of a Client provided pretreatment program, the Client must implement the Cloacina standard pretreatment program to ensure compliance with influent criteria.

10 General Terms and Conditions

This document is an offer by Cloacina to sell the equipment and/or services set forth herein and is conditional on Client's assent to these terms and conditions. This document is to be included, in its entirety, in any issued POs or subcontracts. Acceptance by the Client is expressly limited to these terms and conditions. Any additional or different terms and conditions contained in Client's PO or other communication shall not be effective or binding upon Cloacina unless specifically agreed to in writing by Cloacina; Cloacina hereby objects to any such conditions. The failure of Cloacina to object to specific provisions contained in any PO or other communication from Cloacina shall not be construed as a waiver of these terms and conditions nor an acceptance of any such provisions. Neither Cloacina's commencement of performance nor delivery shall be deemed or construed as acceptance of Client's additional or different terms and conditions. Client acknowledges that this document is the complete and final agreement between the parties and this document supersedes all prior negotiations, representations, or agreements, either written or oral, between the parties and, further, can only be altered, modified or amended with the express written consent of Cloacina.

10.1 Release

The Client gives Cloacina permission to use project information, including but not limited to: project name, client name, location, design criteria, photographs, video, drawings, images, renderings, etc., for the purposes of marketing/promotional materials that may be printed, broadcast or used in digital formats on-line. The Client acknowledges that Cloacina may elect to hire/employ aerial photographers, photographers, artists, etc. for the purpose of documenting project progress and the final product. Cloacina shall, upon request, share any photographs or images of the project with the Client for their exclusive use. Photographs, images, likenesses and project information shall be used at the discretion of Cloacina and the Client is not entitled to editorial control or compensation.

10.2 Limited Liability

In no event shall Cloacina's liability under this agreement exceed the amount paid by the Client under this agreement. Cloacina shall have no liability for loss of profit, loss of anticipated savings or revenue, loss of income, loss of business, loss of production, loss of opportunity, loss of reputation, indirect, consequential, incidental, punitive or exemplary damages.

10.3 Cloacina Cancellation

Cloacina may cancel or suspend this agreement and Cloacina shall have no liability for any failure to deliver or perform, or for any delay in delivering or performing any obligations, due to acts or omissions of the Client and/or its agent, engineer, contractors or third party representatives or due to circumstances beyond its reasonable control, including but not limited to acts of God, fire, flood or other natural disasters, war and civil disturbance, riots, acts of governments, terrorism, disease, currency restrictions, labor shortages or disputes, unavailability of materials, fuel, power, energy or transportation facilities, failures of suppliers or subcontractors to effect deliveries, in which case the time for performance shall be extended in an amount equal to the excused period, provided that Cloacina shall have, as soon as reasonably practicable after it has actual knowledge of the beginning of any excusable delay, notified the Client of such delay, of the reason therefore and of the probable duration and consequence thereof. Cloacina shall use its best efforts to eliminate the cause of the delay, interruption or cessation and to resume performance of its obligations hereunder with the least possible delay.

10.4 Client Cancellation

Except as otherwise provided in this agreement, no order may be cancelled unless requested in writing by one party and accepted in writing by the other. In the event of a cancellation by the Client, the Client shall, within thirty days of such cancellation, pay Cloacina a cancellation fee, which shall include all costs and expenses incurred by Cloacina prior to the receipt of the request for cancellation including, but not limited to: Estimating costs, engineering (Process/mechanical/civil/electrical/controls), drawing costs, copies, lost profits, project management, all commitments to its suppliers, subcontractors and others, all labor and overhead expended by Cloacina, plus a reasonable charge for profit. Cloacina may charge a restocking fee and may reassign equipment initially assigned to the Client's project to another client.

10.5 Default

Notwithstanding anything to the contrary herein, in the event of the commencement by or against Client of any voluntary or involuntary proceedings in bankruptcy or insolvency or in the event Client shall be adjusted bankrupt, make a general assignment for the benefit of its creditors, or if a receiver shall be appointed on account of Client's insolvency, or if Client fails to make payment when due under this agreement, or in the event Client does not correct or, if immediate correction is not possible, commence and diligently continue action to correct any default of Client to comply with any of the provisions or requirements of this agreement within ten calendar days after being notified in writing of such default by Cloacina, Cloacina may, by written notice to Client, without prejudice to any other rights or remedies which Cloacina may have, terminate its further performance of this agreement. In the event of such termination, Cloacina shall be entitled to receive payment as if Client has cancelled the agreement as per the preceding paragraphs. Cloacina may nevertheless elect to complete its performance of this agreement by any means it chooses. Client agrees to be responsible for any additional costs incurred by Cloacina in so doing.

10.6 Termination

Upon termination of this agreement, the rights, obligations and liabilities of the parties which shall have arisen or been incurred under this agreement prior to its termination shall survive such termination.

10.7 Failure to Insist

Cloacina's failure to insist, in any one or more instances, upon Client's performance of any term of this proposal, or to exercise any rights conferred, shall not constitute a waiver or relinquishment of any such right or right to insist upon Client's performance in any other regard.

10.8 Severability

If any term, covenant, condition or provision of these Terms and Conditions is held by a court of competent jurisdiction to be invalid, void or unenforceable, the remainder of the provisions hereof shall remain in full force and effect and shall in no way be affected, impaired or invalidated.

10.9 Governing Laws and Venue

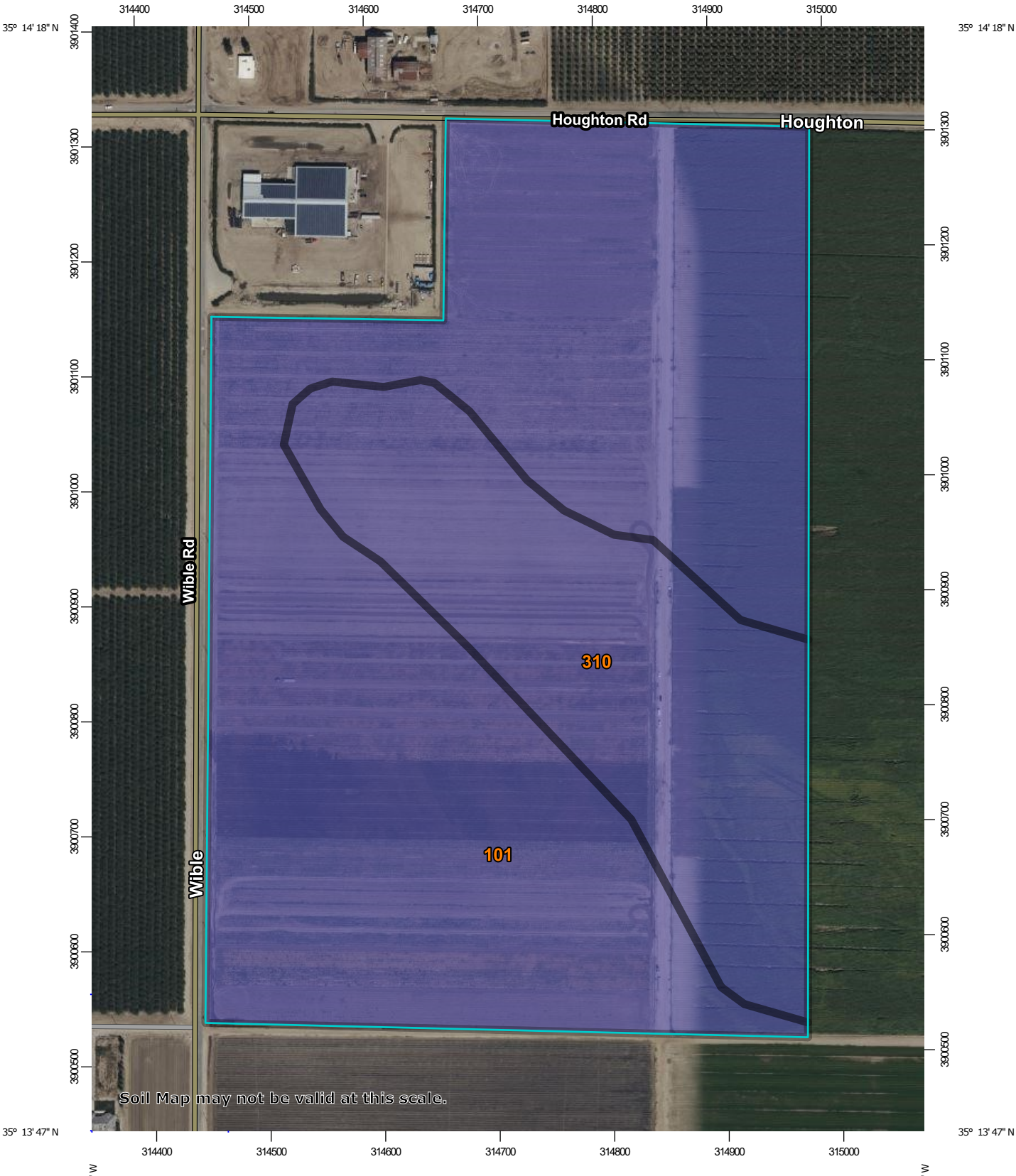
The terms of this agreement and all rights and obligations hereunder shall be governed by the laws of The State of California. Any petitions filed against Cloacina shall be filed, heard, tried and decided in The San Luis Obispo County Superior Court. In international transactions, the rights and obligations of the parties hereunder shall not be governed by the 1980 United Nations Convention on Contracts for the International Sale of Goods.

Should changes in laws, regulations, tariffs, taxes or any governing regulatory agency stipulations effecting the project occur after the time in which Cloacina was placed under contract, the entire costs for the compliance with the same will be borne by the Client, and not Cloacina.

10.10 Indemnification

To the fullest extent permitted by law, the Client agrees to indemnify, defend and hold harmless Cloacina and any of its respective officers, agents, employees, affiliates, parents and subsidiaries from and against any and all liability claims, loss, damage or costs (Including but not limited to attorney's fees, loss of profit, business interruption or other special or consequential damages, damages relating to property damage, bodily injury or damages relating to wrongful death) arising out of or relating to the installation, operation, maintenance, use or possession of any Cloacina-provided equipment. This indemnity provision also applies to any claims asserted against Cloacina based upon strict or product liability causes of action. The Client shall not be obligated to indemnify Cloacina for that part of any loss, damage or liability caused solely by the intentional misconduct or sole negligence of Cloacina. In furtherance of, but not in limitation to the indemnity provisions in this document, the Client expressly and specifically agrees that the foregoing obligation to indemnify shall not be in any way affected or diminished by any statutory or constitutional imitation of liability or immunity Client enjoys from suits by its own employees. The duty to indemnify will continue in full force indefinitely from the date of execution of this document and is not diminished by cancelation or early termination of the agreement if Cloacina provides any equipment to the Client.

ATTACHMENT 4: U.S.G.S. SOILS REPORT



Map Scale: 1:4,690 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 50 100 200 300

Feet
0 200 400 800 1200

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Soil Rating Lines

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Soil Rating Points

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Kern County, California, Southwest Part
Survey Area Data: Version 13, Sep 1, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 12, 2022—Oct 25, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
101	Bakersfield fine sandy loam, drained, 0 to 1 percent slopes	B	68.5	73.0%
310	Vineland loamy sand, drained, 0 to 1 percent slopes	B	25.4	27.0%
Totals for Area of Interest			**93.9**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

ATTACHMENT 5: PERCOLATION BASIN SIZING CALCULATIONS

Project Ware Malcomb
Percolation Basin Sizing Calculations

Treated Wastewater Effluent		
Flowrate	54,900	gpd
Generation Time	1	day
Volume to Treat	54,900	gallons
Volume to Treat	7,340	ft^3
Safety factor of 2	2	unitless

Equation for Determining Required Pond Area

$$A = \frac{V}{t \times Effective\ Infiltration\ Rate}$$

Volume to Treat (V)	7,340	ft^3
Drawdown Time (t)	24	hr
Infiltration Rate	0.57	in/hr
Infiltration Rate	0.0475	ft/hr
Effective Infiltration Rate	0.02375	ft/hr
Required Area (A)	12,876	ft^2
Required Area (A)	**0.30**	acres

Additional Stormwater Volume (100-Year Storm)		
Equation for Determining Stormwater Volume		
$V = 0.12 \times D_{100} \times a_i \times A$		
100-yr, 24-hr Depth of Rainfall (D_{100})*	2.74	in
Average % of Impervious Area (a_i)	1	unitless
Required Area (A)	12,876	ft^2
Volume (V)	4,234	ft^3

**Per NOAA Depth-Duration-Frequency Curves*

Total Volume to Treat		
Total Volume (V) (Treated Effluent + 100-Yr Storm)	11,573	ft^3
Required Area (A)	12,876	ft^2
Depth (D=Volume/Area)	0.9	ft
Depth (Rounded Up)	1	ft
Freeboard	2	ft
Total Depth	**3**	ft

Actual Drawdown Time		
Equation for Determining Drawdown Time		
$Drawdown\ Time = \frac{V}{A \times Effective\ Infiltration\ Rate}$		
Volume (V)	11,573	ft^3
Required Area (A)	12,876	ft^2
Effective Infiltration Rate	0.02375	ft/hr
Drawdown Time*	**37.84**	hr

**Must be below 48 hours per the RWQCB General Waste Discharge Requirements for Small Domestic Wastewater Treatment Systems*

Actual Percolation Pond Footprint		
Percolation Pond Wall Side Slope (rise/run = 1/2)	0.5	unitless
Total Depth	3	ft
Side Slope Horizontal Distance	6	ft
Required Area ($A=B^2$)	12,876	ft^2
Base Dimension (B)	113	ft
Base (B) + Side Slope Horizontal Distance (x2)	125	ft
Actual Area (A)	15,744	ft^2
Actual Area (A)	**0.36**	acres

NOAA Atlas 14, Volume 6, Version 2
Location name: Bakersfield, California, USA*
Latitude: 35.23°, Longitude: -119.0301°
Elevation: 330.51 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

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NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.066 (0.053-0.083)	0.085 (0.068-0.106)	0.112 (0.090-0.141)	0.136 (0.108-0.173)	0.173 (0.134-0.226)	0.205 (0.156-0.273)	0.241 (0.179-0.327)	0.281 (0.203-0.391)	0.342 (0.239-0.494)	0.394 (0.267-0.588)
10-min	0.095 (0.077-0.119)	0.121 (0.098-0.153)	0.160 (0.129-0.202)	0.195 (0.155-0.247)	0.248 (0.192-0.324)	0.294 (0.223-0.391)	0.345 (0.256-0.469)	0.402 (0.292-0.561)	0.490 (0.342-0.708)	0.565 (0.383-0.843)
15-min	0.115 (0.093-0.144)	0.147 (0.118-0.184)	0.194 (0.155-0.244)	0.236 (0.188-0.299)	0.300 (0.232-0.392)	0.355 (0.270-0.473)	0.417 (0.310-0.567)	0.487 (0.353-0.678)	0.592 (0.413-0.856)	0.684 (0.463-1.02)
30-min	0.159 (0.128-0.200)	0.203 (0.164-0.256)	0.268 (0.215-0.338)	0.327 (0.260-0.414)	0.416 (0.321-0.543)	0.492 (0.373-0.655)	0.578 (0.429-0.785)	0.674 (0.488-0.939)	0.820 (0.573-1.19)	0.947 (0.641-1.41)
60-min	0.223 (0.180-0.280)	0.285 (0.229-0.358)	0.376 (0.301-0.473)	0.457 (0.364-0.580)	0.582 (0.450-0.760)	0.689 (0.523-0.916)	0.809 (0.601-1.10)	0.944 (0.684-1.32)	1.15 (0.802-1.66)	1.33 (0.898-1.98)
2-hr	0.322 (0.259-0.404)	0.404 (0.325-0.508)	0.524 (0.420-0.659)	0.629 (0.501-0.798)	0.786 (0.608-1.03)	0.919 (0.698-1.22)	1.07 (0.791-1.45)	1.23 (0.889-1.71)	1.47 (1.02-2.12)	1.67 (1.13-2.49)
3-hr	0.386 (0.310-0.484)	0.484 (0.389-0.608)	0.625 (0.501-0.787)	0.748 (0.596-0.949)	0.931 (0.720-1.22)	1.09 (0.824-1.44)	1.25 (0.930-1.70)	1.44 (1.04-2.00)	1.70 (1.19-2.46)	1.93 (1.31-2.88)
6-hr	0.495 (0.398-0.621)	0.625 (0.503-0.786)	0.809 (0.649-1.02)	0.968 (0.771-1.23)	1.20 (0.929-1.57)	1.39 (1.06-1.85)	1.60 (1.19-2.17)	1.82 (1.32-2.54)	2.15 (1.50-3.10)	2.41 (1.63-3.59)
12-hr	0.590 (0.475-0.741)	0.771 (0.620-0.968)	1.02 (0.820-1.29)	1.24 (0.984-1.57)	1.55 (1.20-2.02)	1.80 (1.36-2.39)	2.06 (1.53-2.80)	2.35 (1.70-3.27)	2.75 (1.92-3.98)	3.08 (2.09-4.60)
24-hr	0.718 (0.652-0.806)	0.972 (0.882-1.09)	1.32 (1.20-1.49)	1.62 (1.45-1.84)	2.04 (1.76-2.42)	2.38 (2.01-2.89)	2.74 (2.25-3.42)	3.13 (2.49-4.03)	3.69 (2.79-4.97)	4.14 (3.02-5.81)
2-day	0.827 (0.752-0.929)	1.13 (1.03-1.27)	1.56 (1.41-1.75)	1.91 (1.72-2.18)	2.42 (2.09-2.87)	2.84 (2.39-3.44)	3.28 (2.68-4.08)	3.75 (2.98-4.83)	4.43 (3.35-5.97)	4.98 (3.63-6.98)
3-day	0.886 (0.805-0.996)	1.22 (1.10-1.37)	1.68 (1.52-1.90)	2.08 (1.86-2.36)	2.64 (2.27-3.12)	3.09 (2.60-3.75)	3.58 (2.93-4.46)	4.10 (3.25-5.28)	4.86 (3.67-6.55)	5.48 (3.99-7.68)
4-day	0.937 (0.851-1.05)	1.29 (1.17-1.45)	1.79 (1.62-2.02)	2.22 (1.99-2.52)	2.82 (2.43-3.34)	3.31 (2.78-4.01)	3.83 (3.13-4.77)	4.39 (3.48-5.64)	5.19 (3.92-6.99)	5.84 (4.25-8.18)
7-day	1.06 (0.959-1.19)	1.46 (1.33-1.64)	2.04 (1.85-2.30)	2.53 (2.27-2.88)	3.23 (2.78-3.82)	3.78 (3.18-4.58)	4.36 (3.57-5.43)	4.97 (3.94-6.39)	5.83 (4.41-7.86)	6.51 (4.74-9.13)
10-day	1.12 (1.02-1.26)	1.56 (1.42-1.76)	2.19 (1.98-2.47)	2.73 (2.44-3.10)	3.49 (3.01-4.13)	4.09 (3.44-4.95)	4.71 (3.86-5.87)	5.37 (4.26-6.91)	6.29 (4.76-8.48)	7.01 (5.10-9.82)
20-day	1.35 (1.22-1.51)	1.90 (1.73-2.14)	2.71 (2.45-3.06)	3.40 (3.04-3.87)	4.39 (3.79-5.20)	5.19 (4.37-6.29)	6.02 (4.93-7.51)	6.90 (5.47-8.87)	8.09 (6.12-10.9)	9.01 (6.56-12.6)
30-day	1.57 (1.43-1.76)	2.23 (2.02-2.50)	3.19 (2.88-3.59)	4.02 (3.60-4.58)	5.24 (4.52-6.20)	6.22 (5.24-7.54)	7.24 (5.92-9.02)	8.30 (6.58-10.7)	9.76 (7.39-13.2)	10.9 (7.92-15.3)
45-day	1.88 (1.71-2.11)	2.67 (2.42-3.00)	3.82 (3.45-4.31)	4.84 (4.33-5.51)	6.34 (5.47-7.50)	7.57 (6.37-9.17)	8.84 (7.24-11.0)	10.2 (8.07-13.1)	12.0 (9.08-16.2)	13.4 (9.76-18.8)
60-day	2.15 (1.96-2.42)	3.04 (2.75-3.41)	4.36 (3.94-4.91)	5.52 (4.95-6.29)	7.25 (6.25-8.58)	8.67 (7.30-10.5)	10.2 (8.32-12.7)	11.7 (9.28-15.0)	13.8 (10.5-18.6)	15.4 (11.2-21.6)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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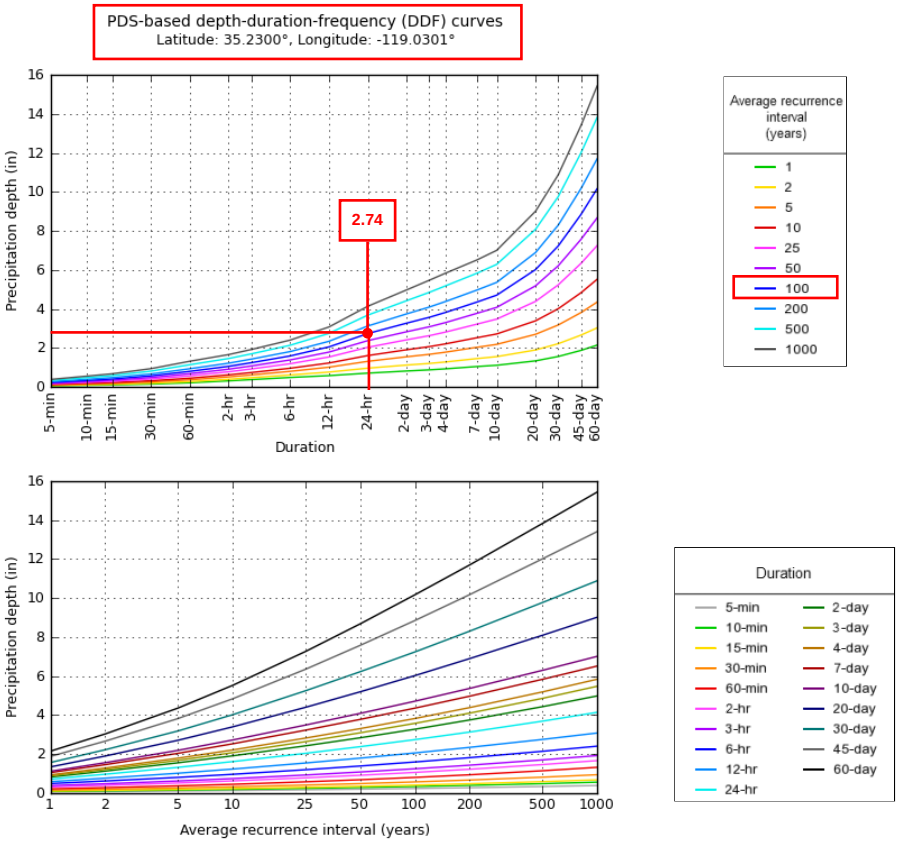
PF graphical



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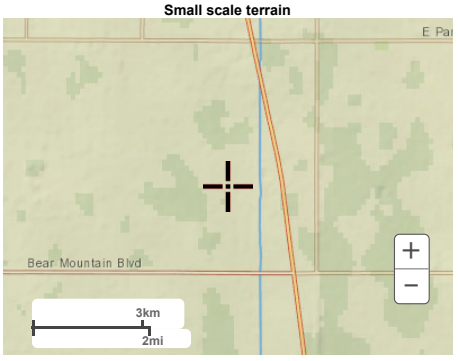
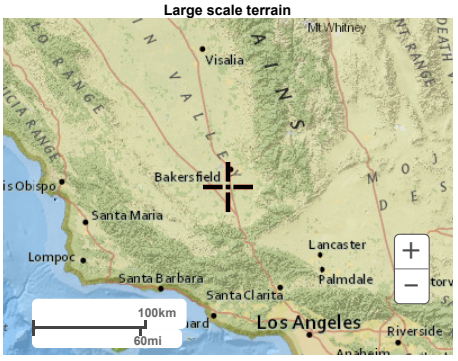
Maps & aerials

Small scale terrain

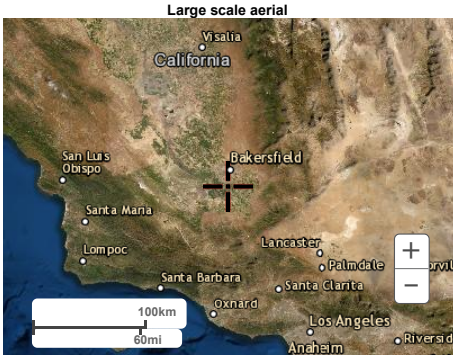


Large scale terrain



Large scale map

Large scale aerial



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Disclaimer

ATTACHMENT 6: SMALL DOMESTIC PERMIT (2014-0153)

STATE WATER RESOURCES CONTROL BOARD
ORDER WQ 2014-0153-DWQ

GENERAL WASTE DISCHARGE REQUIREMENTS FOR SMALL DOMESTIC WASTEWATER TREATMENT SYSTEMS

September 23, 2014

CALIFORNIA
Water Boards
STATE WATER RESOURCES CONTROL BOARD
REGIONAL WATER QUALITY CONTROL BOARDS

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STATE WATER RESOURCES CONTROL BOARD
ORDER WQ 20140-0153-DWQ
GENERAL WASTE DISCHARGE REQUIREMENTS
FOR SMALL DOMESTIC WASTEWATER TREATMENT SYSTEMS

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General Order Attachment

Document	Number	Attachment Title	
Attachment	1	Nitrogen Effluent Limit Evaluation	…..… 1-1

Information Sheet Attachments

Document	Number	Attachment Title	
Information Sheet		Information Sheet Summary	.. INFO-1
Information Sheet	A	Generalized Permit Application Process Summary	…..... A-1
Information Sheet	B1	Recommended Report of Waste Discharge Format	…... B1-1
Information Sheet	B2	Safe Wastewater Disposal for Recreational Vehicles	…... B2-1
Information Sheet	C	Model Monitoring and Reporting Program	……. C-1

ACRONYMS AND ABBREVIATIONS	
afy	acre feet per year
AGR	Agricultural Supply
Antidegradation Policy	State Water Board Resolution 68-16
APMP	Advanced Protection Management Program
AQUA	Aquaculture
Basin Plan	Water Quality Control Plan
BOD	Biochemical Oxygen Demand
BPTC	Best Practicable Treatment or Control
CalOES	California Office of Emergency Services
CDPH	California Department of Public Health
CEC	Constituents of Emerging Concern
CEQA	California Environmental Quality Act
C.F.R.	Code of Federal Regulations
DDW	State Water Board, Division of Drinking Water
E. coli	Escherichia coli
e.g.	Latin *exempli gratia* (for example)
FDS	Fixed Dissolved Solids
FEMA	Federal Emergency Management Agency
FRESH	Fresh Water Replenishment
General Order	General Waste Discharge Requirements Order
gpd	gallons per day
GWR	Groundwater Recharge
I/I	Inflow and Infiltration
IND	Industrial Service Supply
LAA	Land Application Area
MBR	Membrane Biological Reactor
MCL	Maximum Contaminant Level
mg/L	Milligrams per liter
MPI	Minutes Per Inch
MPN	Most Probable Number
MRP	Monitoring and Reporting Program
MUN	Municipal Supply
N	Nitrogen
NOA	Notice of Applicability
NPDES	National Pollutant Discharge Elimination System
NTU	Nephelometric Turbidity Unit
OWTS Policy	Onsite Wastewater Treatment System Policy
P	Phosphorus
pdf	Portable Document Format
Perc Rate	Percolation Rate
PROC	Industrial Process Supply
REC-1	Water Contact Recreation
Regional Water Board	Regional Water Quality Control Board

ACRONYMS AND ABBREVIATIONS	
RV	Recreational Vehicle
ROWD	Report of Waste Discharge
SAP	Sampling and Analysis Plan
SNMP	Salt and Nutrient Management Plan
State Water Board	State Water Resources Control Board
TBD	To Be Determined
TDS	Total Dissolved Solids
TKN	Total Kjeldahl Nitrogen
TMDL	Total Maximum Daily Load
TSS	Total Suspended Solids
USEPA	United States Environmental Protection Agency
Wat. Code	Water Code
WILD	Wildlife Habitat
WDRs	Waste Discharge Requirements
WQO 97-10-DWQ	Water Quality Order 97-10 Division of Water Quality
§ or §§	Section or Sections

STATE WATER RESOURCES CONTROL BOARD
ORDER WQ 2014-0153-DWQ
GENERAL WASTE DISCHARGE REQUIREMENTS
FOR SMALL DOMESTIC WASTEWATER TREATMENT SYSTEMS

BACKGROUND INFORMATION

Findings:
The State Water Resources Control Board (State Water Board) finds that:

1. Water Code section 13260(a) requires that any person discharging waste or proposing to discharge waste within any region, other than to a community sewer system, that could affect the quality of the waters of the state, file a Report of Waste Discharge (ROWD) to obtain coverage under Waste Discharge Requirements (WDRs) or a waiver of WDRs. "Waste" is defined in Water Code section 13050(d).
2. Discharges to land from Small Domestic Wastewater Treatment Systems (hereafter Small Domestic Systems) have certain common characteristics, such as similar constituents, concentrations of constituents, disposal techniques, flow ranges, and they require the same or similar treatment standards. These types of discharges are appropriately regulated under a General Waste Discharge Requirements Order (General Order). State Water Board Water Quality Order 97-10-DWQ (WQO 97-10-DWQ) is a 1997 General Order addressing Small Domestic Systems. Once effective, this General Order will supersede WQO 97-10-DWQ which will no longer be available for additional enrollees.
3. For the purposes of this General Order, the term "wastewater system" shall mean the collection system, treatment equipment, pumping stations, treatment ponds, clarifiers, sand/media filters, disinfection systems, recycled water systems (including distribution systems), storage ponds, land application areas, and other systems associated with the collection, treatment, storage, and disposal of wastewater.
4. Only Small Domestic Systems, with a monthly average flow rate of 100,000 gallons per day (gpd) or less, that discharge to land are eligible for coverage under this General Order. Small Domestic Systems are typically located at individual residences, rural parks, schools, campgrounds, mobile home parks, roadside rest stops, small commercial or residential subdivisions, restaurants, resort hotels/lodges, small correctional facilities, temporary fire-fighting camps, and recreational vehicle (RV) dump locations, including RV parks. An owner and/or operator of such a wastewater system is hereafter referred to as Discharger in this General Order. A Small Domestic System that uses subsurface disposal may be regulated by a local agency rather than a Regional Water Board, consistent with the Water Quality Control Policy for Siting, Design, Operation, and Maintenance of Onsite Wastewater Treatment Systems Policy (OWTS Policy). Wastewater systems regulated by local agencies may continue that coverage unless directed by the local agency or the Regional Water Board Executive Officer to seek WDRs from the Regional Water Board.
5. Wastewater treatment technologies evolve over time. Septic tanks and gravity fed leach fields provide the lowest level of acceptable treatment. Other treatment may include aerobic treatment systems, sand/media filters, package treatment plants, constructed wetlands, activated sludge, membrane biological reactors, and disinfection systems. Similarly, other dispersal options for the treated effluent may include pressure dosing, drip irrigation, land application, mound/at grade systems, or

evapotranspiration systems. The level of treatment shall be based upon the wastewater quality and the receiving water quality at the wastewater disposal location. For flow rates that exceed 20,000 gallons per day (gpd), Attachment 1, *Nitrogen Effluent Limit Evaluation*, provides direction in evaluating a discharge and determining when nitrogen control is required. Seepage pits may be considered part of the disposal system if inadequate land exists for a leach field dispersal system, other site conditions require the use of seepage pits, and site conditions are favorable for the use of seepage pits (groundwater quality shall be maintained consistent with this General Order). The discussion of treatment and disposal alternatives is not intended to limit the selection of alternatives available to the wastewater system designer.

6. All WDRs must implement the applicable Regional Water Quality Control Board's (Regional Water Board's) Water Quality Control Plan (Basin Plan) for the region in which the discharge occurs; therefore this General Order requires Dischargers to comply with all applicable Basin Plan requirements, including any prohibitions and/or water quality objectives, governing the discharge. The Discharger must comply with any more stringent standards in the applicable Basin Plan. In the event of a conflict between the requirements of this General Order and the Basin Plan, the more stringent requirement prevails.

7. This General Order allows the production and use of recycled water (as defined in Water Code section 13050(n)) and requires all recycled water use to comply with the applicable requirements described in California Code of Regulations, title 22, division 4, chapter 3, (hereafter title 22). Compliance with title 22 water recycling criteria and title 17 sanitation requirements shall be determined by the State Water Board Division of Drinking Water (DDW) (formerly California Department of Public Health), which reviews title 22 Engineering Reports. This General Order also allows for the application of treated wastewater to land that does not meet the definition of beneficial use, and is therefore not subject to the title 22 requirements.

8. Wastewater and treated wastewater quality vary depending upon source water quality, the activities generating the wastewater, water conservation efforts, inflow and infiltration (I/I), and treatment technology. Typical domestic wastewater and treated wastewater characteristics are presented in Table 1. Published wastewater textbooks and/or United States Environmental Protection Agency (USEPA) wastewater publications may also be used to characterize wastewater characteristics.

Table 1: Summary of Domestic Wastewater Characteristics

Constituent	Units[a]	Typical Domestic Wastewater	Septic Tank Influent	Septic Tank Effluent	Secondary Treatment Effluent	Equivalent to Secondary Treatment Effluent
Biochemical Oxygen Demand	mg/L	200-290 [b]	155-286 [c]	140-200 [d]	30-45 [e]	65 percent reduction [f]
Total Suspended Solids	mg/L	200-290 [b]	155-330 [c]	50-100 [d]	30-45 [e]	[p]
Ammonia (as N)	mg/L	6-18 [b]	4-13 [c]	--[g,o]	-- [g,h]	-- [g,h,i]
Total Nitrogen	mg/L	35-100 [b]	26-75 [c]	40-100 [d]	50% [m]	43-80% [k,h,i]

Constituent	Units[a]	Typical Domestic Wastewater	Septic Tank Influent	Septic Tank Effluent	Secondary Treatment Effluent	Equivalent to Secondary Treatment Effluent
Nitrite and Nitrate (as N)	mg/L	<1 [b]	<1 [c]	--[g,o]	--[g,h]	-- [g,h,i]
Total Phosphorus (as P)	mg/L	6-12 [b]	6-12 [c]	5-15 [d]	51% [m]	50% [k,h,i]

a. mg/L denotes milligrams per liter.
b. Data from Table 4-3, USEPA Wastewater Treatment/Disposal for Small Communities, Manual, September 1992, EPA/625/R-92/005.
c. Data from Table 3-7, USEPA Onsite Wastewater Treatment System Manual, June 2005, EPA/625/R-00/008.
d. Data from Table 3-19, USEPA Onsite Wastewater Treatment Systems Manual, June 2005, EPA/625/R-00/008.
e. Data from Exhibit 5-6, USEPA NPDES Permit Writers' Manual, December 1996, EPA-833-B-96-003.
f. Data from Section 5.2.2, USEPA NPDES Permit Writers' Manual, December 1996, EPA-833-B-96-003.
g. "--" denotes data not available.
h. Value highly variable depending upon treatment technology.
i. No technology based limit established by USEPA.
k. Percent reduction from influent, wastewater pond treatment. USEPA webpage <http://www.epa.gov/ caddis/ssr_urb_ww1.html>, accessed August 29, 2014.
m. Percent reduction from influent wastewater, activated sludge treatment. USEPA webpage <http://www.epa.gov/ caddis/ssr_urb_ww1.html>, accessed August 29, 2014.
o. Insignificant change expected in treatment.
p. TSS limit not appropriate for land discharge.

9. Discharges from RV holding tanks or portable toilets may contain chemicals that can pollute groundwater quality. Some commercially available products used to control holding tank/portable toilet odors may contain harmful chemicals such as formaldehyde, zinc, or phenol. The harmful chemicals can kill the bacteria in the wastewater treatment system and cause wastewater to be inadequately treated. Inadequately treated wastewater may cause additional problems such as leachfield/ seepage pit failure, surfacing wastewater, and potential exposure and health risks. Discharge of the harmful chemicals to groundwater that creates pollution may result in enforcement activities requiring groundwater remediation. The best and least expensive method to prevent groundwater pollution is to not use harmful chemicals by educating RV owners about the pollution hazard.

10. Total dissolved solids (TDS) consists of both volatile (organic) and fixed (inorganic) fractions. A varying concentration of volatile dissolved solids will exist in wastewater effluent depending upon the wastewater source and treatment technology. In a properly operated land application system, volatile dissolved solids in percolate are generally reduced to negligible concentrations (less than 2 mg/L) by filtration and biological degradation following percolation through five feet of soil.[1] However, fixed

[1] USEPA, Process Design Manual, Land Treatment of Municipal Wastewater, Section 4.2.1, 1981.

dissolved solids (FDS) do not degrade biologically. Elevated concentrations of FDS in land applied effluent can change soil chemistry and degrade groundwater quality.

11. Wastewater discharged to land in close proximity to a surface water body may impact surface water quality. Additional monitoring may be required by a Regional Water Board's Executive Officer to determine if the discharge has degraded surface water quality. The USEPA recommends *Escherichia coli* (E. coli) and enterococci bacteria, which exist in fecal material from humans and other warm-blooded animals, as the best indicators of health risk from water contact.[2] Because both bacteria are present in domestic wastewater, there is no need to monitor separately for them in wastewater effluent. The effectiveness of disinfection procedures are similar for bacteria, therefore total coliform organisms, which is a less expensive analysis, is appropriate to determine if wastewater effluent is effectively disinfected. Total coliform monitoring is required for recycled water use consistent with title 22.

12. Use of recycled water in lieu of potable water is encouraged by the State Water Board as described below:

    a. The State Water Board's Strategic Plan Update 2008-2012 includes a priority to increase sustainable local water supplies available for meeting existing and future beneficial uses by 1,725,000 acre-feet per year (afy) in excess of 2002 levels by 2015.

    b. The State Water Board's Policy for Water Quality Control for Recycled Water states the following goals (in part): 1) Increase the use of recycled water over the 2002 level by at least 1 million afy by 2020 and by at least 2 million afy by 2030. 2) Increase the amount of water conserved in urban and industrial uses by 20 percent compared to 2007. 3) Substitute as much recycled water for potable water as possible by 2030.

13. The Recycled Water Policy calls on local water and wastewater entities together with other stakeholders who contribute salt and nutrients to a groundwater basin or sub-basin, to fund and develop Salt and Nutrient Management Plans (SNMPs) to comprehensively address all sources of salts and nutrients. The State Water Board herein reasserts the need for comprehensive salt and nutrient management planning and directs that salinity and nutrient increases should be managed in a manner consistent with the Recycled Water Policy. It is the intent of the Recycled Water Policy that every groundwater basin/sub-basin in California ultimately has a consistent Salt and Nutrient Management Plan. The appropriate way to address salt and nutrient issues is through the development of regional or subregional SNMPs. Dischargers may be directed to perform or participate in SNMP planning activities as described in the Provisions of this General Order.

[2] USEPA Internet page accessed June 10, 2014 <http://water.epa.gov/type/rsl/monitoring/vms511.cfm>.

14. The Recycled Water Policy includes monitoring requirements for Constituents of Emerging Concern[3] for the use of recycled water for groundwater recharge by surface and subsurface application methods. The monitoring requirements and criteria for evaluating monitoring results in the Recycled Water Policy are based on recommendations from a Science Advisory Panel.[4] Because this General Order is limited to non-potable uses and does not authorize groundwater replenishment activities, monitoring for Constituents of Emerging Concern is not required.

15. The Recycled Water Policy requires permits for landscape irrigation with recycled water to include priority pollutant monitoring at the recycled water production facility. Annual monitoring is required for design production flows greater than one million gallons per day; a five year monitoring frequency is required for flows less than one million gallons per day. Priority pollutants are listed in Appendix A of 40 Code of Federal Regulations (C.F.R.) Part 423.

16. Beneficial uses for groundwater are determined by each Regional Water Board and are listed in their respective Basin Plans. Beneficial uses for groundwater are: municipal supply (MUN), industrial service supply (IND), industrial process supply (PROC), fresh water replenishment (FRESH), aquaculture (AQUA), wildlife habitat (WILD), water contact recreation (REC-1), agricultural supply (AGR), and groundwater recharge (GWR). Some beneficial uses only apply to certain geographic areas within regions.

17. Basin Plans establish groundwater quality objectives to protect beneficial uses. The objectives may be narrative, numerical, or both. This General Order requires the Discharger to comply with those objectives in receiving groundwater.

WASTEWATER DISPERSAL

18. Wastewater dispersal will occur by different methods. It may be percolated from ponds; applied to the surface by spray, flood, or drip methods; or discharged to a subsurface dispersal area such as a leachfield or seepage pit. The choice of disposal method will depend upon the amount of wastewater generated, the value of the wastewater for irrigation, and the receiving environment.

    a. Wastewater discharged to a pond for treatment and/or storage can result in groundwater degradation or nuisance odors. Ponds can also be vulnerable to damage caused by burrowing animals.

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[3] For this order, Constituents of Emerging Concern are defined to be chemicals in personal care products, pharmaceuticals including antibiotics, antimicrobials; industrial, agricultural, and household chemicals; hormones; food additives; transformation products, inorganic constituents; and nanomaterials.

[4] The Science Advisory Panel was convened in accordance with provision 10.b of the Recycled Water Policy. The panel's recommendations were presented in the report; *Monitoring Strategies for Chemicals of Emerging Concern in Recycled Water - Recommendations of a Science Advisory Panel*, dated June 25, 2010.

Wastewater percolated from a pond to the subsurface has the potential to degrade groundwater quality to an unacceptable extent. Reducing the amount of wastewater percolated by lining a pond with a synthetic or low permeability liner can control the percolation rate, but an alternative method of wastewater disposal may be required. Land application (discussed below) is often selected as the method to dispose of the wastewater from lined ponds.

Overloading a wastewater pond with Biochemical Oxygen Demand (BOD) constituents can result in nuisance odor generation. Source control of BOD constituents, additional pretreatment prior to discharge to the pond, or mechanical aeration of wastewater in the pond are typically used to prevent a pond from generating nuisance odors.

Burrowing animals can result in rapid failure of a containment berm. The population of such animals should be promptly controlled and repairs to the containment completed as soon as possible.

b. When land application of wastewater is selected as a disposal method, adequate acreage must be available to allow application rates that will not create nuisance conditions (e.g. vectors, nuisance odors, off-site discharge) or degrade groundwater quality to an unacceptable extent.

   Crops are often grown and harvested from a land application area (LAA) to take up wastewater constituents such as nitrogen and dissolved solids, as well as maintain roots which promote wastewater infiltration rates. When climatic conditions are favorable, double cropping an LAA can increase the uptake of wastewater constituents.

   Hydraulic loading of an LAA must be controlled to prevent off-site wastewater discharge; if wastewater is not disinfected prior to land application, storm water that falls on the LAA must be contained to prevent the potential migration off-site of pathogenic organisms. LAAs are sometimes equipped with a tailwater control system that allows for reapplication of wastewater to the LAA or returning tailwater to a wastewater pond.

c. Subsurface disposal areas may be constructed as leachfields or when conditions allow, seepage pits. If seepage pits are employed, they are often located at the end of a leachfield distribution pipe to maximize shallow distribution of wastewater.

   If conditions are not favorable for traditional leachfield construction, an at-grade, or an above grade (mound) system may be used. Typically, at-grade and above grade systems are dosed using a dosing pump and pump controller. Dosed systems use relatively small diameter pipe to distribute the wastewater to zones within the dispersal area. Even in well operated systems, some suspended solids will be pumped into the distribution piping. Cleanouts or a flushing system on the distribution piping are required to remove the solids that will accumulate if the emitters are small enough diameter to prevent suspended solids from passing through the distribution equipment. Gravelless trench systems which do not use gravel, typically use distribution piping and a dosing

system, and should be constructed with cleanouts or a flushing system similar to at-grade and/or above grade systems when needed.

Subsurface disposal areas should be planted with shallow rooted plants to prevent erosion and provide for uptake of wastewater nutrients; trees and shrubs should be removed to prevent roots from damaging the leachfield. Similarly, burrowing animals can damage an at-grade or above grade (mound) disposal system and result in leakage. Burrowing animals should be promptly controlled and repairs to the disposal system completed as soon as possible.

19. Setbacks from wastewater treatment areas, dispersal areas, and/or LAAs from domestic wells, flowing and/or ephemeral streams, lakes/reservoirs, and property lines are provided in this General Order. Setbacks are included as a means of reducing pathogenic risks by coupling pathogen inactivation rates with groundwater travel time to a well or other potential exposure route (e.g. water contact activities). In general, a substantial unsaturated zone reduces pathogen survival compared to saturated soil conditions. Fine grained (silt or clay) soil particles reduce the rate of groundwater transport and therefore are generally less likely to transport pathogens; coarse grained soil particles or fracture flow groundwater conditions may be more likely to transport pathogens. Setbacks also provide attenuation of other wastewater constituents through physical, chemical, and biological processes. The setbacks provided in this General Order are based on the title 22 water recycling criteria, the California Well Standards, the OWTS Policy, the California Plumbing Code, and commonly imposed setbacks by regulatory agencies.

20. The OWTS Policy identified wastewater disposal as a potential contributing source of pathogens or nitrogen to an impaired surface water body.[5] OWTS Policy Tier 3 addresses impaired surface water bodies and describes an Advanced Protection Management Program (APMP) as the minimum management program for wastewater systems subject to the OWTS Policy. In general, wastewater systems located within the geographic area[6] of an APMP are not eligible for coverage under this General Order unless the Regional Water Board's Executive Officer determines the discharge is acceptable based on site-specific conditions, the level of wastewater treatment, and/or total maximum daily load (TMDL) implementation plan requirements.

[5] Impaired surface water bodies are those identified on a list approved first by the State Water Board and then approved by USEPA pursuant to Section 303(d) of the Federal Clean Water Act.

[6] The geographic area of an APMP is established (in order of hierarchy) by an approved TMDL, an approved local agency defined APMP, or 600 feet from the water body.

APPLICATION PROCESS

21. Dischargers seeking coverage under this General Order shall file an ROWD with the appropriate Regional Water Board. The application process is summarized in Attachment A. Some Regional Water Boards may provide procedures for electronic submittal of application documents. An ROWD consists of:

    a. A completed Form 200, which is available at: http://www.waterboards.ca.gov/publications_forms/forms/docs/form200.pdf .

    b. An application fee that serves as the first annual fee. Fees are based on threat and complexity ratings, and the treatment technology employed. Threat and complexity ratings are defined in the fee schedule listed in California Code of Regulations, title 23, section 2200 and also available at: <http://www.waterboards.ca.gov/resources/fees/docs/ fy1112fee_schdl_wdr.pdf>.

    c. A technical report that describes the wastewater generation, treatment, storage, and disposal. Submittal of the report in the recommended format provided in Attachment B1 will allow for an expedited review by Regional Water Board staff. (Some Regional Water Boards' staff may have different or additional technical report requirements in addition to Attachment B1. An applicant is advised to inquire with the Regional Water Board staff before performing investigations and/or preparing the technical report.)

    Upon review of the ROWD, Regional Water Board staff will determine if coverage under this General Order is appropriate. The Regional Water Board's Executive Officer will issue a Notice of Applicability (NOA) when coverage under this General Order has been authorized. The NOA will contain the necessary site-specific monitoring and reporting requirements.

22. Dischargers covered by WQO 97-10-DWQ or another administrative mechanism may continue discharging under that authority until notified of the need to update their coverage by the State Water Board or Regional Water Board.

23. Although a Discharger may be eligible for coverage under this General Order, the appropriate Regional Water Board Executive Officer may determine that the discharge would be better regulated by a waiver of WDRs, individual WDRs, a different general order, an enforcement order, or a National Pollutant Discharge Elimination System (NPDES) Permit.

ANTIDEGRADATION ANALYSIS

24. State Water Board Resolution 68-16, the *Statement of Policy with Respect to Maintaining High Quality of Waters in California* (hereafter the Antidegradation Policy) requires that disposal of waste into the waters of the state be regulated to achieve the highest water quality consistent with the maximum benefit to the people of the state. The quality of some waters is higher than established by adopted policies and that higher quality water shall be maintained to the maximum extent possible consistent with the Antidegradation Policy. The Antidegradation Policy requires the following:

a. Higher quality water will be maintained until it has been demonstrated to the state that any change will be consistent with the maximum benefit to the people of the state, will not unreasonably affect present and anticipated beneficial use of the water, and will not result in water quality less than that prescribed in the policies.

b. Any activity that produces a waste and discharges to existing high quality waters will be required to meet WDRs that will result in the Best Practicable Treatment or Control (BPTC) of the discharge necessary to assure pollution or nuisance will not occur, and the highest water quality consistent with the maximum benefit to the people of the state will be maintained.

25. The Antidegradation Policy requires maintenance of high quality of waters of the state unless limited degradation is consistent with the maximum benefit to the people of the state. When issuing NOAs under this General Order, Executive Officers must assure that Dischargers implement BPTC as necessary to maintain the highest water quality consistent with the maximum benefit to the people of the state.

26. This General Order allows discharges to numerous groundwater bodies, each with its own chemical characteristics. There are not sufficient data to determine which receiving waters are high quality waters. To the extent a discharge covered under this General Order may be to high quality waters, this General Order authorizes limited degradation consistent with the Antidegradation Policy as described in the findings below.

27. This General Order limits a discharge flow rate to 100,000 gpd; therefore, only small Dischargers will be eligible for coverage. Wastewater systems with a flow rate greater than 20,000 gpd must evaluate the discharge with the method presented in Attachment 1 to determine if nitrogen effluent limits are appropriate. Discharge of domestic wastewater at lower flow rates inherently has less potential to significantly degrade water quality.

28. Limited degradation of groundwater by some waste constituents associated with domestic wastewater effluent, after effective source control, treatment, and control measures are implemented, is consistent with the maximum benefit to the people of the state. The technology, energy, water recycling, and waste management advantages of centralized wastewater treatment systems far exceed any benefits derived from reliance on numerous, concentrated individual wastewater systems, and the cumulative impact on water quality will be substantially less. The economic prosperity of communities and associated industry is of maximum benefit to the people of the state and provides sufficient justification for allowing the limited groundwater degradation that may occur pursuant to this General Order provided the terms of the applicable Basin Plan, and other applicable State Water Board and Regional Water Board policies are consistently met. The State Water Board recognizes variability in a small community's ability to construct wastewater treatment systems based on financial resources.

29. Constituents of concern that have the potential to degrade groundwater include salinity, nutrients, and pathogens (represented by coliform bacteria). In addition, excessive BOD loading of ponds or LAAs may result in nuisance odors or anaerobic

conditions, which are not favorable biological treatment conditions. This General Order includes effluent limits for nitrogen and BOD, and a process to determine how to apply the limits. Implementation of the process to determine the effluent limit that applies will result in the BPTC for the wastewater constituents. In addition, this General Order provides guidance on preparing a monitoring program that ensures the treatment is effective. Each of the wastewater constituents of concern are discussed below:

a. Salinity is a measure of dissolved solids in water. Excessive salinity can reduce the beneficial uses of water. Salinity can be affected by the discharge of wastewater with elevated concentrations of TDS. TDS consists of both volatile (organic) and fixed (inorganic) fractions. In a well-operated land application system, volatile dissolved solids in percolate will be reduced to negligible concentrations. The best approach for addressing salinity is through source control activities. This General Order allows an Executive Officer to require participation in salt and nutrient management planning processes.

b. Nitrogen is a nutrient normally present in domestic wastewater at a concentration that can degrade groundwater quality. The potential for degradation depends upon the wastewater treatment method and the environment into which the wastewater effluent is discharged. Nitrogen concentration reduction is not required in every situation, such as when wastewater treatment and application is performed in a way that is protective of the beneficial uses of water.

   When needed, nitrogen concentrations can be reduced in a number of ways, such as nitrification, denitrification, and/or crop uptake and removal. However, the General Order requires that the effluent limit for nitrogen be determined based on procedures in Attachment 1, which provides additional criteria to determine when and how much nitrogen control is required. Effluent limits are determined based on the threat to groundwater quality. If nitrogen control is needed, a minimum of 50-percent reduction is required. In cases where a higher threat to groundwater exists, a total nitrogen concentration limit of 10 mg/L is required. By imposing the total nitrogen limit of 10 mg/L, the wastewater derived nitrogen cannot exceed the maximum contaminant level (MCL) for groundwater. Because natural systems are rarely 100-percent efficient, the nitrogen concentration limit will be protective of the existing and/or potential beneficial use of groundwater. Effluent limitations for nitrogen are contained in this General Order. To ensure the nitrogen control is effective, the model Monitoring and Reporting Program (MRP) provided as Information Sheet Attachment C includes monitoring that can be implemented to verify compliance with effluent limits.

c. Pathogens and other microorganisms are present in domestic wastewater. Wastewater treatment processes will reduce the concentration of pathogens but disinfection is required to significantly reduce their presence. Coliform bacteria are used as a surrogate (indicator) because they are excreted by warm-blooded animals, are present in high numbers, survive in the environment similar to

pathogenic bacteria, and are easy to detect and quantify. Disinfection of wastewater is not required in every situation, such as when the wastewater application is performed in such a way that public contact is minimized through physical controls and/or notification.

When needed, disinfection can be performed in a number of ways. The title 22 water recycling criteria lists disinfection requirements for specific activities. To ensure the disinfection is effective, the model MRP provided as Information Sheet Attachment C includes monitoring that can be implemented to verify compliance with effluent limits.

30. Compliance with the General Order, the NOA, DDW requirements, and any mitigation measures will ensure compliance with the applicable Basin Plan.

TITLE 27 EXEMPTION

31. The wastewater treatment, storage, and disposal activities described in this General Order are exempt from the requirements of *Consolidated Regulations for Treatment, Storage, Processing, or Disposal of Solid Waste* in California Code of Regulations, title 27, division 2, Subdivision 1, section 20005, et seq. The activities are exempt from the requirements of title 27 so long as the activity meets, and continues to meet, all preconditions listed below. (Cal. Code Regs., tit. 27, § 20090.)

    a. Sewage—Discharges of domestic sewage or treated effluent which are regulated by WDRs issued pursuant to California Code of Regulations, title 23, division 3, chapter 9, or for which WDRs have been waived, and which are consistent with applicable water quality objectives, and treatment or storage facilities associated with municipal wastewater treatment plants, provided that residual sludge or solid waste from wastewater treatment facilities shall be discharged only in accordance with the applicable State Water Board promulgated provisions of this division. (Cal. Code Regs., tit. 27, § 20090(a).)

    b. Wastewater—Discharges of wastewater to land, including but not limited to evaporation ponds, percolation ponds, or subsurface leach fields if the following conditions are met:

        (1) the applicable Regional Water Board has issued WDRs, reclamation requirements, or waived such issuance;

        (2) the discharge is in compliance with the applicable water quality control plan; and

        (3) the wastewater does not need to be managed according to, California Code of Regulations, title 22, division 4.5, chapter 11, as a hazardous waste. (Cal. Code Regs., tit. 27, § 20090(b).)

    c. Underground Injection—Discharges of waste to wells by injection pursuant to the Underground Injection Control Program established by the USEPA under the Safe Drinking Water Act, 42 US Code section 300(h), see Code of Federal Regulations title 40, Parts 144 to 146. (Cal. Code Regs., tit. 27, § 20090(c).)

d. Soil Amendments—Use of nonhazardous decomposable waste as a soil amendment pursuant to applicable best management practices, provided that Regional Water Boards may issue waste discharge or reclamation requirements for such use. (Cal. Code Regs., tit. 27, § 20090(f).)

e. Fully Enclosed Units—Waste treatment in fully enclosed facilities, such as tanks, or in concrete lined facilities of limited areal extent, such as oil water separators designed, constructed, and operated according to American Petroleum Institute specifications. (Cal. Code Regs., tit. 27, § 20090(i).)

Table 2: Summary of Wastewater System and California Code of Regulations, Title 27 Exemptions

Example of Wastewater System Element/ Activity	Potentially Applicable Exemption(s)
Wastewater collection, treatment, storage, and disposal systems.	Section 20090 (a) Sewage, domestic wastewater, and treated effluent
Applying wastewater to evaporation ponds, storage ponds, percolation ponds, rapid infiltration basins, leach fields, seepage pits, land application areas, spray fields, etc.	Section 20090 (b) Wastewater discharges to land
Disposal of wastewater in injection wells or seepage pits.	Section 20090 (c) Underground injection
Application of treated wastewater containing suspended solids to a land application area.	Section 20090 (f) Soil amendments, nonhazardous decomposable waste
Wastewater collection, flow equalization, and treatment in a septic tank, Imhoff tank, sand/media filter, package treatment tank, aeration basin, clarifier, sludge holding/thickening tank, pumping sumps, lined sludge drying beds, etc.	Section 20090 (i) Waste treatment in fully enclosed facilities.

CALIFORNIA ENVIRONMENTAL QUALITY ACT

32. This General Order is intended to cover both new and existing Small Domestic Systems.

    a. The adoption of this General Order for existing Small Domestic Systems is categorically exempt from the California Environmental Quality Act (CEQA) pursuant to California Code of Regulations, title 14, section 15301 (ongoing or existing projects), section 15302 (replacement or reconstruction of existing utility systems), and section 15303 (new construction or conversion of small structures).

b. For new or expanding Small Domestic Systems, the State Water Board considered the environmental impacts associated with the adoption of this General Order and prepared an Initial Study in accordance with California Code of Regulations, title 14 section 15063. Analysis in the Initial Study and early consultation with responsible and trustee agencies did not identify any significant impacts on the environment. Therefore, a Negative Declaration was prepared. The State Water Board adopted the Negative Declaration (Resolution 2014-0054) on September 23, 2014.

c. New or expanding systems are subject to further CEQA evaluation on a site-specific basis by local agencies performing CEQA evaluations of proposed projects. The potential significant environmental impacts from discharges of domestic wastewater can be mitigated to less than significant impacts by compliance with this General Order, the NOA, and any mitigation measures adopted by local agencies.

OTHER REGULATORY ISSUES

33. Dischargers that meet the criteria for coverage under State Water Board Order No. 2006-0003-DWQ, *Statewide General Waste Discharge Requirements for Sanitary Sewer Systems,* or updated order, are required to obtain coverage.

34. Consistent with Water Code section 13241, the State Water Board, in establishing the requirements contained herein, considered factors including, but not limited to, the following:

    a. Past, present, and probable future beneficial uses of water.

    b. Environmental characteristics of the hydrographic unit under consideration, including the quality of water available thereto.

    c. Water quality conditions that could reasonably be achieved through the coordinated control of all factors which affect water quality in the area.

    d. Economic considerations.

    e. The need for developing housing within the region(s).

    f. The need to develop and use recycled water.

35. Water Code section 13263(i) states, The State Water Board or a Regional Water Board may prescribe general WDRs for a category of discharges if the State Water Board or that Regional Water Board finds or determines that all of the following criteria apply to the discharges in that category:

    1) The discharges are produced by the same or similar operations.

    2) The discharges involve the same or similar types of waste.

    3) The discharges require the same or similar treatment standards.

    4) The discharges are more appropriately regulated under general WDRs than individual WDRs.

Small Domestic Systems that will be regulated under this General Order are consistent with the criteria listed above and therefore a general order is appropriate. All discharges regulated under this order will be from similar operations and will be consistent with the description of domestic wastewater as defined in Finding 8. The discharges will use similar treatment methods (e.g. screening, settling, biological treatment, clarification, and application to land). Individual WDRs are not necessary because the discharges are similar and discharge requirements would be similar if individual WDRs were issued.

36. Technical and monitoring reports specified in this General Order are required. (Wat. Code, § 13267.) Failing to furnish the reports by the due date or falsifying information in the reports, are misdemeanors that may result in assessment of civil liabilities against the Discharger. Water Code section 13267 states, in part:

> "In conducting an investigation specified in subdivision (a), the regional board may require that any person who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge waste within its region, or any citizen or domiciliary, or political agency or entity of this state who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge, waste outside of its region that could affect the quality of waters within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the regional board requires. The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports. In requiring those reports, the regional board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports."

The technical reports required by this General Order, the NOA, and the MRP are necessary to assure compliance with this General Order. The burden and cost of preparing the reports is reasonable and consistent with the interest of the state in maintaining water quality.

37. The BOD and Total Suspended Solids (TSS) effluent limitations contained in this General Order are technology based. USEPA has developed technology based effluent limits for secondary treatment for use in NPDES permits. However, pond treatment systems often cannot comply with the limits that apply to activated sludge treatment systems due to algae growth in the pond. In response, USEPA developed an equivalent to secondary treatment definition for alternative biological treatment technologies such as a trickling filter or waste stabilization pond. (40 C.F.R. §133.05). Although this General Order only authorizes discharges to land, some of the secondary treatment standards are appropriate to demonstrate that wastewater is adequately treated. For pond and/or trickling filter wastewater systems, the total suspended solids limit is not appropriate because application of algal solids to land is not a concern.

38. This General Order does not preempt or supersede the authority of municipalities, flood control agencies, or other local agencies to prohibit, restrict, or control discharges of waste subject to their jurisdiction.
39. The State Water Board has notified potential Dischargers and all other known interested parties of the intent to prescribe WDRs as described in this General Order.
40. The State Water Board, in a public meeting, has heard and considered all comments pertaining to the proposed discharge.

IT IS HEREBY ORDERED

IT IS HEREBY ORDERED that upon adoption of this General Order, WQO 97-10-DWQ is classified as in effect, but inactive for future Discharger enrollment.

Pursuant to Water Code section 13263 and 13267, the Discharger, its agents, successors, and assigns, in order to meet the provisions contained in division 7 of the Water Code and regulations adopted hereunder, shall comply with the following:

A. Prohibitions

1. The direct or indirect discharge of any wastewater to surface waters or surface water drainage courses is prohibited.
2. The use of cesspools, an excavation or device that allows wastewater infiltration into the soil without treatment, is prohibited.
3. The treatment, storage, and/or disposal of waste in or at the wastewater system shall not cause or contribute to a condition of pollution, contamination, or nuisance as defined in Water Code section 13050.
4. The discharge of wastewater other than domestic wastewater is prohibited.
5. Bypass or overflow of treated or untreated waste is prohibited.
6. The discharge of waste to land not owned, operated, or controlled by the Discharger is prohibited. An exception to this prohibition is when recycled water is used as described in a title 22 Engineering Report approved by DDW.
7. The discharge of waste classified as hazardous (Cal. Code Regs., tit. 23, § 2521(a)), or designated (Wat. Code, § 13173) is prohibited.
8. The discharge of waste in violation of, or not consistent with, the applicable Regional Water Board's Basin Plan is prohibited.
9. A physical connection between a recycled water system and a potable water system is prohibited.
10. The use of recycled water in a manner different than described in the DDW approved title 22 engineering report is prohibited.
11. Use of equipment used to convey recycled water (e.g. tanks, piping, valves,) also used for potable water supply, is prohibited.

B. Requirements by Wastewater System Type

1. All Wastewater Systems

a. The Discharger shall not discharge wastewater in excess of the flow limit(s) specified in the NOA. In no case shall the flow rate of wastewater discharged to the headworks exceed 100,000 gpd as a monthly average. Headworks are defined as the facilities where wastewater enters a wastewater treatment plant. Headworks may include bar screens, comminutors, a wet well, and pumps. Dischargers that store wastewater and apply it to an LAA during irrigation season may land apply more than 100,000 gallons per day of treated wastewater to an LAA during the irrigation season as allowed by the NOA.

b. Treatment and disposal of wastewater must demonstrate BPTC for domestic wastewater. BPTC shall be demonstrated by compliance with all of the following:

   i. Compliance with this General Order.

   ii. Compliance with effluent limitations included in this General Order.

   iii. Compliance with the NOA, which will specify the following (at a minimum):

      1. Site-specific flow limit(s).

      2. Site-specific wastewater system treatment and disposal methods provided in Section B.2 through B.8 of this General Order.

      3. Applicable Basin Plan groundwater and/or surface water limitations in addition to those provided in Section C of this General Order.

      4. Applicable effluent limitations from Section D of this General Order. For flow rates greater than 20,000 gpd, the discharge must be evaluated as described in Attachment 1 to determine if nitrogen effluent limits are required.

      5. Requirements for operation of the wastewater treatment system and disinfection requirements provided by the DDW approved title 22 Engineering Report.

      6. Water quality related mitigation measures from an approved site-specific CEQA document (if one is prepared).

c. Wastewater systems located within the geographic area[7] of an APMP are not eligible for coverage under this General Order unless the Regional Water Board's Executive Officer determines the discharge is acceptable based on site-specific conditions, the level of wastewater treatment, and/or TMDL implementation plan requirements.

[7] The geographic area of an APMP is established (in order of hierarchy) by an approved TMDL, an approved local agency defined APMP, or 600 feet from the water bodies listed on Table 5 or Table 6 of OWTS Policy Attachment 2.

d. The siting, design, construction, operation, maintenance, and monitoring of the wastewater system shall comply with the requirements of the applicable Regional Water Board's Basin Plan.

e. Nuisance odors shall not be perceivable beyond the property line of the wastewater treatment facility.

f. Public contact with wastewater shall be deterred through such means as fences, signs, and other acceptable alternatives.

g. For systems with a design flow rate greater than 3,500 gpd, the technical report required as part of the ROWD shall be prepared by a California licensed professional civil engineer. For systems with a design flow rate less than 3,500 gpd, the technical report shall be prepared by a California licensed professional engineer or other appropriately licensed professional (e.g., a California licensed professional geologist or California registered environmental health specialist).

h. For new or expanding Small Domestic Systems within or nearby the boundaries of a centralized wastewater district or regional service area, the Discharger must demonstrate a good faith effort to connect to the centralized system when feasible and practicable, and provide evidence that connection to the system was not approved.

i. A Regional Water Board Executive Officer may require additional investigations or monitoring to demonstrate beneficial uses of water are protected and antidegradation requirements are satisfied. Acceptable methods may include, but not be limited to, evaluation of the wastewater system's treatment performance, groundwater monitoring, or additional sampling to characterize the wastewater discharge.

j. The Discharger shall comply with any water quality related mitigation measures adopted in a CEQA document addressing the facility.

k. When producing or using recycled water, the Discharger shall comply with the provisions of the DDW approved title 22 Engineering Report.

l. The Discharger shall comply with the setbacks described in Table 3. However, some existing sites may not comply with the setbacks provided herein. Such noncomplying sites may be permitted under this General Order if nuisance conditions do not result from the noncompliance. Expansion of a noncomplying wastewater system shall trigger further evaluation of the setbacks. In some cases, more than one setback standard exists. The following procedure shall be implemented when determining the appropriate setback:

    i. When the setback requirement comes from title 22, approval of a variance must be obtained from DDW.

ii. When the setback comes from the California Well Standards, a reduced setback may be allowed based on site-specific conditions; review the California Well Standards for clarification.

iii. When the setback comes from the OWTS Policy, the Regional Water Board Executive Officer may allow a reduced setback based upon site-specific conditions (e.g. annular seal in a well, groundwater flow direction near water bodies, treatment/disinfection level of wastewater, etc.).

iv. When the setback comes from the California Plumbing Code, the Regional Water Board Executive Officer may not reduce the setback.

v. Setbacks that are not referenced to a requirement listed above are based on professional judgment and may be revised by the Regional Water Board Executive Officer based on site-specific conditions.

Table 3: Summary of Wastewater System Setbacks

Equipment or Activity	Domestic Well	Flowing Stream [a]	Ephemeral Stream Drainage [b]	Property Line	Lake or Reservoir [d]
Septic Tank, Aerobic Treatment Unit, Treatment System, or Collection System [e]	150 ft.[y] 100 ft.[o] 50 ft.[c]	50 ft.[c]	50 ft.	5 ft.[c]	200 ft.[w] 50 ft.[c]
Leach Field [f]	100 ft.[o,c]	100 ft.[c]	50 ft.	5 ft.[c]	200 ft.[w] 100 ft.[c]
Seepage Pit	150 ft.[o,c]	150 ft.[c]	50 ft.	8 ft.[c]	200 ft.[w] 150 ft.[c]
LAND APPLICATION AREA REQUIREMENTS					
LAA (disinfected tertiary recycled water) [g]	50 ft.[m]	25 ft.	50 ft.	25 ft.	200 ft.
LAA (disinfected sec-2.2 or sec-23 recycled water) [h]	100 ft.[r]	50 ft.	50 ft.	100 ft.[x] 50 ft.[p]	200 ft.
LAA (undisinfected secondary recycled water) [i]	150 ft.[s]	100 ft.	100 ft.	100 ft.[x] 50 ft.[p]	200 ft.
Spray Irrigation (disinfected tertiary recycled water) [k]	No spray irrigation of any recycled water, other than disinfected tertiary recycled water, shall take place within 100 feet of a residence or a place where public exposure could be similar to that of a park, playground, or school yard.				
WASTEWATER STORAGE AND/OR TREATMENT PONDS					
Impoundment (disinfected tertiary recycled water) [g]	100 ft.[t]	100 ft.	100 ft.	50 ft.	200 ft.
Impoundment (disinfected sec-2.2 or sec-23 recycled water) [h]	100 ft.[r]	100 ft.	100 ft.	50 ft.	200 ft.
Impoundment (undisinfected secondary recycled water) [i]	150 ft.[s]	150 ft.	150 ft.	50 ft.	200 ft.

LAA denotes Land Application Area. Sec denotes secondary.

[a] A flowing stream shall be measured from the ordinary high water mark established by fluctuations of water elevation and indicated by characteristics such as shelving, changes in soil character, vegetation type, presence of litter or debris, or other appropriate means.

[b] Ephemeral Stream Drainage denotes a surface water drainage feature that flows only after rain or snow-melt and does not have sufficient groundwater seepage (baseflow) to maintain a condition of flowing surface water. The drainage shall be measured from a line that defines the limit of the ordinary high water mark (described in "a" above). Irrigation canals are not considered ephemeral streams drainage

features. The ephemeral stream shall be a "losing stream" (discharging surface water to groundwater) at the proposed wastewater system site.

[c] Setback established by California Plumbing Code, Table K-1.

[d] Lake or reservoir boundary measured from the high water line.

[e] Septic Tank, Aerobic Treatment Unit, Treatment System, or Collection System addresses equipment located below ground or that impedes leak detection by routine visual inspection.

[f] Leach Field includes all subsurface dispersal systems, including mound systems except seepage pits.

[g] Disinfected tertiary recycled water is defined in California Code of Regulations, title 22, section 60301.230.

[h] Disinfected secondary-2.2 recycled water is defined in California Code of Regulations, title 22, section 60301.220. Disinfected secondary-23 recycled water is defined in California Code of Regulations, title 22, section 60301.225.

[i] Undisinfected secondary recycled water is defined in California Code of Regulations, title 22, section 60301.900.

[k] Additional restrictions for spray irrigation of recycled water are contained in California Code of Regulations, title 22, section 60310(f)

[m] Setback established by California Code of Regulations, title 22, section 60310(a). A reduced setback is allowed as described in California Code of Regulations, title 22, section 60310(a) if all the conditions in the section are met and compliance is documented in the ROWD and NOA.

[o] California Well Standards, part II, section 8. Site-specific conditions may allow reduced setback or require an increased setback. See discussion in Well Standards.

[p] Setback for drip or flood application methods. Spray irrigation is subject to additional setbacks and restrictions. (See footnote k.)

[r] Setback established by California Code of Regulations, title 22, section 60310(c).

[s] Setback established by California Code of Regulations, title 22, section 60310(d).

[t] Setback established by California Code of Regulations, title 22, section 60310(b).

[w] Setback established by the Onsite Wastewater Treatment System Policy, section 7.5.5.

[x] Setback established by California Code of Regulations, title 22, section 60310(f).

[y] Setback established by Onsite Wastewater Treatment System Policy, section 7.5.6.

2. Septic Systems

a. Gauging and limited repairs may be performed by homeowners or contractors as allowed by the Business and Professions Code (Bus. & Prof. Code, section 7044 and/or section 7048). With certain exceptions, anyone performing construction work in California must be licensed by the California Contractors' State License Board. Septic tank and/or leach field service (repairs, pumping, etc.) shall be performed only by a California licensed General Engineering (A), Plumbing (C-36), or Sanitation System (C-42) contractor. The Discharger shall maintain a record of all septic service activities for a minimum of five years. At a minimum, the record shall include the date, nature of service, service company name, and service company state contractor license number.

   Health and Safety Code sections 117400 - 117450 require septic tank pumping to be registered by the jurisdiction where work is performed. Such service providers may be exempt from the state contractor's licensing requirements if meeting the exceptions described in the Business & Professions Code section 7044 and/or 7048.

b. Owners and/or operators of wastewater systems that accept wastes from RVs or other mobile waste systems must ensure that such wastes do not deleteriously affect the wastewater system or adversely affect beneficial uses of groundwater

with holding tank additives that may contain, among other chemicals, formaldehyde, zinc, and/or phenol.

Use of holding tank chemicals shall be discouraged by the wastewater system owner/operator. Education of visitors can be accomplished by providing an information sheet upon check-in. Information on holding tank chemicals is provided in Attachment B2. The sale or provision of such additives by the Discharger to operators of RVs served by the Discharger's wastewater facility may be determined to be evidence of noncompliance with this section.

c. To the maximum extent possible, RV, portable toilet, or similar wastes shall not be discharged to a septic tank or functionally equivalent system (e.g. Imhoff tank) without subsequent additional treatment (e.g., aerated pond, recirculating sand filter, etc.) prior to disposal.

d. Septic tanks shall be pumped when any one of the following conditions exists:

   i. The combined thickness of sludge and scum exceeds one-third of the tank depth of the first compartment.

   ii. The scum layer is within 3 inches of the outlet device.

   iii. The sludge layer is within 8 inches of the outlet device.

e. Septage is the liquid, solid, and semisolid material that results from wastewater treatment in a septic tank, which must be pumped, hauled, treated, and disposed of properly. (40 C.F.R. § 503.) Septage disposal shall only be to a legal disposal site that has been issued WDRs by a Regional Water Board allowing septage disposal. Septage shall be handled in such a manner as to prevent its reaching surface waters or watercourses.

3. Aerobic Treatment Units

a. Within **90 days** of the issuance of an NOA, the Discharger shall submit a Sludge Management Plan consistent with the requirements of Provision E.1.c of this General Order. The Discharger must obtain written approval from the Regional Water Board's Executive Officer prior to any disposal of sludge. The Executive Officer shall be notified of any changes in an approved Sludge Management Plan at least **90 days** in advance of the proposed change.

b. Modifications to a Sludge Management Plan deemed part of an emergency action shall be noticed to the Regional Water Board Executive Officer within **five days** of disposal with a rationale for the emergency modification.

c. Gauging and limited repairs may be performed by homeowners or contractors as allowed by the Business and Professions Code (Bus. & Prof. Code, §§ 7044, 7048). With certain exceptions, anyone performing construction work in California must be licensed by the California Contractors' State License Board. Septic tank, aerobic treatment unit, and/or leach field service (repairs, pumping, etc.) shall be performed only by a California licensed General Engineering (A), Plumbing (C-36), or Sanitation System (C-42) contractor. The Discharger shall maintain a record of all service activities for a minimum of five years. At a minimum, the record shall

include the date, nature of service, service company name, and service company state contractor license number.

Health and Safety Code sections 117400 - 117450 require septic tank pumping to be registered by the jurisdiction where work is performed. Such service providers may be exempt from the state contractor's licensing requirements if meeting the exceptions described in the Business & Professions Code section 7044 and/or 7048.

d. Owners and/or operators of wastewater systems that accept wastes from RVs or other mobile waste systems must ensure that such wastes do not deleteriously affect the wastewater system or adversely affect beneficial uses of groundwater with holding tank additives that may contain, among other chemicals, formaldehyde, zinc, and/or phenol.

   Use of holding tank chemicals shall be discouraged by the wastewater system owner/operator. Education of visitors can be accomplished by providing an information sheet upon check-in. Information on holding tank chemicals is provided in Attachment B2. The sale or provision of such additives by the Discharger to operators of RVs served by the Discharger's wastewater facility may be determined to be evidence of noncompliance with this section.

e. Aerobic treatment units shall be pumped when any one of the following conditions exists :

   i. The combined thickness of sludge and scum exceeds one-third of the tank depth of the final settling tank or interferes with the operation of the system (mixed liquor[8] aerator solids shall not exceed the manufacturer's recommendation).

   ii. The scum layer is within 3 inches of the outlet device.

   iii. The sludge layer is within 8 inches of the outlet device.

f. Septic tanks (a septic tank may be used as a pretreatment step to minimize the amount of solids discharged to an aerobic treatment unit) shall be pumped when any one of the following conditions exists:

   i. The combined thickness of sludge and scum exceeds one-third of the tank depth of the first compartment.

   ii. The scum layer is within 3 inches of the outlet device.

   iii. The sludge layer is within 8 inches of the outlet device.

g. Septage is the liquid, solid, and semisolid material that results from wastewater treatment in a septic tank, which must be pumped, hauled, treated, and disposed

[8] When the activated sludge in an aeration tank is mixed with primary effluent or raw wastewater and return sludge, this mixture is referred to as mixed liquor when it is in the aeration tank.

of properly. (40 C.F.R. § 503.) Septage disposal shall only be to a legal disposal site that has been issued WDRs by a Regional Water Board allowing septage disposal. Septage shall be handled in such a manner as to prevent its reaching surface waters or watercourses.

4. Activated Sludge Systems

a. Within **90 days** of the issuance of an NOA, the Discharger shall submit a Sludge Management Plan consistent with the requirements of Provision E.1.c of this General Order. The Discharger must obtain written approval from the Regional Water Board's Executive Officer prior to any disposal of sludge. The Executive Officer shall be notified of any changes in an approved Sludge Management Plan at least **90 days** in advance of the proposed change.

b. Modifications to a Sludge Management Plan deemed part of an emergency action shall be noticed to the Regional Water Board's Executive Officer within **five days** of disposal with a rationale for the emergency modification.

5. Pond Systems

a. Sufficient freeboard shall be maintained at all times in ponds to provide adequate storage capacity and prevent wastewater spills. Freeboard shall be measured vertically from the lowest elevation of the pond berm to the pond water surface. If freeboard is less than one foot, the discharger shall immediately implement the contingency plan contained in the *Spill Prevention and Emergency Response Plan* (Provision E.1.a).

b. Pond systems shall have sufficient capacity to accommodate wastewater, design seasonal precipitation, ancillary I/I, and wind driven waves. Design seasonal precipitation shall be based on the following precipitation criteria:

   i. If wastewater spills do not occur, existing pond systems may continue to operate at their present size if they are covered under individual WDRs, a general order issued by a Regional Water Board, or by WQO 97-10-DWQ. If wastewater spills do occur, the Executive Officer may require the pond size requirement to be consistent with the specification defined in Pond Systems 5.b.ii (below).

   ii. For new or expanding pond systems covered under this General Order, seasonal precipitation used in the pond sizing water balance calculations shall be based on the following:

      a. The 100-year return annual total precipitation value distributed monthly in accordance with average (mean) precipitation values. The calculations shall demonstrate adequate capacity to maintain two feet of freeboard in the pond(s).

      b. The Executive Officer may allow a lower standard for the return annual total precipitation value, with approval of a technical report describing how operation of the wastewater system will not result in wastewater spills. In no case shall the Executive Officer allow less than a 50-year

return annual total precipitation value. If the Discharger seeks relief from the 100-year return annual total precipitation value, the Discharger shall certify that the *Spill Prevention and Emergency Response Plan* (Provision E.1.a) has been prepared, and is adequate to respond to forecast conditions using the 100-year return annual total precipitation value distributed monthly in accordance with average (mean) precipitation values. The calculations shall demonstrate adequate capacity to maintain two feet of freeboard in the pond(s).

c. All ponds shall be managed to mitigate breeding of mosquitoes including, but not limited to the following:

   i. An erosion control program shall be implemented to ensure that small coves and irregularities are not created around the perimeter of the water surface.

   ii. Weeds shall be minimized through control of water depth, a shoreline synthetic liner, harvesting, or herbicides.

   iii. Dead algae, vegetation, and debris shall be removed from the water surface.

   iv. Coordination with the local mosquito abatement or vector control district to supplement the measures described above in cases where other methods are infeasible.

d. Objectionable odors shall not create nuisance conditions beyond the limits of the wastewater treatment facility. A dissolved oxygen concentration less than 1.0 mg/L in the upper one foot of any wastewater pond shall be evidence of the potential to generate objectionable odors.

e. Burrowing animals active in areas that may compromise the integrity of a pond containment shall be promptly controlled and repairs to the containment completed as soon as possible.

f. Prior to any removal, drying, treatment, or disposal of sludge for pond maintenance, the Discharger shall submit a Sludge Management Plan consistent with the requirements of Provision E.1.c and obtain written approval from the Regional Water Board's Executive Officer. The Executive Officer shall be notified of any changes in an approved Sludge Management Plan at least **90 days** in advance of the proposed change.

6. Subsurface Disposal Systems

a. Wastewater shall not surface in any location of the disposal area.

b. Subsurface disposal systems shall hold in reserve sufficient land area for possible future 100-percent replacement of the subsurface disposal system, or establish an equivalent contingency that is approved by the Regional Water Board's Executive Officer and described in the NOA. If less than 100-percent replacement area was previously permitted under existing individual WDRs, WQO 97-10-DWQ, or a local agency permit, the minimum reserve area previously permitted shall be maintained.

c. No part of the disposal system(s) shall extend to a depth where waste may pollute groundwater.

d. All new or rehabilitated disposal areas associated with effluent pressure distribution systems (pressure-dosed systems) shall be equipped with cleanouts or a flushing system to allow solids to be removed from distribution pipes and orifices when needed.

e. Deep rooted plants such as trees or shrubs shall be removed as needed from a subsurface disposal system area to prevent damage to the dispersal system by roots.

f. Burrowing animals active in areas that may result in wastewater leakage from an at-grade or above grade (mound) disposal system shall be promptly controlled and repairs to the disposal system completed as soon as possible.

g. Subsurface disposal systems including leach fields and seepage pits, must comply with USEPA Underground Injection Control requirements when classified as a Class V well. Subsurface disposal systems with at least one of the following characteristics are classified as Class V wells:

   i. The system has the capacity to serve 20 or more persons per day.

   ii. The system receives wastewater other than domestic wastewater such as that generated by manufacturing, chemical processing, industrial fluid disposal, automotive repair, or recycling.

   iii. The system receives sewage containing biological agents (such as wastewater from recreational vehicles or portable toilets).

   Disposal systems that are classified as Class V wells must be registered with USEPA either by completing the online form at: http://www.epa.gov/region09/water/groundwater/injection-wells-register.html , or by completing and submitting Form 7520-16: Inventory of Injection Wells. Form 7520-16 is available at: http://epa.gov/region09/water/groundwater/uic-pdfs/7520-16.pdf .

h. Limited repairs may be performed by homeowners or contractors as allowed by the Business and Professions Code (Bus. & Prof. Code, §§ 7044, 7048). With certain exceptions, anyone performing construction work in California must be licensed by the California Contractors' State License Board. Leach field repairs shall be performed only by a California licensed General Engineering (A), Plumbing (C-36), or Sanitation System (C-42) contractor. The Discharger shall maintain a record of all repair activities for a minimum of five years. At a minimum, the record shall include the date, nature of repair, service company name, and service company state contractor license number.

7. Land Application and/or Recycled Water Systems

a. Wastewater shall not be applied to an LAA within 24 hours of forecasted precipitation with a greater than 50-percent probability of occurring, during precipitation events, or when the LAA surface soil is saturated.

b. Spray irrigation with treated wastewater is prohibited when wind speed (including gusts) exceeds 30 miles per hour. Wind speed may be measured onsite or at a nearby weather station operated by a governmental organization.

c. Discharge of wastewater from an LAA is prohibited.

d. If undisinfected wastewater is applied to an LAA, storm water runoff from the LAA is prohibited.

e. If storm water is allowed to runoff from an LAA (during the time of year wastewater is not applied), all applied wastewater shall meet disinfection requirements at a level equivalent to disinfected secondary-23 recycled water. (Cal. Code Regs., title 22, § 60301.225.) Land application of more highly treated water is acceptable. Alternatively, a Discharger may submit a technical report, for Executive Officer approval, describing how the LAA will be operated to prevent pathogens from migrating off the LAA with stormwater.

f. If recycled water is applied, it shall comply with the title 22 water recycling criteria, this General Order, the NOA, a title 22 Engineering Report, and any DDW approval conditions.

g. Public contact with wastewater/recycled water shall be precluded through use of fences, signs, and/or other appropriate means. All public use areas where recycled water is used shall be posted with signs that are visible, in a size no less than 4 inches by 8 inches and include the following wording, “Recycled Water – Do Not Drink.” (Cal. Code Regs., tit. 22, § 60310(g).)

h. Land application areas shall be managed to mitigate breeding of mosquitoes including, but not limited to the following:

   i. There shall be no standing water 48 hours after application of wastewater.

   ii. Tailwater ditches must be maintained essentially free of emergent, marginal, or floating vegetation.

   iii. Low-pressure and unpressurized pipelines and ditches accessible to mosquitoes shall not be used to store wastewater or recycled water.

   iv. Coordination with the local mosquito abatement or vector control district to supplement the measures described above in cases where other methods are infeasible.

8. Sludge/Solids/Biosolids Disposal

a. Sludge means the solid, semisolid, and liquid residues removed during primary, secondary, or other wastewater treatment processes. Solid waste refers to grit and screenings generated during preliminary treatment. Residual sludge means

sludge that will not be subject to further treatment at the wastewater system. Biosolids refers to sludge that has undergone sufficient treatment and testing to qualify for reuse pursuant to the USEPA Part 503 Biosolids Rule. (40 C.F.R. § 503.)

b. Sludge and solid waste shall be removed from screens, sumps, tanks, and ponds as needed to ensure optimal plant operation.

c. Treatment and storage of sludge shall be confined to the wastewater system property, and shall be conducted in a manner that precludes infiltration of waste constituents into soil in a mass or at concentrations that will violate the groundwater limitations of this General Order.

d. Any storage of residual sludge, solid waste, or biosolids at the wastewater system shall be temporary, and the waste shall be controlled and contained in a manner that minimizes leachate formation and precludes infiltration of waste constituents into soils in a mass or at concentrations that will violate the groundwater limitations of this General Order.

e. Residual sludge, and solid waste shall be disposed of in a manner approved by the appropriate Regional Water Board's Executive Officer and consistent with the Consolidated Requirements for Treatment, Storage, Processing, or Disposal of Solid Waste. (Cal. Code Regs., tit. 27 div. 2.) Removal for further treatment, disposal, or reuse at disposal sites operated in accordance with valid WDRs issued by the State Water Board or Regional Water Board will satisfy this specification.

f. Use and disposal of biosolids shall comply with the USEPA Part 503 Biosolids Rule. (40 C.F.R. § 503.)

C. Groundwater and Surface Water Limitations

1. The discharge shall not

a. Pollute groundwater or surface waters.

b. Adversely affect beneficial uses of groundwater or cause an exceedance of any applicable Basin Plan water quality objectives for groundwater or surface water.

D. Effluent Limitations

1. The discharge shall not:

a. Exceed any of the applicable effluent limitations presented in Table 4. Effluent limitation selection is a two-step process. Step one is based upon the treatment technology employed; step two applies only to systems with a flow rate greater than 20,000 gpd and is based upon an evaluation of the need for a nitrogen effluent limit (as described in Attachment 1). Low and high threat are defined in Attachment 1. The limits presented below are average monthly limits unless otherwise specified.

Table 4: Effluent Limitations for Wastewater Treatment Systems

Step 1 - Effluent Limitations Based on Technology Performance		
Activated Sludge, MBR, or similar (not including residential aerobic treatment units)		
Constituent	Units	Limit
BOD	mg/L	30 (monthly average), 45 (7-day average)
TSS	mg/L	30 (monthly average), 45 (7-day average)
Wastewater Pond or Trickling Filter [1] (not including residential recirculating sand filters)		
Constituent	Units	Limit
BOD	mg/L	90 [2]
TSS	--	Not Applicable

Step 2 - Effluent Limits Based on Low/High Threat Situation (flow rate >20,000 gpd)		
Constituent	Units	Limit
Total N	mg/L	--
Low Threat	mg/L	50 % [3]
High Threat	mg/L	10

BOD denotes biochemical oxygen demand; TSS denotes total suspended solids; MBR denotes membrane biological reactor. Residential denotes a single family home, property caretaker's home, a home with an associated residence (e.g. mother in law unit), or similar, with a flow rate less than 400 gpd. "—" denotes not applicable.

1. Limit applies when treated wastewater is applied to an LAA or to a subsurface disposal system.
2. The limit is based on a 65-percent reduction of incoming BOD. An incoming BOD of 250 mg/L was used to calculate the value.
3. The value represents the minimum percent reduction compared to the untreated wastewater value. Reduction shall be calculated on an annual basis. In no case shall the reduction result in an effluent limit lower than 10 mg/L total nitrogen.

E. Provisions

1. Technical Report Preparation Requirements

a. **Within 90 days** of the issuance of an NOA, aside from residential septic tanks serving four or fewer residences, the Discharger shall prepare and implement a *Spill Prevention and Emergency Response Plan* (Response Plan) that describes operation and maintenance activities to prevent accidental releases of wastewater, and to effectively respond to such releases, minimizing the environmental impact. At a minimum, the Response Plan shall address the following:

i. Operation and Control of Wastewater Treatment - A description of the wastewater treatment equipment, operational controls, flow measurement and calibration procedures, and treatment system schematic including valve/gate locations.

ii. Sludge Handling - A description of the sludge handling equipment, operational controls, and disposal procedures.

iii. Collection System Maintenance - A description of collection system cleaning and maintenance, equipment tests, and alarm functionality tests to minimize the potential for wastewater spills originating in the collection system or headworks. For collection systems subject to State Water Board Order No. 2006-0003-DWQ, reports prepared to comply with the State Water Board Order No. 2006-0003-DWQ satisfy this requirement.

iv. Emergency Response - A description of emergency response procedures including for emergencies such as power outage, severe weather, flooding, or inadequate freeboard (for systems with wastewater or recycled water ponds). An equipment and telephone list for contractors/consultants, emergency personnel, and equipment vendors.

v. Notification Procedures - Coordination procedures with fire, police, Governor's Office of Emergency Services (CalOES), Regional Water Board, and local county health department personnel.

The Response Plan shall be maintained at the treatment facility and shall be presented to the Regional Water Board staff upon request.

b. **Within 90 days** of the issuance of an NOA containing an MRP, the Discharger shall prepare and implement a written sampling and analysis plan (SAP) sufficient to assure compliance with the terms of this General Order and the NOA. Anyone performing sampling on behalf of the Discharger shall be familiar with the SAP. SAPs shall address the need for sample filtration and how filtration will be accomplished. When sampling groundwater or liquid waste, the chemical constituents available to migrate shall be considered. In general, dissolved waste constituents can migrate through soil to groundwater or surface water. In cases where the waste only threatens groundwater, samples shall be filtered prior to chemical preservation, digestion, or analysis for some analytes. If overland flow of liquid waste to surface water is possible, the total constituent concentrations may be available for movement and analyses shall be conducted on unfiltered samples.

At a minimum, the SAP shall describe the following:

i. Sample chain-of-custody procedures and documentation.

ii. Sampling locations.

iii. Sampling frequencies.

iv. Sample handling/preservation procedures.

v. Analytical methods.

vi. Sample containers, preservatives, and holding times.

vii. For groundwater monitoring, well purging and field methods.

The SAP shall be maintained at the treatment facility and shall be presented to the Regional Water Board staff upon request or as required by the NOA.

c. **Within 90 days** of the issuance of an NOA directing preparation, the Discharger shall submit and implement a Sludge Management Plan. At a minimum, the plan shall describe the following:

   i. Estimate the amount of sludge and scum that will be generated.

   ii. Describe how sludge, scum, and supernatant will be stored and disposed of to protect groundwater quality.

   iii. If sludge will be subject to further treatment, describe the treatment and storage requirements.

   iv. Describe cleaning of digesters or storage vessels and the treatment and disposal of the residuals. If drying of residuals is planned, describe how that will be performed to prevent nuisance odors, prevent vectors, and protect groundwater quality.

   The Sludge Management Plan shall be maintained at the treatment facility and shall be presented to the Regional Water Board staff upon request or as required by the NOA.

d. If directed by the Regional Water Board Executive Officer pursuant to Water Code section 13267, a discharger shall prepare and submit a Salt and Nutrient Management Plan, to ensure that the overall impact of treated wastewater and/or water recycling projects does not degrade groundwater resources. Unless otherwise directed by the Regional Water Board Executive Officer, in lieu of developing an individual Salt and Nutrient Management Plan the discharger shall participate in a Regional Water Board's existing salt and nutrient management planning effort to meet the requirements of this provision.

2. For All Wastewater Systems:

a. Bypass (the intentional diversion of waste streams from any portion of a treatment facility) is prohibited. The Regional Water Board and/or the Executive Officer may take enforcement action against the Discharger for bypass unless:

   i. Unavoidable and/or Unscheduled Bypass

      1. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage. (Severe property damage means substantial physical damage to property, damage to the treatment facilities that causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production), and

2. There were no feasible alternatives to bypass, such as the use of auxiliary treatment facilities or retention of untreated waste. This condition is not satisfied if adequate backup equipment or wastewater storage facilities should have been installed in the exercise of reasonable engineering judgment to prevent a bypass that would otherwise occur during normal periods of equipment downtime or preventive maintenance; or

ii. Scheduled Bypass

1. Bypass is required for essential maintenance to assure efficient operation,
2. Neither effluent nor groundwater limitations are exceeded,
3. The Discharger notifies the Regional Water Board's Executive Officer **10 days** in advance, and
4. The prohibition against discharge to surface water is not violated.

b. A Discharger that wishes to establish the affirmative defense of an upset (see definition in Provision E.5.a) in an action brought for noncompliance shall demonstrate, through properly signed, contemporaneous operating logs, or other evidence, that all of the following is true:

i. An upset occurred and the cause(s) can be identified.

ii. The permitted facility was being properly operated at the time of the upset.

iii. The Discharger submitted notice of the upset as required in Provision E.3.a.

iv. The Discharger complied with any remedial measures required by this General Order, the NOA, or direction from the Regional Water Board's Executive Officer. In any enforcement proceeding, the Discharger seeking to establish the occurrence of an upset has the burden of proof.

c. A Discharger whose wastewater flow rate has been increasing, or is projected to increase, shall estimate when the flow rate will reach hydraulic and treatment capacities of its treatment, collection, and disposal facilities. The projections shall be made in January, based on the last 3 years average dry weather flow rates, peak wet weather flow rates, and total annual flow rates, as appropriate. When any projection shows that capacity of any part of the facilities may be exceeded in 4 years, the Discharger shall notify the Regional Water Board's Executive Officer by March 1st. Providing the notification in an annual report is acceptable.

d. The requirements prescribed herein do not authorize the commission of any act causing damage to the property of another, or protect the Discharger from liabilities under federal, state, or local laws. This General Order does not convey any property rights or exclusive privileges and does not create a vested right to continue to discharge wastewater.

e. This General Order does not relieve the Discharger from responsibility to obtain other necessary local, state, or federal permits to construct facilities necessary for compliance with this General Order, nor does this General Order prevent imposition of additional standards, requirements, or conditions by any other agency.

f. The prohibitions, requirements, limitations, and provisions of this General Order are severable. If any provision of this General Order is held invalid, the remainder of this General Order shall not be affected.

g. To the maximum extent possible, the wastewater system shall be sited and/or designed to prevent flood or surface water from inundating wastewater ponds or otherwise render the wastewater system inoperable. For design purposes, the most recent Federal Emergency Management Agency (FEMA) approved 100-year base flood elevations shall be used.

h. The Discharger shall ensure that all site operating personnel are familiar with the contents of the wastewater system NOA, this General Order, and the title 22 Engineering Report (for recycled water uses when applicable). A copy of this General Order, the NOA, and technical reports required by this General Order (not including previously submitted monitoring reports) shall be kept at the wastewater treatment facility for reference by operating personnel.

i. Access to the wastewater system shall be limited to authorized persons.

j. The Discharger shall comply with all of the conditions of this General Order. Any noncompliance with this General Order constitutes a violation of the Porter-Cologne Water Quality Control Act and/or appropriate Regional Water Board's Basin Plan and may be grounds for an enforcement action.

k. Wastewater facilities shall be supervised and operated by persons possessing a wastewater treatment operator certificate of the appropriate grade. (Cal. Code Regs., tit. 23, div. 3, ch. 26.) The definition of wastewater treatment plant in the wastewater treatment plant classification, operator certification, and contract operator registration regulations excludes treatment systems that use subsurface disposal.

l. The State Water Board will review this General Order periodically and will revise requirements when necessary.

m. After notice and opportunity for a hearing, coverage of this General Order may be terminated or modified for cause including, but not limited to, any of the following:

    i. Violation of any of the terms or conditions contained in this General Order.

    ii. Obtaining this General Order by misrepresentation, or failure to disclose fully all relevant facts.

    iii. A change in any condition that results in either a temporary or permanent need to reduce or eliminate the authorized discharge.

iv. A material change in the character, location, or volume of discharge.

n. Before making a material change in the character, location, or volume of discharge, the Discharger shall notify the Regional Water Board Executive Officer. A material change includes, but is not limited to, any of the following:

i. An increase in area or depth used for waste disposal beyond that specified in the NOA.

ii. A significant change in disposal method, location, or volume (e.g., change from land application to percolation pond).

The Regional Water Board's Executive Officer may require that an ROWD be submitted.

o. At least **90 days** prior to termination or expiration of any lease, contract, or agreement involving disposal or recycling areas or off-site reuse of effluent, used to justify the capacity authorized herein and assure compliance with this General Order, the Discharger shall notify the Regional Water Board's Executive Officer in writing of the situation and of what measures have been taken or are being taken to assure full compliance with this General Order and the NOA.

p. Except for material determined to be confidential in accordance with California law, all reports prepared in accordance with terms of this General Order shall be available for public inspection at the offices of the Regional Water Board. Data on waste discharges, water quality, geology, and hydrogeology are not confidential.

q. The Discharger shall take all reasonable steps to minimize any adverse impact to waters of the state resulting from noncompliance with this General Order. Such steps shall include accelerated or additional monitoring as necessary to determine the nature and impact of the noncompliance.

r. The Discharger shall maintain in good working order, and operate as efficiently as possible any facility, control system, or monitoring device installed to achieve compliance with this General Order and the NOA.

s. The Discharger shall permit representatives of the Regional Water Board and/or the State Water Board, upon presentation of credentials, to:

i. Enter premises where wastes are treated, stored, or disposed of, and facilities in which any records are kept.

ii. Copy any records required under terms and conditions of this General Order.

iii. Inspect at reasonable hours, monitoring equipment required by this General Order.

iv. Sample, photograph, and/or video record any discharge, waste material, waste treatment system, or monitoring device.

t. For any electrically operated equipment at the site, the failure of which would cause loss of control or containment of waste materials, or violation of this General Order, the Discharger shall employ safeguards to prevent loss of control over wastes. Such safeguards may include alternate power sources, standby generators, retention capacity, operating procedures, or other means.

u. The fact that it would have been necessary to halt or reduce the permitted activity to maintain compliance with this General Order shall not be a defense for the Discharger's violations of the General Order.

v. The discharge shall remain within the disposal area designated in the NOA at all times. (With the exception of activities allowed in an approved title 22 Engineering Report.)

w. In the event of any change in control or ownership of the facility or wastewater disposal areas, the Discharger must notify the succeeding owner or operator of the existence of this General Order by letter, a copy of which shall be immediately forwarded to the Regional Water Board's Executive Officer.

x. The Discharger shall pay an annual fee to the State Water Board in accordance with the fee schedule for each fiscal year. (Cal. Code Regs., tit. 23, § 2200.) Fees are based on threat to water quality and complexity ratings, will be determined based on information in the ROWD, and are subject to revision by the State Water Board. Annual invoices are issued by the State Water Board for the state fiscal year (July 1 to June 30).

3. General Reporting Requirements:

a. If the Discharger does not comply, or will be unable to comply, with a limit related to effluent quality, pond freeboard, flow rate, the title 22 engineering report requirements, or bypass or overflow issues, the Discharger shall notify the Regional Water Board staff by telephone. Current phone numbers for Regional Water Board offices may be found on the NOA or on the Internet at:

http://www.waterboards.ca.gov/about_us/contact_us/docs/rwqcbs_directory.pdf

Notification shall occur as soon as the Discharger or its agents have knowledge of such noncompliance or potential for noncompliance, and the Discharger shall confirm this notification in writing within **10 days**. The written notification shall state the date, time, nature, cause of noncompliance, immediate response action, and a schedule for corrective actions.

b. In the event of a wastewater containment failure, the Discharger shall immediately notify CalOES. Notification shall be provided as soon as possible and when the notice can be provided without substantially impeding cleanup or other emergency measures. (Wat. Code, § 13271.) A written report to the Regional Water Board's Executive Officer shall be submitted within **10 days** of the failure describing the cause of the failure and how a recurrence will be prevented. Such a failure shall be promptly corrected in accordance with the requirements of this General Order.

c. All reports submitted in response to this General Order, including monitoring reports, shall be signed by a person identified below:

   i. For a private residence: by the property owner of the residence.

   ii. For a corporation: by a principal executive officer of at least the level of senior vice-president.

   iii. For a partnership or sole proprietorship: by a general partner or the proprietor.

   iv. For a municipality, state, federal, or other public agency: by either a principal executive officer or ranking elected or appointed official.

   v. A duly authorized representative of a person described above if all of the following are completed:

      1) The authorization is made in writing by a person described above.

      2) The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a waste management unit, superintendent, or position of equivalent responsibility. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.)

      3) The written authorization is submitted to the Regional Water Board.

   Any person signing a document under this section shall make the following certification:

   > "I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

d. The Discharger shall mail a copy of each monitoring report and any other reports required by this General Order to the appropriate Regional Water Board or provide electronic submittals of reports or data as specified by the Regional Water Board. Contact and mail address information is available on the NOA or at:

   http://www.waterboards.ca.gov/about_us/contact_us/docs/rwqcbs_directory.pdf

4. Monitoring Requirements

a. The Discharger shall comply with the MRP issued with the NOA, and any future revisions, as specified by the appropriate Regional Water Board's Executive Officer. A model MRP is provided as Attachment C. However, the Executive Officer may modify or replace the MRP for site-specific treatment and disposal conditions when issuing the NOA, or revise the MRP when deemed necessary.

b. Unless otherwise approved by the Regional Water Board's Executive Officer, all analyses shall be conducted at a laboratory certified for the analyses by the DDW Environmental Laboratory Accreditation Program. If a certified laboratory is not available to the Discharger, analyses performed by a noncertified laboratory will be accepted provided an acceptable Quality Assurance/Quality Control Program is instituted by the laboratory. A manual containing the steps followed in this program must be kept in the laboratory and shall be available for inspection by Regional Water Board staff. The Quality Assurance/Quality Control Program must conform to USEPA guidelines or to procedures approved by the Regional Water Board.

c. The results of any monitoring done more frequently than required by an MRP shall be reported in the next regularly scheduled monitoring report. Values obtained through additional monitoring shall be used in calculations as appropriate.

d. Treated wastewater samples shall be collected downstream of all treatment works where a sample representative of the discharge can be obtained prior to disposal. In some cases, it may be necessary to collect samples for different analyses from different sampling locations (e.g. immediately downstream of a disinfection system for pathogens).

e. The Discharger shall furnish, within a reasonable time, any information the Regional Water Board's staff may request to determine whether cause exists for modifying, revoking, reissuing, or terminating the Discharger's coverage under this General Order. The Discharger shall also furnish to the Regional Water Board's staff upon request, copies of records required to be kept by this General Order.

f. All noncompliance issues shall be reported with the next regularly scheduled monitoring report in addition to any other reporting requirements.

g. The Discharger shall retain records of all monitoring information, including all calibration and maintenance records, all original strip chart recordings of continuous monitoring instrumentation, copies of all reports required by this General Order, and records of all data used to complete the application for this General Order. Records shall be maintained for a minimum of **3 years** from the date of the sample, measurement, report, or application. This period may be extended during the course of any unresolved litigation regarding this discharge or when requested by the Regional Water Board's Executive Officer.

h. All monitoring and analysis instruments and devices used by the Discharger to fulfill the prescribed MRP shall be properly maintained and calibrated as recommended by the manufacturer to ensure their continued accuracy.

i. The Discharger shall construct all groundwater monitoring wells to meet or exceed the standards stated in Department of Water Resources' Bulletins 74-81, 74-90, and subsequent revisions unless deviation is approved by the Regional Water Board's staff or local well construction enforcing agency, and shall comply with the reporting provisions for wells. (Wat. Code, § 13751.)

5. Definitions

a. Upset means an exceptional incident in which there is unintentional and temporary noncompliance with effluent limitations because of factors beyond the reasonable control of the Discharger. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper action.

b. The monthly average flow rate is the total discharge by volume during a calendar month divided by the number of days in the month that the facility was discharging. This number shall be reported in gpd or million gallons per day.

c. The monthly average concentration is the arithmetic mean of measurements recorded during a calendar month. If only one sample is collected in a calendar month, then that sample measurement is the monthly average concentration.

d. The daily maximum concentration is the highest measurement recorded for any grab or composite sample collected during a day in a calendar month.

e. The 7-day median total coliform organism value shall be calculated as the median concentration of the results for the last 7 calendar days. If only one sample is collected within a 7-day period, then that one sample becomes the 7-day median value.

f. A grab sample is an individual sample collected in less than 15 minutes.

g. Unless otherwise specified, a composite sample is a combination of individual samples collected over the specified sampling period. The method of compositing shall be reported with the results.

h. A time-weighted sample is collected at equal time intervals, with a maximum interval of one hour.

i. A flow-weighted sample is collected at varying time intervals (average interval one hour or less) so that each sample represents an equal portion of the cumulative flow. The duration of the sampling period shall be specified in the MRP.

j. A day is the mean solar day of 24 hours beginning at mean midnight. All references to day in this General Order are calendar days.

CERTIFICATION

I, Jeanine Townsend, Clerk to the Board, do hereby certify that this General Order with all attachments is a full, true, and correct copy of a General Order adopted by the State Water Board, on September 23, 2014.

AYE:	Chair Felicia Marcus Vice Chair Frances Spivy-Weber Board Member Tam M. Doduc Board Member Steven Moore Board Member Dorene D'Adamo
NAY:	None
ABSENT:	None
ABSTAIN:	None

Jeanine Townsend
Clerk to the Board

ATTACHMENT 1
NITROGEN EFFLUENT LIMIT EVALUATION
ORDER WQ 2014-0153-DWQ
GENERAL WASTE DISCHARGE REQUIREMENTS
FOR SMALL DOMESTIC WASTEWATER TREATMENT SYSTEMS

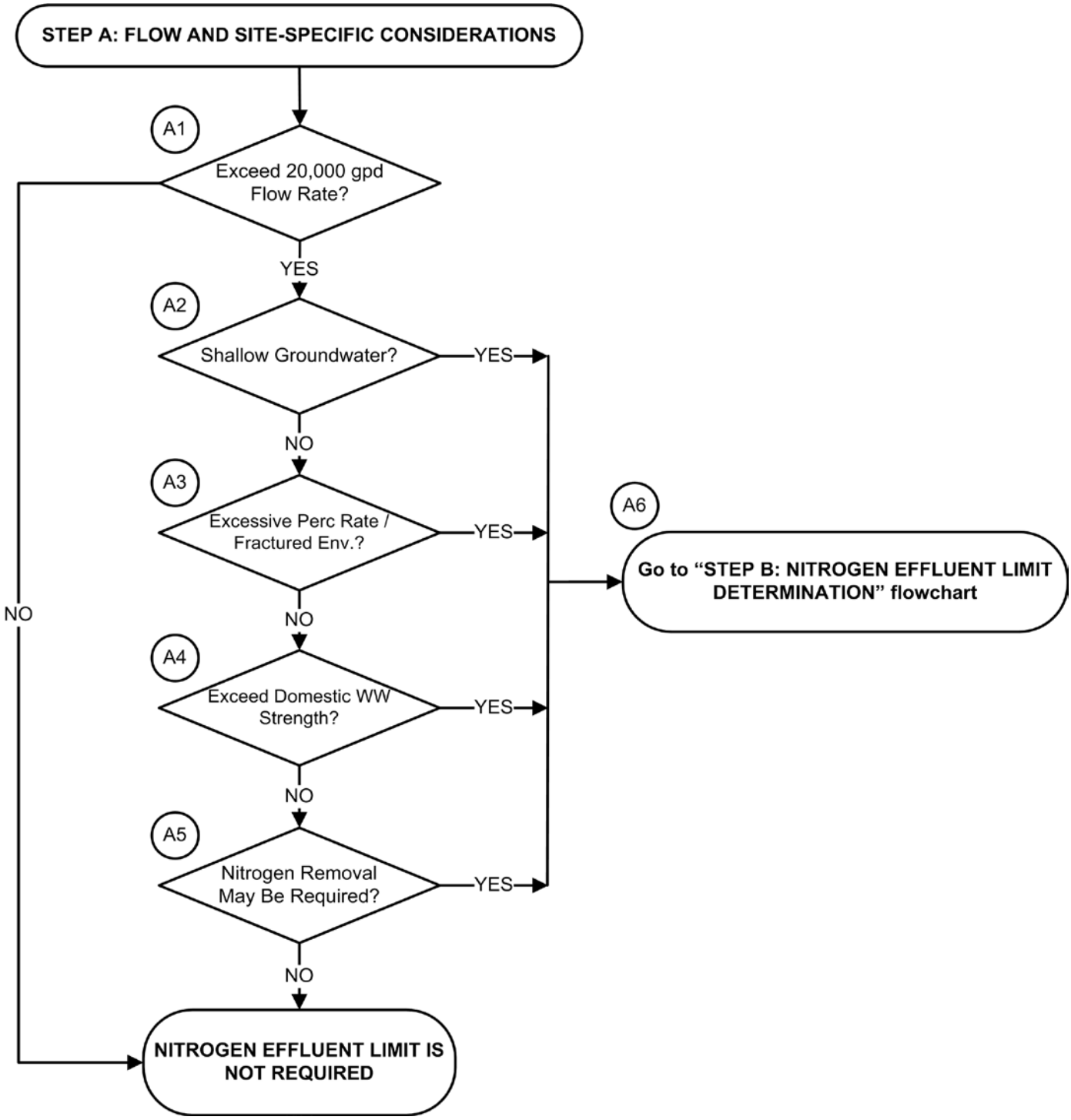
Introduction

The nitrogen effluent limit will only be imposed where required to protect beneficial uses of groundwater and surface water and shall not be selected as a default to add water quality protection where the added expense of nitrogen control is not required. It is the discharger's responsibility to provide adequate information to allow the evaluation of the need for additional treatment.

Each of the five site-specific considerations listed below shall be considered when evaluating a discharge and the need for nitrogen control. The site-specific conditions are further discussed on the explanation sheets. If each of the site-specific considerations is favorable (as discussed individually below), the facility is not required to meet an effluent limit for nitrogen.

The attached flow charts provide a method to evaluate the discharge and the receiving environment to determine the applicability of a nitrogen effluent limit. Evaluation of the need for a nitrogen effluent limit is a two-step process. In the first step, applicability of a nitrogen effluent limit is determined based on the flow rate and site-specific characteristics of the receiving environment; in the second step effluent limits are selected based on further evaluation of level of threat related to the site-specific characteristics of the discharge and the receiving environment.

To begin the evaluation start at "Step A: Flow and Site-Specific Considerations," on the following page.


STEP A: FLOW AND SITE-SPECIFIC CONSIDERATIONS
A1
Exceed 20,000 gpd Flow Rate?
YES
A2
Shallow Groundwater?
YES
NO
A3
Excessive Perc Rate / Fractured Env.?
YES
NO
A4
Exceed Domestic WW Strength?
YES
NO
A5
Nitrogen Removal May Be Required?
YES
NO
NO
A6
Go to "STEP B: NITROGEN EFFLUENT LIMIT DETERMINATION" flowchart
NITROGEN EFFLUENT LIMIT IS NOT REQUIRED

Step A – Flow and Site-Specific Considerations

The following considerations shall be evaluated to determine if a nitrogen effluent limit is appropriate.

A1 *Exceed 20,000 gpd Flow Rate?* The General Order allows a flow rate up to 100,000 gpd. However, discharges with flow rates less than 20,000 gpd are not required to meet a nitrogen effluent limit.

A2 Shallow Groundwater? Shallow groundwater conditions are defined by the OWTS Policy Table 2, *Minimum Depth to Groundwater and Minimum Soil Depth from the Bottom of the Dispersal System* (reproduced as Table 5 below).

Table 5: Minimum Depth to Groundwater and Minimum Soil Depth from the Bottom of Dispersal System

Percolation Rate [a]	Depth to Groundwater [b]
Perc Rate ≤ 1 MPI	Additional Treatment Required
1 MPI ≤ Perc Rate ≤ 5 MPI	20 Feet
5 MPI ≤ Perc Rate ≤ 30 MPI	8 Feet
30 MPI ≤ Perc Rate ≤ 120 MPI	5 Feet
Perc Rate ≥ 120 MPI	Engineered Disposal Required

a. Perc Rate denotes percolation rate. MPI denotes minutes per inch.

b. The minimum depth to groundwater is measured from the base of the infiltration surface to the seasonally high groundwater table or first saturated interval.

A3 *Excessive Percolation Rate / Fractured Environment?* An excessive percolation rate is defined as a combination of percolation rate and depth to groundwater that does not comply with the conditions presented in Table 5.

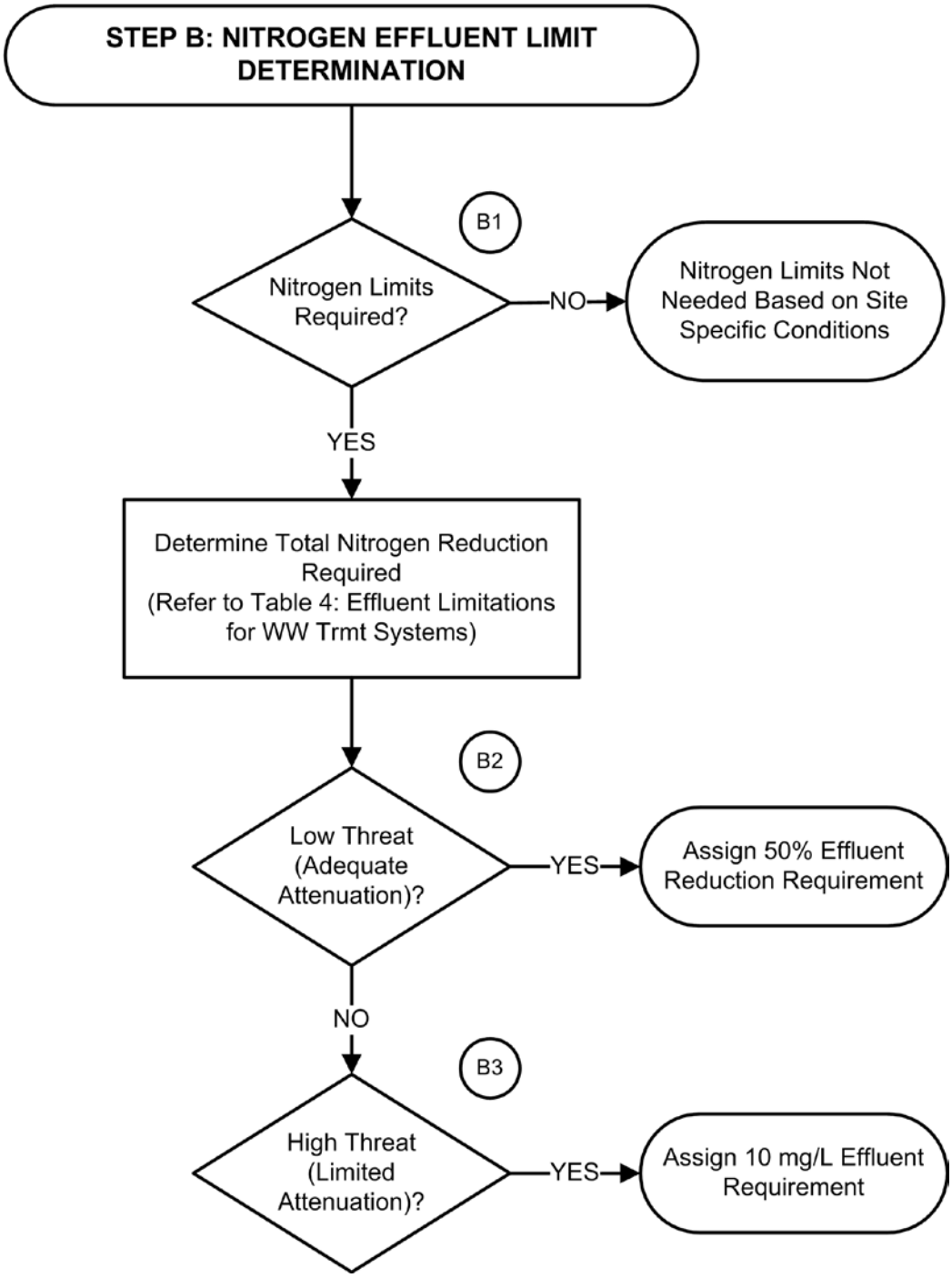
A fractured environment is defined as less permeable rock with porosity resulting from fractures that allows groundwater to flow through the fractures and has either of the following: a) No unconsolidated soil cover, or b) Unconsolidated soil cover that possesses an excessive percolation rate (that does not comply with the conditions defined in Table 5.

A4 *Exceed Domestic Wastewater Strength?* Typical domestic wastewater strength is presented in Finding 8 of the General Order. Alternative domestic wastewater strengths may be based upon other per capita flow rate assumptions. The data presented in the General Order may be used; alternative characterizations from textbook and/or governmental organizations (e.g. U.S. Environmental Protection Agency) may be acceptable at the discretion of Regional Water Quality Control Board (Regional Water Board) staff.

Some domestic wastewater streams (domestic wastewater originating in factory or warehouse situations) may exceed the typical municipal wastewater strengths due to a lack of diluting flows from showers, dishwashers, etc. Such flows are not excluded from coverage by the General Order; however, the discharge shall be evaluated to determine if nitrogen effluent limits are appropriate.

A5 *Nitrogen Removal May Be Required?* If the Regional Water Board Basin Plan or groundwater studies indicate that nitrogen is a constituent of concern, then nitrogen reduction may be required. The appropriate limit shall be based on site conditions as evaluated in Step B.

A6 *Go to "NITROGEN EFFLUENT LIMIT DETERMINATION" flowchart:* If the preliminary evaluation (Step A) indicates a nitrogen effluent limit may be required, proceed to the Nitrogen Effluent Limit Determination flowchart to determine if an effluent limit for nitrogen is required.


STEP B: NITROGEN EFFLUENT LIMIT DETERMINATION
B1
Nitrogen Limits Required?
NO
Nitrogen Limits Not Needed Based on Site Specific Conditions
YES
Determine Total Nitrogen Reduction Required (Refer to Table 4: Effluent Limitations for WW Trmt Systems)
B2
Low Threat (Adequate Attenuation)?
YES
Assign 50% Effluent Reduction Requirement
NO
B3
High Threat (Limited Attenuation)?
YES
Assign 10 mg/L Effluent Requirement

Step B – Nitrogen Effluent Limit Evaluation

If a Regional Water Board's Basin Plan addresses the area where the site is located, the nitrogen control measures shall be consistent with the Basin Plan.

If the Step A evaluation indicated additional treatment for nitrogen control may be necessary, continue the evaluation at "Step B, Nitrogen Effluent Limit Determination."

B1 *Nitrogen Limits Required?* The initial evaluation of the need for nitrogen control (discussed in Item A5) shall include comparison of the wastewater effluent quality to groundwater quality and the potential for the wastewater discharge to cause or contribute to a condition of pollution or nuisance. The benefits of nitrogen control should be balanced with the cost of implementing nitrogen control.

Measures implemented to protect groundwater quality (e.g. equipping a pond with a synthetic or low permeability liner to reduce infiltration, using supplemental water to reduce LAA loading rates, or agronomic application of nitrogen) should be considered when determining the need for nitrogen effluent limits.

B2 *Low-Threat (Adequate Attenuation)?* In low-threat situations, the 50 percent nitrogen removal (in effluent prior to discharge) is appropriate. Low-threat situations are those where additional nitrogen removal will occur in the dispersal area (e.g. land application crop uptake, denitrification, shallow dispersal area, etc.) or where adequate attenuation exists based on other conditions such as depth to groundwater.

B3 *High-Threat (Limited Attenuation)?* In high-threat situations, the 10 milligrams per liter (mg/L) effluent limit is appropriate. High-threat situations are those where limited nitrogen removal will occur in the dispersal area or in limited attenuation situations (e.g. shallow depth to groundwater, fractured aquifer, potential for groundwater to migrate to surface water bodies with limited attenuation, etc.).

INFORMATION SHEET SUMMARY
STATE WATER RESOURCES CONTROL BOARD
ORDER WQ 2014-0153-DWQ
GENERAL WASTE DISCHARGE REQUIREMENTS
FOR SMALL DOMESTIC WASTEWATER TREATMENT SYSTEMS

The attachments to this Information Sheet will help Dischargers understand the process of obtaining coverage under these *General Waste Discharge Requirements for Discharges to Land by Small Domestic Systems* (General Order). The attachments describe the permitting process and the information needed by Regional Water Quality Control Board (Regional Water Board) staff to prepare a Notice of Applicability (NOA), which provides the Discharger coverage under the General Order. Although not required, organization of the technical report described in Attachment B1 in the format presented in the attachment will allow streamlined review of the facility information and may reduce the time required to prepare an NOA. Some Regional Water Boards have implemented procedures for electronic submittal of technical reports and monitoring data. The Dischargers shall comply with those submittal requirements when applicable.

The Discharger is encouraged to contact the Regional Water Board staff early in the process to discuss their conceptual wastewater plan. Attachment A shows the generalized permitting process; it is recommended each of the items in the box labeled “Contact Regional Water Board to Discuss” be listed on a meeting agenda so that they are adequately discussed.

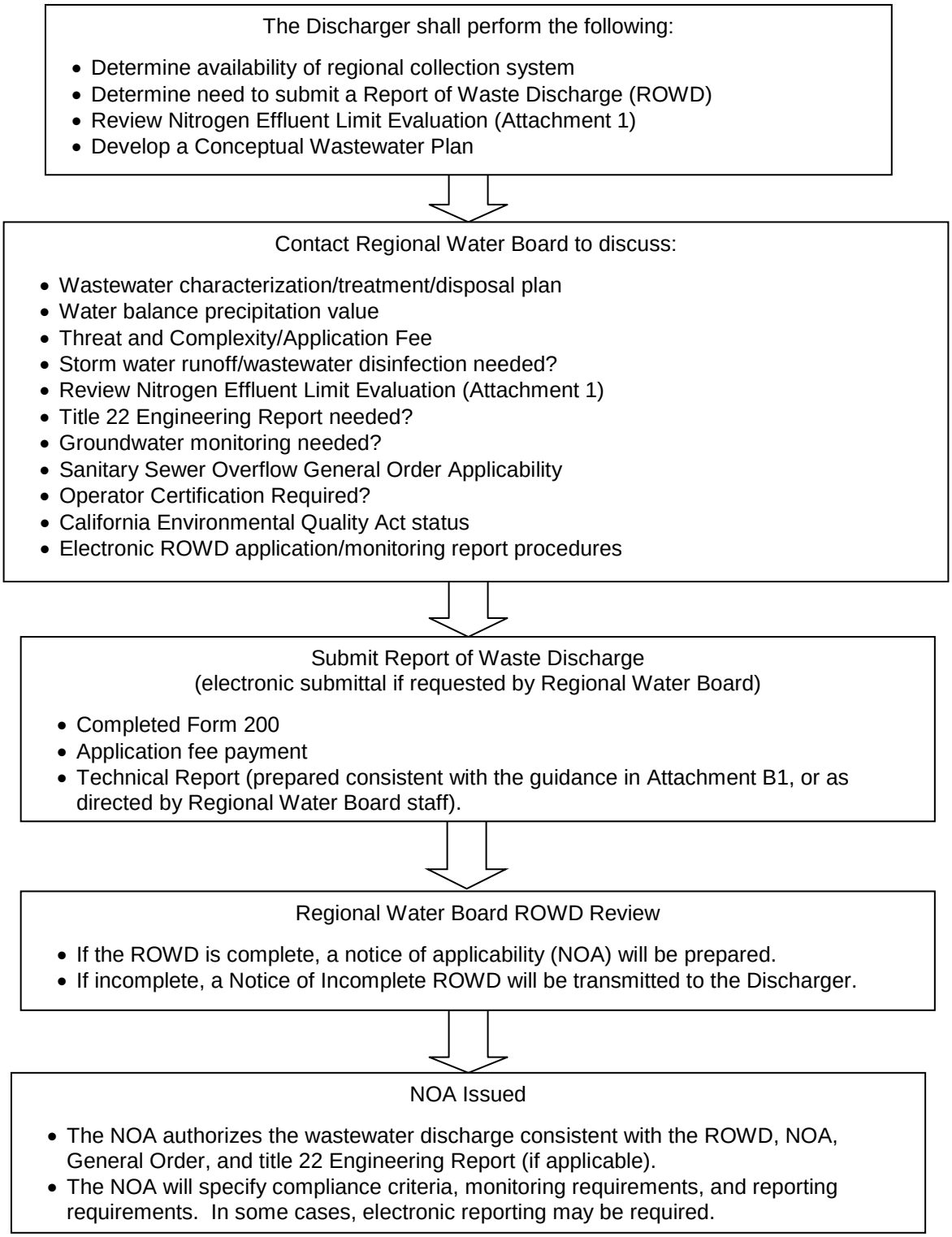
The *Conceptual Wastewater Plan* listed on Attachment A shall be complete enough for a meaningful discussion with the Regional Water Board staff so that any significant issues can be identified early in the process. However, the details of the *Conceptual Wastewater Plan* are unlikely to be finalized at this stage of the process. Determinations regarding the *Conceptual Wastewater Plan* may require additional investigation by the Discharger before the Regional Water Board staff can provide definitive answers to questions about the *Conceptual Wastewater Plan*.

Questions the Discharger may have regarding any of the attachments (such as the report requirements described in Attachment B1) should also be discussed at the meeting. At the conclusion of the meeting, the Discharger should understand how their system will be evaluated using the General Order Attachment 1, *Nitrogen Effluent Limit Evaluation*, and if any additional investigations are required to provide a complete Report of Waste Discharge.

The attachments included in this Information Sheet consist of the following:

Name	Title
Attachment A	Generalized Permit Application Process Summary
Attachment B1	Recommended Report of Waste Discharge Format
Attachment B2	Safe Wastewater Disposal for Recreational Vehicles
Attachment C	Model Monitoring and Reporting Program

ATTACHMENT A - INFORMATION SHEET
GENERALIZED PERMIT APPLICATION PROCESS SUMMARY
STATE WATER RESOURCES CONTROL BOARD
ORDER WQ 2014-0153-DWQ
GENERAL WASTE DISCHARGE REQUIREMENTS
FOR SMALL DOMESTIC WASTEWATER TREATMENT SYSTEMS



ATTACHMENT B1 – INFORMATION SHEET
RECOMMENDED REPORT OF WASTE DISCHARGE FORMAT
STATE WATER RESOURCES CONTROL BOARD
ORDER WQ 2014-0153-DWQ
GENERAL WASTE DISCHARGE REQUIREMENTS FOR SMALL DOMESTIC WASTEWATER TREATMENT SYSTEMS
GENERAL INFORMATION FOR DISCHARGER

The information presented in the Report of Waste Discharge (ROWD) is relied upon by staff to prepare the Notice of Applicability (NOA) for coverage by this General Waste Discharge Requirements for Order (General Order). The Discharger shall ensure that the information presented in the ROWD is accurate. Misstatements, errors, or omissions that exist in the ROWD may be included in the NOA and become enforceable.

Waste Discharge Requirements (WDRs) are generally updated at 10 or 15 year intervals depending on the waste's potential to impact water quality. The ROWD shall state realistic growth projections. Underestimating growth may result in additional or more frequent permitting requirements. Overestimating growth will result in the need for the Discharger to prepare more treatment, storage, and disposal capacity than might otherwise be immediately required.

The ROWD outline presented below is intended to provide general guidance for Dischargers and consultants. Submitting an ROWD consistent with the format will help the Discharger include all of the information that Regional Water Quality Control Board (Regional Water Board) staff need and will expedite review of the document and speed the permitting process. Contacting your Regional Water Board representative to discuss the project before preparing the ROWD is recommended.

1. BACKGROUND

   1.1. Wastewater system description

      1.1.1. Briefly, describe what the wastewater system is and how wastewater is generated.

      1.1.2. Provide a site location map and a site plan.

      1.1.3. Provide information on the location of wastewater system buildings, wastewater treatment system components, groundwater wells, and surface water bodies.

      1.1.4. Provide the Assessor's Parcel Number(s), section number(s), and Township and Range.

      1.1.5. Describe the water supply to the residence(s), business(es), and/or other facilities being served by the wastewater system.

   1.2. Service area description

      1.2.1. Describe the proximity of the wastewater system to an existing regional collection system; if nearby, discuss why connection to the regional system cannot be accomplished. If located within a regional system service area, or in close proximity to a collection system, provide written documentation that a good faith effort to connect to the regional system was made and that the request was not approved.

1.2.2. Wastewater collection system (describe the following). For collection systems subject to State Water Board Order No. 2006-0003-DWQ, reports prepared to comply with the State Water Board Order No. 2006-0003-DWQ satisfies this requirement and may be submitted as part of the ROWD technical report.

1.2.2.1. Age and condition of collection system.

1.2.2.2. Piping construction and layout (show on map).

1.2.2.3. Lift stations and backup pumping systems.

1.2.2.4. Failure warning system.

1.2.2.5. Inflow and infiltration (I/I) estimates (and any control that is necessary).

1.2.2.6. Maintenance of collection system and spill response.

1.2.3. Storm water collection system

1.2.3.1. Storm water collection area (show on map).

1.2.3.2. Storm water disposal area in relation to wastewater disposal area.

1.2.3.3. Storm water disposal permit (if needed).

2. WASTEWATER CHARACTERIZATION AND TREATMENT

2.1. Domestic wastewater characterization (untreated wastewater).

2.1.1. Describe the generation of wastewater (retirees, families, recreational vehicle [RV], institution, etc.).[9] If RV waste is allowed, describe educational and institutional controls in place to minimize the potential for deleterious RV waste constituents to be discharged to the wastewater system.

2.1.2. Domestic wastewater flow rate (describe how determined). Describe any special events or seasonal variations that cause high wastewater flow rates or other sources of wastewater (e.g. swimming pool filter, potable water treatment backwash water, well attended festivals, etc.).

2.1.3. Characterize domestic wastewater for Biochemical Oxygen Demand (BOD), Total Suspended Solids (TSS), electrical conductivity, nitrogen, sodium, chloride, and specific constituents of concern as needed based on site activities. Characterize wastewater for holding tank chemicals identified in the General Order (and others as appropriate) if RV waste is discharged to the system.

2.2. Wastewater treatment system

2.2.1. Provide a wastewater treatment schematic.

[9] Recreational vehicle (RV) holding tank connections, RV waste dump stations, etc. create special conditions for treatment and monitoring. Please refer to the General Order for more information.

2.2.2. Describe wastewater pretreatment components.

2.2.2.1. Domestic wastewater pretreatment systems (e.g. septic tank effluent pump system, grease traps, etc.).

2.2.2.2. Describe storage, treatment, and disposal of pretreatment residuals.

2.2.3. Describe preliminary treatment activities (e.g., screening, comminution, grit removal).

2.2.3.1. Describe storage, treatment, and disposal of preliminary treatment residuals.

2.2.4. Describe primary treatment activities (remove settleable/flotable matter)

2.2.4.1. Describe storage, treatment, and disposal of primary treatment residuals.

2.2.5. Describe treatment technology (e.g., activated sludge, membrane biological reactor, aerated lagoon, oxidation ditch, Imhoff tank, septic tank, etc.) include engineered design capacity in description.

2.2.5.1. Describe storage, treatment, and disposal of treatment residuals (e.g. sludge, septage, etc.).

2.2.6. Size and location of treatment equipment (e.g. septic tank volume, package treatment plant, membrane biological reactor, pond size include acreage and storage capacity, pond liners, and number and horsepower of aerators, etc.).

2.2.7. Disinfection system equipment

2.2.8. Storage facilities

2.2.8.1. If wastewater will be stored prior to disposal, describe the size and location of wastewater storage ponds, include a map showing all the ponds and describe them as lined or not. Describe the materials, age, and condition of any liners.

2.2.9. Predicted wastewater effluent quality

2.2.9.1. Characterize the wastewater for TSS, BOD, total coliform organisms (if needed), and specific constituents of concern as needed. If RV waste is discharged to the system, characterize for holding tank chemicals identified in the General Order (and others as appropriate).

2.2.10. Treated effluent disposal method

2.2.10.1. Describe how treated wastewater will be dispersed (land application area, leach field, percolation pond).

2.2.10.2. Describe the proposed disposal area (and the 100-percent replacement area when needed, such as for a leach field disposal system) include acreage, surrounding land use, depth to groundwater, and the proximity of drainage ways, surface waters, and municipal, industrial, or agricultural wells.

2.2.10.2.1. If land application is proposed, describe how storm water that falls on the land application area (LAA) is handled. If storm water is allowed to run off the LAA, contact your Regional Water Board representative to discuss wastewater disinfection requirements.

2.2.10.2.2. Provide a water balance that demonstrates adequate storage/disposal capacity. Identify the safety factors used in the calculations. Please contact your Regional Water Board representative to determine the precipitation values to be included in the water balance. Typically, the 100-year return annual total precipitation value, distributed monthly in accordance with average (mean) precipitation values monthly is required. Some exemptions for existing ponds or sites that develop an acceptable *Spill Prevention and Emergency Response Plan* may apply. Rainfall depth duration frequency data is available on the Department of Water Resources Internet web page at:

<http://www.water.ca.gov/floodmgmt/hafoo/hb/csm/engineering/>

2.2.10.2.3. Support the assumptions and calculations in the water balance with adequate information. Information may include published infiltration values, site-specific percolation tests, application rates, or other sources. Cite the information source used; if a site-specific investigation, provide a copy of the report.

2.2.10.2.4. The use of subsurface disposal including leach fields and/or seepage pits serving more than 20 people, or systems that accept non-sanitary waste (generated by manufacturing, contains biocidal agents such as RV or portable toilets, etc.) must comply with the United States Environmental Protection Agency Underground Injection Control requirements. Please refer to General Order Requirement B.6.g and http://www.epa.gov/region9/ water/groundwater/uic.html to determine if federal requirements apply to the proposed project. If registration is required, documentation of registration shall be provided in the ROWD.

2.3. Recycled Water Projects

2.3.1. If treated wastewater will be applied for beneficial uses (such as those described in title 22 water recycling criteria), provide a title 22 Engineering Report and the State Water Board Division of Drinking Water (DDW) (formerly the California Department of Public Health (CDPH) review/approval letter. Guidance for preparation of a title 22 Engineering Report is available on the Internet at: http://www.cdph.ca.gov/certlic/drinkingwater/Documents/Recharge/ERGUIDE2001.PDF

2.3.1.1. Describe how any DDW requirements will be implemented in the project.

2.3.1.2. If needed, describe the disinfection requirements for the planned reuse.

2.4. Operation and Maintenance

2.4.1. Describe routine operation and maintenance procedures

2.4.2. Treatment operator training and qualifications requirements

2.4.3. Contingency plans for repairs/spills/treatment issues

3. GROUNDWATER QUALITY

3.1. Depending upon the threat to groundwater quality, groundwater monitoring may be required. Please contact your Regional Water Board representative to determine if groundwater monitoring is required.

4. CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

4.1. Some existing Small Domestic Systems will be determined to be categorically exempt from the California Environmental Quality Act (CEQA) under Title 14, section 15301 (ongoing or existing projects), section 15302 (replacement or reconstruction of existing utility systems), and section 15303 (new construction or conversion of small structures). The potential for categorical exemptions shall be examined and discussed with the Regional Water Board representative prior to submitting an ROWD.

4.2. New or expanding Small Domestic Systems will likely require CEQA evaluation that should be performed by local agencies. The CEQA evaluation shall be submitted with the ROWD. At a minimum, the evaluation shall include the Initial Study, a list of any adopted mitigation measures related to water quality, and the Notice of Determination.

4.2.1. The ROWD must include a description of how any water quality related mitigation measures will be implemented.

5. ADDITIONAL TECHNICAL REPORTS

5.1. If required by the General Order, a *Sludge Management Plan* shall be submitted with the ROWD.

5.1.1. Estimate the amount of sludge and scum that will be generated.

5.1.1.1. Describe how sludge, scum, and supernatant will be stored and disposed of to protect groundwater quality.

5.1.1.2. If sludge will be subject to further treatment, describe the treatment and storage requirements.

5.1.1.3. Describe cleaning of digesters or storage vessels and the treatment and disposal of the residuals. If drying of residuals is planned, describe how that will be performed to prevent nuisance odors, prevent vectors, and protect groundwater quality.

ATTACHMENT B2 – INFORMATION SHEET
SAFE WASTEWATER DISPOSAL FOR RECREATIONAL VEHICLES
STATE WATER RESOURCES CONTROL BOARD
ORDER WQ 2014-0153-DWQ
GENERAL WASTE DISCHARGE REQUIREMENTS
FOR SMALL DOMESTIC WASTEWATER TREATMENT SYSTEMS

EPA

United States Environmental Protection Agency | Region 9 Ground Water Office (WTR-9) | EPA 909-F-99-002 JULY 1999

ALERT FOR RV, BOAT AND MOBILE HOME OWNERS AND PARK OPERATORS
ABOUT SAFE WASTEWATER DISPOSAL

If you spend any time in a recreational vehicle (RV) or boat, you probably know of the problem of odors from sewage holding tanks. There are a number of commercial products available to control those odors. Some of those products contain chemicals which may pollute water resources. If you use those chemicals and then empty your holding tank into a septic system (or other onsite wastewater treatment system) or dispose of holding tank waste illegally, you may be creating health and environmental hazards. These chemicals and their by-products may pass through onsite wastewater treatment systems, flowing to soil, ground water, and possibly nearby surface waters. They may also corrode treatment system parts, creating a safety hazard.

How septic systems work. A typical septic system contains two major components: a septic tank and an absorption field, also known as a drainfield or leachfield. These systems use natural processes to treat wastewater onsite, as opposed to offsite at a municipal wastewater treatment plant. The purpose of the septic tank is to separate solids from the liquid waste, and to promote partial breakdown of contaminants by microorganisms (bacteria) naturally present in wastewater. The leachfield also treats the wastewater through physical, biological and chemical processes in the soil.

Mixing chemicals with waste in sewage holding tanks or septic systems may produce toxic fumes, corrode pipelines and tanks, and pollute soil and ground water when discharged.

When chemicals, such as formaldehyde, are added to septic systems, they can cause bacteria in the system to die. When this happens, the septic system cannot treat waste adequately. Solids that are allowed to pass from the septic tank, due to inadequate or incomplete treatment, may clog the leachfield. Furthermore, clogged systems may send inadequately or incompletely treated sewage to the surface, threatening the health of people or pets who come into contact with it. Or it may percolate to ground water, where the chemicals and untreated wastewater could contaminate nearby drinking water wells, rivers and streams. Please ***read labels carefully*** to identify any hazardous ingredients.

The restoration of contaminated ground water is extremely costly and can take years. To prevent problems, RV and mobile home parks, as well as dump station operators, may take measures to control hazardous chemical disposal into their waste treatment systems. If they do not, and their system causes contamination, they may be forced to **close the dump station or the park** until the problem can be corrected.

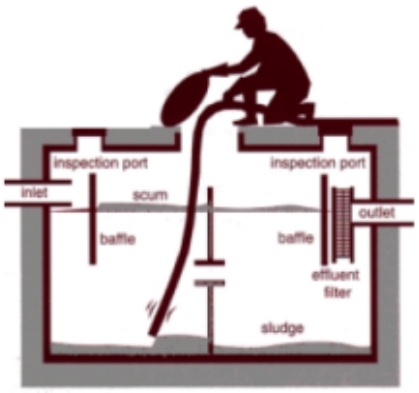
DO NOT USE CHEMICALS WHICH HARM SEPTIC SYSTEMS

Formaldehyde: active ingredient in some deodorizers, also called Formalin. Formaldehyde is an EPA-recognized probable carcinogen (i.e., causes cancer).

Para-dichlorobenzene: Known carcinogen and drinking water contaminant. Common ingredient in mothballs, urinal cakes and bowl fresheners.

OTHER CHEMICALS TO BEWARE OF INCLUDE heavy metals (such as Zinc), benzene, toluene, xylene, ethylene glycol (anti-freeze), methylene chloride, 1,1,1-trichloroethane (TCA), trichlorethylene (TCE) and perchloroethylene (PCE). Strong acids and bases, such as sulfuric acid or caustic soda, can destroy biological activity and damage tanks and pipes.

$ A healthy, well-maintained and appropriately sized septic tank will generally require less pumping over its service life, saving time and money.



NATIONAL SMALL FLOWS CLEARINGHOUSE

REPORT SEWAGE SPILLS and other health hazards to the local health department. Keep People and Pets Away!

PARK OPERATORS:

The United States Department of Health, Education and Welfare said in 1957 that "... there are no known chemicals, yeasts, bacteria, enzymes or other substances capable of eliminating or reducing the solids and scum in a septic tank" and according to EPA, this is still true. No products have been verified by EPA to eliminate the need for routine maintenance, and some may actually accelerate system failure by allowing solids to clog the dispersal system; while the products may claim to "remove" sludge, they may just "move" sludge. Tanks should be checked routinely (see photo) for solids and scum buildup. Sludge Removal (pumpouts) may be needed more often for RV, Mobile Home and Boat waste systems than for single-family septic systems, especially if your tanks are undersized and/or your residents are conservative with water. Oversizing your tanks, or adding additional tanks, may allow greater waste stabilization. Consult a wastewater professional.

X Cloggers
diapers, cat litter, cigarette filters, coffee grounds, grease, etc.

X Killers
household chemicals, gasoline, motor oil, pesticides, antifreeze, paint, etc.

RVers CAN HELP... Here's How:

- Minimize your need of holding tank deodorizers by using rest stop facilities when you can.

- If you must use a holding tank deodorizer, read the label carefully. **Biodegradable** (enzyme and citrus-based) products are available. Whichever product you choose, **follow label directions** and add no more than recommended amounts.

- Some products that claim to be flushable, such as some types of cat litter, may clog hoses and septic tanks; use toilets for waste and toilet paper only.

- Ask questions of your park manager about drinking water and wastewater management. Sanitation costs can be minimal, but not free.

- Educate other RVers. Don't be shy about health.

FREE HOTLINES!

Septic System Care: The National Small Flows Clearinghouse, (800) 624-8301, EST, or *www.nsfc.wvu.edu*
The Safe Drinking Water Act Hotline, US EPA: (800) 426-4791, EST, or *www.epa.gov/ogwdw*

U.S. EPA, Region 9, WTR-9
Ground Water Office
75 Hawthorne Street
San Francisco, CA 94105-3109
OFFICIAL BUSINESS - PENALTY FOR PRIVATE USE $300

ATTACHMENT C – INFORMATION SHEET
MODEL MONITORING AND REPORTING PROGRAM
STATE WATER RESOURCES CONTROL BOARD
ORDER WQ 2014-0153-DWQ
GENERAL WASTE DISCHARGE REQUIREMENTS
FOR SMALL DOMESTIC WASTEWATER SYSTEMS

This Monitoring and Reporting Program (MRP) describes requirements for monitoring a wastewater treatment system. This MRP is issued pursuant to Water Code section 13267. The Discharger shall not implement any changes to this MRP unless and until a revised MRP is issued by the Regional Water Quality Control Board (Regional Water Board) Executive Officer.

The State Water Resources Control Board (State Water Board) and Regional Water Boards are transitioning to the paperless office system. In some regions, Dischargers will be directed to submit reports (both technical and monitoring reports) to the State Water Board's GeoTracker database over the Internet in portable document format (pdf). In addition, analytical data shall be uploaded to the GeoTracker database under a site-specific global identification number. Information on the GeoTracker database is provided on the Internet at:

<http://www.waterboards.ca.gov/ust/electronic_submittal/index.shtml>

Water Code section 13267 states, in part:

> "In conducting an investigation specified in subdivision (a), the regional board may require that any person who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge waste within its region, or any citizen or domiciliary, or political agency or entity of this state who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge, waste outside of its region that could affect the quality of waters within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the regional board requires. The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports. In requiring those reports, the regional board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports."

Water Code section 13268 states, in part:

> "(a) Any person failing or refusing to furnish technical or monitoring program reports as required by subdivision (b) of section 13267, or failing or refusing to furnish a statement of compliance as required by subdivision (b) of section 13399.2, or falsifying any information provided therein, is guilty of a misdemeanor and may be liable civilly in accordance with subdivision (b).
>
> (b)(1) Civil liability may be administratively imposed by a regional board in accordance with article 2.5 (commencing with section 13323) of chapter 5 for a violation of subdivision (a) in an amount which shall not exceed one thousand dollars ($1,000) for each day in which the violation occurs."

The Discharger owns and operates the wastewater system that is subject to the Notice of Applicability (NOA) of Water Quality Order 2014-0153-DWQ. The reports are necessary to ensure that the Discharger complies with the NOA and General Order. Pursuant to Water Code section 13267, the Discharger shall implement this MRP and shall submit the monitoring reports described herein.

All samples shall be representative of the volume and nature of the discharge or matrix of material sampled. The name of the sampler, sample type (grab or composite), time, date, location, bottle type, and any preservative used for each sample shall be recorded on the sample chain of custody form. The chain of custody form must also contain all custody information including date, time, and to whom samples were relinquished. If composite samples are collected, the basis for sampling (time or flow weighted) shall be approved by Regional Water Board staff.

Field test instruments (such as those used to test pH, dissolved oxygen, and electrical conductivity) may be used provided that they are used by a State Water Board California Environmental Laboratory Accreditation Program certified laboratory, or:

1. The user is trained in proper use and maintenance of the instruments;
2. The instruments are field calibrated prior to monitoring events at the frequency recommended by the manufacturer;
3. Instruments are serviced and/or calibrated by the manufacturer at the recommended frequency; and
4. Field calibration reports are maintained and available for at least three years.

SEPTIC TANK MONITORING

Monitoring of septic tank shall include the following:

Parameter	Units	Sample Type	Sampling Frequency	Reporting Frequency
Flow Rate	gpd	Metered [a]	Continuous	Annually

gpd denotes gallons per day.

a. Flow rate may be metered or estimated based on potable water supply meter readings or other approved method.

Septic tanks shall be inspected and/or pumped at least as frequently as described below. Inspections of sludge and scum depth are not required if the tanks are pumped at least annually.

Parameter	Units	Measurement Type	Inspection/Reporting Frequency
Sludge depth and scum thickness in each compartment of each tank	Feet	Staff Gauge	Annually
Distance between bottom of scum layer and bottom of outlet device	Inches	Staff Gauge	Annually
Distance between top of sludge layer and bottom of outlet device	Inches	Staff Gauge	Annually
Effluent filter condition (if equipped, clean as needed)	NA	NA	Annually

NA denotes not applicable.

Septic tanks shall be pumped when any one of the following conditions exists:

1. The combined thickness of sludge and scum exceeds one-third of the tank depth of the first compartment.
2. The scum layer is within 3 inches of the outlet device.
3. The sludge layer is within 8 inches of the outlet device.

If a septic tank is pumped during the year, the pumping report shall be submitted with the annual report. All pumping reports shall be submitted with the next regularly scheduled monitoring report. At a minimum, the record shall include the date, nature of service, service company name, and service company license number.

AEROBIC TREATMENT UNIT MONITORING [10]

Influent Monitoring

Influent samples shall be taken from a location that provides representative samples of the wastewater quality. At a minimum, influent monitoring shall consist of the following:

Constituent	Units	Sample Type	Sample Frequency	Reporting Frequency
Total Nitrogen [a]	mg/L	Grab	Monthly	Quarterly

mg/L denotes milligrams per liter.

a. When needed for 50% reduction effluent limit calculations. .

[10] Determine the need for monitoring based on the flow rate and Attachment 1. Biochemical oxygen demand limits apply with flow rates above 400 gpd; nitrogen limits may apply at flow rates above 20,000 gpd. (See General Order Section D, Effluent Limits and Attachment 1, Nitrogen Effluent Limit Evaluation.)

Effluent Monitoring

Samples of effluent shall be taken at an area that represents the effluent quality distributed to the disposal area. At a minimum, effluent monitoring shall consist of the following:

Parameter	Units	Sample Type	Sampling Frequency	Reporting Frequency
Flow Rate	gpd	Metered [a]	Continuous	Quarterly
Biochemical Oxygen Demand	mg/L	Grab	Monthly	Quarterly
Total Nitrogen [b]	mg/L	Grab	Monthly	Quarterly

gpd denotes gallons per day. mg/L denotes milligrams per liter.

a. Flow rate may be metered or estimated based on potable water supply meter readings or other approved method. Flow rates may be measured as influent or effluent flow.

b. Include nitrogen monitoring when a nitrogen effluent limit is imposed.

Aerobic treatment units may be integrated in a treatment train and all components shall be inspected to verify operational status. It is highly recommended that a service agreement with a qualified service provider/vendor be required by the Regional Water Board's Executive Officer. Because aerobic treatment units generate more biosolids than septic systems (similar to the activated sludge process), systems shall be inspected and/or pumped at least as frequently as described below. Depending upon the amount of solids removed from the aerobic treatment unit, less frequent inspections may be allowed by the Regional Water Board's Executive Officer. Inspections of sludge and scum depth are not required if the tanks are pumped at least annually.

Parameter	Units	Measurement Type	Inspection/Reporting Frequency
Sludge depth and scum thickness in each compartment of each tank	Feet	Staff Gauge	Quarterly
Distance between bottom of scum layer and bottom of outlet device	Inches	Staff Gauge	Quarterly
Distance between top of sludge layer and bottom of outlet device	Inches	Staff Gauge	Quarterly
Effluent filter condition (if equipped, clean as needed)	NA	NA	Quarterly

NA denotes not applicable.

Aerobic treatment units shall be pumped when any one of the following conditions exists:

1. The combined thickness of sludge and scum exceeds one-third of the tank depth of the final settling tank or interferes with the operation of the system (mixed liquor aerator solids shall not exceed the manufacturer's recommendation).
2. The scum layer is within 3 inches of the outlet device.
3. The sludge layer is within 8 inches of the outlet device.

All pumping reports shall be submitted with the next regularly scheduled monitoring report. At a minimum, the record shall include the date, nature of service, service company name, and service company license number.

ACTIVATED SLUDGE MONITORING [11]

Influent Monitoring

Influent samples shall be taken from a location that provides representative samples of the wastewater quality. At a minimum, influent monitoring shall consist of the following:

Constituent	Units	Sample Type	Sample Frequency	Reporting Frequency
Total Nitrogen [a]	mg/L	Grab	Monthly	Quarterly

mg/L denotes milligrams per liter.

a. When needed for 50% reduction effluent limit calculation.

Effluent Monitoring

Samples of effluent shall be taken at an area that represents the effluent quality distributed to the disposal area. At a minimum, effluent monitoring shall consist of the following:

Constituent	Units	Sample Type	Sample Frequency	Reporting Frequency
Flow Rate [a]	gpd	Meter	Continuous	Quarterly
Biochemical Oxygen Demand	mg/L	Grab	Monthly	Quarterly
Total Suspended Solids	mg/L	Grab	Monthly	Quarterly
Total Nitrogen [b]	mg/L	Grab	Monthly	Quarterly

gpd denotes gallons per day.

a. At a minimum, the total flow shall be measured monthly to calculate the average daily flow for the month. Flow rates may be measured on influent or effluent flow.

b. Include nitrogen monitoring when a nitrogen effluent limit is imposed.

[11] Determine the need for monitoring based on the flow rate and Attachment 1. Biochemical oxygen demand limits apply with flow rates above 400 gpd; nitrogen limits may apply at flow rates above 20,000 gpd. (See General Order Section D, Effluent Limits and Attachment 1, Nitrogen Effluent Limit Evaluation.)

POND SYSTEM MONITORING [12]

Influent Monitoring

Influent samples shall be taken from a location that provides representative samples of the wastewater and flow rate. At a minimum, influent monitoring shall consist of the following:

Constituent	Units	Sample Type	Sample Frequency	Reporting Frequency
Flow Rate [a]	gpd	Meter	Continuous	Quarterly
Total Nitrogen [b]	mg/L	Grab	Monthly	Quarterly

gpd denotes gallons per day. mg/L denotes milligrams per liter.

a. At a minimum, the total flow shall be measured monthly to calculate the average daily flow for the month. If wastewater is stored and applied to land, flow rate measurement may also be needed on the effluent flow.

b. When needed for 50% reduction effluent limit calculation.

Wastewater Pond Monitoring

All wastewater and treated wastewater storage ponds (lined and unlined) shall be monitored as specified below:

Constituent	Units	Sample Type	Sample Frequency	Reporting Frequency
Dissolved Oxygen	mg/L	Grab	Monthly	Quarterly
Freeboard	0.1 feet	Measurement	Monthly	Quarterly
Odors	--	Observation	Monthly	Quarterly
Berm condition	--	Observation	Monthly	Quarterly

mg/L denotes milligrams per liter.

Effluent Monitoring

Effluent samples shall be taken from a location that provides representative samples of the wastewater. At a minimum, effluent monitoring shall consist of the following:

Constituent	Units	Sample Type	Sample Frequency	Reporting Frequency
Biochemical Oxygen Demand	mg/L	Grab	Monthly	Quarterly

[12] Determine the need for monitoring based on the flow rate and Attachment 1. Biochemical oxygen demand limits apply with flow rates above 400 gpd; nitrogen limits may apply at flow rates above 20,000 gpd. (See General Order Section D, Effluent Limits and Attachment 1, Nitrogen Effluent Limit Evaluation.)

Constituent	Units	Sample Type	Sample Frequency	Reporting Frequency
Total Nitrogen [a]	mg/L	Grab	Monthly	Quarterly

mg/L denotes milligrams per liter.

a. Include nitrogen monitoring when a nitrogen effluent limit is imposed.

DISINFECTION SYSTEM MONITORING

If disinfection is performed, samples shall be collected from immediately downstream of the disinfection system. Depending upon the level of disinfection and wastewater disposal, monitoring requirements vary. Disinfection monitoring shall be customized to the site-specific conditions from the following:

Constituent	Units	Sample Type	Sample Frequency	Reporting Frequency
Total Coliform Organisms	MPN/100 mL	Grab	TBD [a]	Quarterly
Turbidity	NTU	Grab/Meter	TBD [a]	Quarterly

MPN/100 mL denotes most probable number per 100 mL sample. NTU denotes nephelometric turbidity unit.

a. TBD (to be determined) shall be specified in the NOA or as required by California Code of Regulations, title 22 section 60321.

RECREATIONAL VEHICLE DISCHARGE MONITORING

Any wastewater system that has accepted recreational vehicle, portable toilet, or similar waste in the previous 12 months shall perform the following additional monitoring. Samples shall be collected to characterize effluent that is stored in wastewater ponds or that will be applied to a disposal area. Wastewater shall be monitored as specified below:

Constituent	Units	Sample Type	Sample Frequency	Reporting Frequency
Zinc	mg/L	Grab	Quarterly	Quarterly
Phenol	mg/L	Grab	Quarterly	Quarterly
Formaldehyde	mg/L	Grab	Quarterly	Quarterly

mg/L denotes milligrams per liter.

SUBSURFACE DISPOSAL AREA

Subsurface disposal areas may be configured many different ways (e.g. traditional leach field, pressure-dosed, drip system, mound/at grade, gravel less, etc.). In general, monitoring shall be sufficient to determine if wastewater is evenly applied, the disposal area is not saturated, burrowing animals and/or deep rooted plants are not present, and odors are not present. Inspection of dosing pump controllers, automatic distribution valves, etc. is required to maintain optimum treatment in the disposal area (and any sand or media filter if present). Monitoring shall include, at a minimum, the following:

Constituent	Inspection Frequency	Reporting Frequency
Pump Controllers, Automatic Valves, etc. [a]	Quarterly	Quarterly
Nuisance Odor Condition	Quarterly	Quarterly
Saturated Soil Conditions [b]	Quarterly	Quarterly
Plant Growth [c]	Quarterly	Quarterly
Vectors or Animal Burrowing [d]	Quarterly	Quarterly
Seepage Pit Condition [e]	Quarterly	Quarterly

a. All pump controllers and automatic distribution valves shall be inspected for proper operation as recommended by the manufacturer.

b. Inspect a disposal area for saturated conditions. If a mound system is used, inspect perimeter base for signs of wastewater seepage or saturated soil conditions.

c. Shallow-rooted plants are generally desirable, deep-rooted plants such as trees shall be removed as necessary.

d. Evidence of animals burrowing shall be immediately investigated and burrowing animal populations controlled as necessary.

e. Seepage pits shall be inspected to ensure they are allowing wastewater to infiltrate as designed. Visual inspection of the water level in the seepage pit is adequate.

RECYCLED WATER MONITORING

If recycled water is used for irrigation of landscape areas,[13] priority pollutant monitoring is required at the production facility. Sampling shall be consistent with the following:

Constituent	Sampling Frequency	Reporting Frequency
Priority Pollutants	5 years	The next annual report.

mgd denotes million gallons per day.

LAND APPLICATION AREA MONITORING

The Discharger shall monitor LAAs when wastewater and/or supplemental irrigation water is applied. If wastewater/supplemental irrigation water is not applied during a reporting period, the monitoring report shall so state. LAA monitoring shall include the following:

[13] Landscape areas are defined as parks; greenbelts, playgrounds; school yards; athletic fields; golf courses; cemeteries; residential landscaping; common areas; commercial landscaping (except eating areas); industrial landscaping (except eating areas); freeway, highway, and street landscaping

Constituent	Units	Sample Type	Sampling Frequency	Reporting Frequency
Supplemental Irrigation	gpd	Meter [a]	Monthly	Quarterly
Wastewater Flow [a]	gpd	Meter [a]	Monthly	Quarterly
Local Rainfall	Inches	Weather Station [b]	Monthly	Quarterly
Acreage Applied [c]	Acres	Calculated	Monthly	Quarterly
Application Rate	gal/acre/mo	Calculated	Monthly	Quarterly
Soil Erosion Evidence	--	observation	Monthly	Quarterly
Containment Berm Condition	--	observation	Monthly	Quarterly
Soil Saturation/Ponding	--	observation	Monthly	Quarterly
Nuisance Odors/Vectors	--	observation	Monthly	Quarterly
Discharge Off-Site	--	observation	Monthly	Quarterly

gpd denotes gallons per day.

a. Meter requires meter reading, a pump run time meter, or other approved method.
b. Weather station may be site-specific station or nearby governmental weather reporting station.
c. Acreage applied denotes the acreage to which wastewater is applied.
d. Application rate may also be reported as inch/acre/month.

SOLIDS DISPOSAL MONITORING

The Discharger shall report the handling and disposal of all solids (e.g., screenings, grit, sludge, biosolids, etc.) generated at the wastewater system. Records shall include the name/contact information for the hauling company, the type and amount of waste transported, the date removed from the wastewater system, the disposal facility name and address, and copies of analytical data required by the entity accepting the waste. These records shall be submitted as part of the annual monitoring report.

GROUNDWATER MONITORING

The Discharger shall monitor groundwater quality if required by the NOA. Consistent with the Business and Professions Code, groundwater monitoring reports, well construction workplans, etc. shall be prepared under the supervision of a California licensed civil engineer or geologist. Prior to construction of any groundwater monitoring wells, the Discharger shall submit plans and specifications to the Regional Water Board's staff for review and approval. Once installed, all monitoring wells designated as part of the monitoring network shall be sampled and analyzed according to the schedule below.

The data from routine groundwater monitoring events shall be submitted quarterly. Analysis of the data and groundwater flow directions shall be performed at least annually and shall be performed under the supervision of a California licensed professional (as described above). The Discharger may request a reduced monitoring and reporting schedule once adequate data has been collected to characterize the site. (Typically two years of quarterly sampling is required for adequate characterization.)

Prior to sampling, groundwater elevations shall be measured and the wells shall be purged of at least three well volumes and until pH and electrical conductivity have stabilized. No-purge, low-flow, or other sampling techniques are acceptable if they are described in an approved Sampling and Analysis Plan. Depth to groundwater shall be measured to the nearest 0.01 feet. Groundwater elevations shall be calculated. Samples shall be collected using approved USEPA methods. Groundwater monitoring shall include, at a minimum, the following:

Constituent	Units	Sample Type	Sampling/Reporting Frequency [c,d]
Groundwater Elevation [a]	0.01 Feet	Calculated	Quarterly
Depth to Groundwater	0.01 Feet	Measurement	Quarterly
Gradient	Feet/Feet	Calculated	Quarterly
Gradient Direction	degrees	Calculated	Quarterly
pH	Std. Units	Grab	Quarterly
Total Dissolved Solids	mg/L	Grab	Quarterly
Nitrate as Nitrogen	mg/L	Grab	Quarterly
Sodium	mg/L	Grab	Quarterly
Chloride	mg/L	Grab	Quarterly
Total Coliform Organisms [b]	MPN/100 mL	Grab	Quarterly
Zinc [c]	mg/L	Grab	Quarterly
Phenol [c]	mg/L	Grab	Quarterly
Formaldehyde [c]	mg/L	Grab	Quarterly

MPN/100 mL denotes most probable number per 100 mL sample. Std. Units denotes standard units. mg/L denotes milligrams per liter.

a. Groundwater elevation shall be based on depth to water using a surveyed measuring point elevation on the well and a surveyed reference elevation.

b. Using a minimum of 15 tubes or three dilutions.

c. Monitoring of the constituents zinc, phenol, and formaldehyde are required only when recreational vehicles were allowed to discharge to the wastewater system in the previous 12 months.

d. Analysis of data by a California licensed professional is required at least annually,

SURFACE WATER MONITORING

Because of the difficulty in monitoring bacteria in surface water, sample collection procedures must be described in a *Sampling and Analysis Plan*. Natural bacteria levels can vary significantly, and may be correlated with rainfall. When possible, surface water bacteria samples should be collected under dry weather conditions. It is critical when monitoring bacteria that all containers and surfaces a sample contacts are sterile. Sample containers must be autoclaved or manufactured to maintain sterility; use of screw top bottles, Whirl-pak® bags, or similar containers is acceptable. The sample hold time for bacteria samples is typically no more than six hours. Monitoring shall include, at a minimum, the following:

Constituent	Units	Weather (Rain/Dry)	Sampling Frequency	Reporting Frequency
Escherichia coli (E. coli)[a]	MPN/100 mL	Observation	Quarterly	Quarterly
Enterococci [b]	MPN/100 mL	Observation	Quarterly	Quarterly

MPN/100 mL denotes most probable number per 100 mL sample

a. Analysis by USEPA Method 1603 or equivalent.

b. Analysis by USEPA Method 1600 or equivalent.

REPORTING

In reporting monitoring data, the Discharger shall arrange the data in tabular form so that the date, sample type (e.g., effluent, solids, etc.), and reported analytical or visual inspection results are readily discernible. The data shall be summarized to clearly illustrate compliance with the General Order and NOA as applicable. The results of any monitoring done more frequently than required at the locations specified in the MRP shall be reported in the next regularly scheduled monitoring report and shall be included in calculations as appropriate.

During the life of this General Order, the State Water Board or Regional Water Board may require the Discharger to electronically submit monitoring reports using the State Water Board's California Integrated Water Quality System (CIWQS) program Internet web site or alternative database. Electronic submittal procedures will be provided when directed to begin electronic submittals. Until directed to electronically submit monitoring reports, the Discharger shall submit hard copy monitoring reports.

A. Quarterly Monitoring Reports

Quarterly reports shall be submitted to the Regional Water Board on the **first day of the second month after the quarter ends** (e.g. the January-March Quarterly Report is due by May 1st). The reports shall bear the certification and signature of the Discharger's authorized representative. At a minimum, the quarterly reports shall include:

1. Results of all required monitoring.
2. A comparison of monitoring data to the discharge specifications, applicable effluent limits, disclosure of any violations of the NOA and/or General Order, and an explanation of any violation of those requirements. (Data shall be presented in tabular format.)
3. If requested by staff, copies of laboratory analytical report(s) and chain of custody form(s).

B. Annual Report

Annual Reports shall be submitted to the Regional Water Board by **March 1st following the monitoring year**. The Annual Report shall include the following:

1. Tabular and graphical summaries of all monitoring data collected during the year.

2. An evaluation of the performance of the wastewater treatment facility, including discussion of capacity issues, nuisance conditions, system problems, and a forecast of the flows anticipated in the next year. A flow rate evaluation as described in the General Order (Provision E.2.c) shall also be submitted.
3. If disinfection with ultraviolet light is performed, describe disinfection system maintenance activities performed in the calendar year. The description shall address inspections performed, lamp bulb replacement, lamp sleeve cleaning, and manufacturer recommended maintenance activities.
4. A discussion of compliance and the corrective action taken, as well as any planned or proposed actions needed to bring the discharge into compliance with the NOA and/or General Order.
5. A discussion of any data gaps and potential deficiencies/redundancies in the monitoring system or reporting program.
6. The name and contact information for the wastewater operator responsible for operation, maintenance, and system monitoring.
7. A groundwater monitoring report prepared by a California licensed professional. This report may be prepared separately from the rest of the Annual Report. The report shall contain an analysis of groundwater data collected during the year. The analysis shall include a description of the sample events, copies of the field logs, purge method and volume, groundwater elevation and trend, a groundwater elevation map for each sample event, summary tables showing results for parameters measured, comparison of groundwater quality parameters to standards in the NOA, chain-of-custody forms, calibration logs for field equipment used, and a general evaluation of any impacts the wastewater discharge is having on groundwater quality.

A letter transmitting the monitoring reports shall accompany each report. The letter shall report violations found during the reporting period, and actions taken or planned to correct the violations and prevent future violations. The transmittal letter shall contain the following penalty of perjury statement and shall be signed by the Discharger or the Discharger's authorized agent:

> "I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of the those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

The Discharger shall implement the above monitoring program as of the date of this MRP.

Ordered by:

NAME, Executive Officer

DATE

ATTACHMENT 7: 2022-23 RWQCB FEE SCHEDULE

CALIFORNIA CODE OF REGULATIONS
TITLE 23. Division 3. Chapter 9. Waste Discharge Reports and Requirements
Article 1. Fees

Section 2200. Annual Fee Schedules.

Each person for whom waste discharge requirements have been prescribed pursuant to Section 13263 of the Water Code shall submit, to the state board, an annual fee in accordance with the following schedules. The fee shall be submitted for each waste discharge requirement order issued to that person.[1]

(a) The annual fees for persons issued waste discharge requirements (WDRs), except as provided in subdivisions (a)(3), (a)(4), (b), and (c), shall be based on the discharge's threat to water quality (TTWQ) and complexity (CPLX) rating according to the following fee schedule, plus applicable surcharge(s).

[1] Federal facilities will generally not be invoiced for the portion of the annual fee that is attributable to the state board's ambient water monitoring programs. See *Massachusetts v. United States* (1978) 435 U.S. 444.

Threat to Water Quality (TTWQ)	Complexity (CPLX)	Discharge to Land or Surface Waters[2]	Land Disposal[3] – Not Paying a Tipping Fee[4]	Land Disposal[3] – Paying a Tipping Fee[5]
1	A	$180,398	$76,703[6]	$64,210[6]
1	B	$113,934	$61,951	$51,860
1	C	$61,476	$39,826	$33,340
2	A	$41,063	$33,187	$27,783
2	B	$24,687	$26,552	$22,226
2	C	$18,512	$19,914	$16,670
3	A	$14,590	$13,275	$11,114
3	B	$7,770	$9,957	$8,333
3	C	$3,453	$4,424	$3,705

[2] For this table, discharges to land or surface waters are those discharges of waste to land or surface waters not covered by NPDES permits that are regulated pursuant to Water Code Section 13263 that do not implement the requirements of Title 27 of the California Code of Regulations (CCR). Examples include, but are not limited to, wastewater treatment plants, erosion control projects, and septic tank systems. It does not include discharge of dredge or fill material, discharges from agricultural lands, including irrigated lands, or discharge from animal feeding operations. Dischargers covered by a WDR for municipal and domestic discharges with permitted flows of less than 50,000 gallons per day in categories 2-B, 2-C, 3-B and 3-C will receive a 50 percent fee discount. The design flow shall be used where no permitted flow is present. Municipal and domestic discharges receiving the discount are defined as discharges from facilities that treat domestic wastewater or a mixture of wastewater that is predominately domestic wastewater. Domestic wastewater consists of wastes from bathroom toilets, showers, and sinks from residential kitchens and residential clothes washing. It does not include discharges from food preparation and dish washing in restaurants or from commercial laundromats. Dischargers covered by a Landscape Irrigation General Permit issued by the state board will be assessed a fee associated with TTWQ/CPLX rating of 3B.

[3] For this table, land disposal discharges are those discharges of waste to land that are regulated pursuant to Water Code Section 13263 that implement the requirements of CCR Title 27, Division 2, except Chapter 7, Subchapter 2, §22560-22565 (confined animal facilities). Examples include, but are not limited to, discharges associated with active and closed landfills, waste piles, surface impoundments, and mines.

[4] For this table, Not Paying a Tipping Fee are those land disposal dischargers not subject to Public Resources Code (PRC) § 48000 et seq.

[5] For this table, Paying a Tipping Fee are those land disposal dischargers subject to PRC § 48000 et seq.

[6] A surcharge of $12,000 will be added for Class I landfills. Class I landfills are those that, during the time they are, or were, in operation, are so classified by the regional board under 23 CCR Chapter 15, have WDRs that allow (or, for closed units, allowed) them to receive hazardous waste, and have a permit issued by the Department of Toxic Substances Control under 22 CCR Chapter 10, § 66270.1 et seq.

Oil and gas produced water storage and disposal facilities regulated by waste discharge requirements are subject to a surcharge per barrels of waste water discharged in the prior 12 months according to the following schedule:

TTWQ & CPLX Rating	No Barrels	1 to 999,999 Barrels	1,000,000 or more Barrels
1A	$600	$1,000	$50,000
1B	$600	$1,000	$50,000
1C	$600	$1,000	$50,000
2A	$600	$1,000	$40,000
2B	$600	$1,000	$30,000
2C	$600	$1,000	$10,000
3A	$600	$1,000	$4,000
3B	$600	$1,000	$2,000
3C	$600	$600	$600

(1) Threat to water quality (TTWQ)[7] and complexity (CPLX) of the discharge is assigned by the regional board in accordance with the following definitions:

THREAT TO WATER QUALITY

Category "1" – Those discharges of waste that could cause the long-term loss of a designated beneficial use of the receiving water. Examples of long-term loss of a beneficial use include the loss of drinking water supply, the closure of an area used for water contact recreation, or the posting of an area used for spawning or growth of aquatic resources, including shellfish and migratory fish.

Category "2" – Those discharges of waste that could impair the designated beneficial uses of the receiving water, cause short-term violations of water quality objectives, cause secondary drinking water standards to be violated, or cause a nuisance.

Category "3" – Those discharges of waste that could degrade water quality without violating water quality objectives, or could cause a minor impairment of designated beneficial uses as compared with Category 1 and Category 2.

COMPLEXITY

Category "A" – Any discharge of toxic wastes; any small volume discharge containing toxic waste; any facility having numerous discharge points and groundwater monitoring; or any Class 1 waste management unit.

[7] In assigning a category for TTWQ, a regional board should consider duration, frequency, seasonality, and other factors that might limit the impact of the discharge.

Category “B” – Any discharger not included in Category A that has physical, chemical, or biological treatment systems (except for septic systems with subsurface disposal), or any Class 2 or Class 3 waste management units.

Category “C” – Any discharger for which waste discharge requirements have been prescribed pursuant to Section 13263 of the Water Code not included in Category A or Category B as described above. Included are dischargers having no waste treatment systems or that must comply with best management practices, dischargers having passive treatment and disposal systems, or dischargers having waste storage systems with land disposal.

(2) For dischargers covered under Statewide General WDRs for Sanitary Sewer Systems, the TTWQ and CPLX designations are assigned based on the population served by the sanitary sewer system. The table below describes the correlation between population served and TTWQ and CPLX designations to determine the appropriate annual fee:

Population Served[8]	**Threat and Complexity Designation**
Less than 50,000	3C
50,000 or more	2C

[8] Assumes 2.5 persons per equivalent dwelling unit (EDU).

(a)(3)(A) For dischargers covered under Statewide General WDRs for discharges of winery process water, the annual fees shall be based on the following schedule:

Facility Process Water Flow (gal/yr)	Fee
10,000 to 30,000	$779
>30,000 to 100,000	$1,038
>100,000 to 300,000	$1,246
>300,000 to 600,000	$2,076
>600,000 to 1 million	$3,114
>1 million to 3 million	$7,266
>3 million to 7 million	$13,494
>7 million to 15 million	$19,722

(B) Dischargers enrolled in an approved Local Agency Oversight program will receive a 50 percent fee reduction.

(C) Dischargers enrolled in an approved sustainability program will receive a 10 percent fee reduction.

(D) Dischargers enrolled in an approved Local Agency Oversight program and an approved sustainability program will receive a 50 percent reduction of the annual fee that results from the application of a 10 percent fee reduction.

(E) Dischargers with facility process water flows of less than 10,000 gallons per year that are directed by the state board or a regional board to enroll under the Statewide General WDRs for discharges of winery process water shall pay the fee applicable to dischargers with 10,000 to 30,000 gallons per year.

(F) Dischargers with facility process water flows of 10,000 to 30,000 gallons per year that are directed by the state board or a regional board to enroll as a Tier 2 facility under the Statewide General WDRs for discharges of winery process water shall pay the fee applicable to dischargers with >30,000 to 100,000 gallons per year.

(4) The fees for discharges of dredge and fill material shall be as follows.[9]

Standard Fee:[10]

Discharge Category	Application Fee[11]	Project Fee	Annual Fee[12]
(A) Fill and Excavation[13] Discharges Discharge area expressed in acres rounded to two decimal places (0.01 acre)	$2,734	Impact area in acres x $24,366, minus application fee, up to a maximum of $237,190. If this amount is $0 or less, then no project fee is required.	$2,297 for first five fiscal years following the effective date of the order, then $365 beginning with the sixth fiscal year until the Notice of Completion is issued to discharger.

[9] Fees shall be based on the sum of temporary and permanent impact amounts to be authorized by the order. Impacts include both the excavation and fill area and the dredging area. If water quality certification is issued in conjunction with dredge or fill WDRs or issued for a discharge regulated under preexisting WDRs for the same project, the project will be assessed a single fee derived from this dredge and fill fee schedule. Discharges requiring certification and regulated under a federal permit or license other than a US Army Corp of Engineers Clean Water Act Section 404 permit or a Federal Energy Regulatory Commission License shall be assessed a fee determined from Section 2200(a).

[10] Fees shall be based on the sum of project impacts. Projects that include both category (A) and category (B) discharges shall be subject to the category (A) application and project fees. A single annual fee shall be assessed based on the higher of the applicable annual fee categories.

[11] Dischargers shall pay a one-time application fee and the project fee, if a project fee is required, for each project at the time that the application or report of waste discharge is submitted. Application and project fees shall be determined according to the fee schedule in effect on the date of application submittal.

[12] Consistent with Section 2200.2, the sum of the application fee and the project fee shall serve as the first annual fee. If the submittal of this first annual fee does not coincide with the current fiscal year billing cycle, then the next, and only the next, fiscal year billing shall be adjusted to account for the payment of the application fee. The annual fee for category (B) dredging discharges will be calculated using the annual dredge volume authorized in the applicable Order. Annual fee invoices are based on the fee schedule in effect for the fiscal year in which the invoice is issued.

[13] "Excavation" refers to removing sediment or soil in shallow waters or under no-flow conditions, typically for purposes other than navigation. Examples include, but are not limited to, trenching for utility lines; other earthwork preliminary to discharge; removing sediment to increase channel capacity; and other flood control and drainage maintenance activities (e.g., debris removal, vegetation management and removal, detention basin maintenance and erosion control of slopes along open channels and other drainage facilities).

Discharge Category	Application Fee[11]	Project Fee	Annual Fee[12]
(B) Dredging[14] Discharges (except Category C activities see (C) below) Dredge volume expressed in cubic yards.	$2,734	N/A	Annual dredge volume in cubic yards x $0.60, up to a project maximum of $237,190. The minimum annual fee is $2,734.

Special/Flat Fee:[15]

Discharge Category	Application Fee	Annual Fee
(C) Sand Mining, In-Stream Gravel Mining and Beach Nourishment Discharges Aggregate extraction in surface waters where source material is free of pollutants and the dredging operation will not violate any basin plan provisions and beach nourishment projects.	$2,734	$912
(D) Ecological Restoration and Enhancement Projects The project meets the definition of an "Ecological Restoration and Enhancement Project" set forth in the State Wetland Definition and Procedures for Discharges of Dredged or Fill Materials to Waters of the State, adopted by the State Water Board on April 2, 2019. [16]	$729	$365

[14] "Dredging" refers to removing sediment or aquatic vegetation, typically in deeper water for navigation purposes. For fee purposes, this fee category includes aggregate extraction within stream channels, where the substrate is composed of coarse sediment (e.g., gravel) and is replenished by normal winter flows (e.g., point bars).

[15] To qualify for a special/flat fee category, the whole of a project must meet the fee category description (i.e., all project discharges are limited to those defined by the fee category).

[16] Ecological Restoration and Enhancement Project means the project is voluntarily undertaken for the purpose of assisting or controlling the recovery of an aquatic ecosystem that has been degraded, damaged or destroyed to restore some measure of its natural condition and to enhance the beneficial uses, including potential beneficial uses of water. Such projects are undertaken:

1) in accordance with the terms and conditions of a binding stream or wetland enhancement or restoration agreement, or a wetland establishment agreement, between the real property interest owner or the entity conducting the habitat restoration or enhancement work and:

a. a federal or state resource agency, including, but not limited to, the U.S. Fish and Wildlife Service, Natural Resources Conservation Service, Farm Service Agency, National Marine Fisheries Service, National Oceanic and Atmospheric Administration, U.S. Forest Service, U.S.

(E) Low Impact Discharges Projects may be classified as low impact discharges if the project meets all of the following criteria: 1. The discharge size is less than all of the following: (a) for fill, 0.1 acre, and 300 linear feet, and (b) for dredging, 25 cubic yards. 2. The discharger demonstrates that: (a) all practicable measures will be taken to avoid impacts; (b) where unavoidable temporary impacts take place, waters and vegetation will be restored to pre-project conditions as quickly as practicable; and (c) where unavoidable permanent impacts take place, there will be no net loss of wetland, riparian area, or headwater functions, including onsite habitat, habitat connectivity, floodwater retention, and pollutant removal. 3. The discharge will not do any of the following: (a) directly or indirectly destabilize a bed of a receiving water; (b) contribute to significant cumulative effects; (c) cause pollution, contamination, or nuisance; (d) adversely affect candidate, threatened, or endangered species; (e) degrade water quality or beneficial uses; (f) be toxic; or (g) include “hazardous” or “designated” material.	$2,734	$365
(F) Emergency Projects Authorized by a Water Board General Order	$2,734	$365

Bureau of Land Management, California Department of Fish and Wildlife, California Wildlife Conservation Board, California Coastal Conservancy or the Delta Conservancy;

b. a local agency with the primary function of managing land or water for wetland habitat purposes; or

c. a non-governmental conservation organization; or

2) by a state or federal agency that is statutorily tasked with natural resource management.

These projects do not include the conversion of a stream or natural wetland to uplands or stream channelization. It is recognized that Ecological Restoration and Enhancement Projects may require ongoing maintenance or management to maximize fish, wildlife, habitat, or other ecological benefits, or filling gullied stream channels and similar rehabilitative activities to re-establish stream and meadow hydrology. Changes in wetland plant communities that occur when wetland hydrology is more fully restored during rehabilitation activities are not considered a conversion to another aquatic habitat type. These projects also do not include actions required under a Water Board Order for mitigation, actions to service required mitigation, or actions undertaken for the primary purpose of land development.

(G) Amended Orders[17] Amendments of WDRs or water quality certifications previously issued. (1) All category (D) Ecological Restoration and Enhancement Projects, regardless of amendment type. (2) Administrative amendments including, but not limited to, ownership changes, typographic edits, or time extensions that do not result in a temporal loss of resource function. Amendments in this category require no technical analysis or additional compensatory mitigation. (3) Amendment results in changes(s) in impact character, location, or volume of the discharge; or a time extension that results in a temporal loss of resource function, according to the following criteria: • Amendment increases the active certification's impact quantity by less than 50 percent, and • Amendment does not require a change to the mitigated aquatic resource type. (4) Amendment requires a supplemental CEQA analysis, or Amendment results in a change(s) in impact character, location, or volume of the discharge, or a time extension that results in a temporal loss of resource function, according to the following criteria: • Amendment increases the active certification's impact quantity by more than 50 percent, or • Amendment requires a change to the mitigated aquatic resource type.	(1) No fee required (2) No fee required (3) Additional standard fee assessed per increased amount of discharge(s). The minimum fee is $2,734. (4) New standard fee assessed per new project discharge total. The minimum fee is $2,734.	Annual fee applicable per discharge category
(H) Wildfire Mitigation by Electrical Corporations, Electrical Utilities, and Electrical Cooperatives Dredge or fill activities conducted by electrical corporations, electrical utilities, and electrical cooperatives pursuant to a wildfire mitigation plan prepared in accordance with Public Utilities Code, section 8386(b) or section 8387(b)(1). This annual fee covers all dredge or fill activities conducted by the electrical corporations, electrical utilities, and electrical cooperatives pursuant to a wildfire mitigation plan, and is in lieu of the project-specific dredge or fill fees in section 2200(a)(3)(A)-(G) for dredge or fill activities conducted pursuant to a wildfire mitigation plan.	N/A	$40.00 per mile of overhead electrical lines identified as high risk or high threat in the wildfire mitigation plan.

[17] Dischargers that have met the project fee cap will be assessed the minimum fee for each amendment of previously-issued WDR or water quality certification.

(b) The annual fees for persons issued NPDES permits shall be based on the following schedules, plus any applicable surcharge(s).

(1)(A) Each public entity that owns and/or operates a storm water conveyance system, or pare of such a system, that is subject to a NPDES permit for storm water dischargers from a municipal separate storm sewer system (MS4) shall pay an annual fee according to the following schedule. The fee shall be based on the population of the public entity according to the most recently published United States Census. Public entities other than cities or counties (Non-Traditional Small MS4s[18]), shall pay an annual fee according to the following schedule, based on the average daily population[19] using the entities' facilities, unless otherwise provided in the schedule. Flood control districts or other special districts named as co-permittees to MS4 permits and school districts, serving students between kindergarten and fourteenth grade, shall not pay an annual fee if the city or county within whose jurisdiction the district lies oversees the district's storm water compliance and pays an annual fee.

ANNUAL FEE SCHEDULE FOR AREAWIDE MUNICIPAL STORM WATER SEWER SYSTEM PERMITS AND CO-PERMITEES

Population	Fee
Equal to or greater than 250,000	$70,667
200,000 to 249,999	$61,833
150,000 to 199,999	$53,352
100,000 to 149,999	$44,169
75,000 to 99,999	$35,333
50,000 to 74,999	$26,498
25,000 to 49,999	$17,666
10,000 to 24,999	$10,602
1,000 to 9,999	$7,067
Less than 1,000 population	$3,535
Statewide Permit Holders	$282,664
High Speed Rail Authority	$165,739

(B) Dischargers applying for the Small MS4 Waiver of a General Permit to Discharge Storm Water Associated with Small Municipal Activity issued by the state board shall pay an application fee of $200.

[18] Non-Traditional Small MS4s are facilities that have systems similar to separate storm sewer systems in municipalities, such as systems at military bases, large hospital or prison complexes, and highways and other thoroughfares. (40 C.F.R. § 122.26(b)(16)(iii)).

[19] Total daily population must include resident and commuter populations. For public entities other than cities or counties, total daily population must include resident population and non-residents regularly employed in the areas served by the public entity.

(2) Any entity or entities submitting a watershed improvement plan to the regional board for review pursuant to Section 16102 of the Water Code shall reimburse the regional board for its costs[20] to review and oversee the implementation of the plan, which shall be calculated using a rate of $185.00 per hour.

(3) Facilities that discharge storm water associated with industrial activities that are regulated by a state board or regional board general NPDES storm water permit shall pay an annual fee of $1,738. An amount equal to the fee prescribed shall be submitted with the discharger's Notice of Intent (NOI) to be regulated under a general NPDES permit and will serve as the first annual fee. For the purposes of this section, an NOI is considered to be a report of waste discharge.

(4)(A) Storm water discharges associated with construction activities that are regulated by a general NPDES storm water permit other than those covered under (b)(5), including those issued by a regional board, shall pay an annual fee of $496 plus $52 per acre (rounded to the nearest whole acre and dollar amount), to a maximum fee of $10,896, based on the total acreage to be disturbed during the life of the project as listed on the NOI. An amount equal to the fee prescribed shall be submitted with the discharger's NOI to be regulated under a general NPDES permit and will serve as the first annual fee. For the purposes of this section, an NOI is considered to be a report of waste discharge.

(B) Stormwater discharges associated with Executive Order N-73-20 requesting statewide programmatic General Permit coverage for multiple non-contiguous linear underground and overhead broadband projects, shall pay an annual fee of $10,000 plus $52 per acre (rounded to the nearest whole acre and dollar amount) based on the total acreage to be disturbed during the life of the project as listed on the NOI. An amount equal to the fee prescribed shall be submitted with the discharger's NOI to be regulated under a general NPDES permit and will serve as the first annual fee. For the purposes of this section, an NOI is considered to be a report of waste discharge.

(C) Stormwater discharges requesting programmatic General Permit coverage for multiple non-contiguous linear underground and overhead projects within a single Regional Water Board jurisdiction, shall pay an annual fee of $10,896.00 per NOI. An amount equal to the fee prescribed shall be submitted with the discharger's NOI to be regulated under a general NPDES permit and will serve as the first annual fee. For the purposes of this section, an NOI is considered to be a report of waste discharge.

(D) Dischargers applying for the Small Construction Rainfall Erosivity Waiver of a General Permit to Discharge Storm Water Associated with Construction Activity issued by the state board shall pay an application fee of $200.

[20] These costs include labor, state board and regional board administrative costs, and overhead costs.

(5) Discharges associated with mosquito and vector control activities[21] that are regulated by an individual or general NPDES permit adopted specifically for these purposes, including those issued by a regional board, shall pay a fee of $250. Dischargers filing an application for a mosquito and vector control permit shall pay a fee of $250. The fee shall be paid each time an application for initial certification or renewal of certification is submitted. Mosquito and vector control fees are not subject to ambient water monitoring surcharges.

(6) Planned and emergency discharges from community water systems that are regulated by a general NPDES permit adopted specifically for this purpose shall pay an application fee and subsequent annual fees (if applicable) based on the number of service connections for the public water system in accordance with the following schedule. The application fee shall be submitted with the discharger's NOI to be regulated by the general NPDES permit. For purposes of this section, an NOI is considered to be a report of waste discharge.

Dischargers with a Single System

Service Connections	Application Fee	Annual Fee
15 – 999	$158	No Annual Fee
1,000 – 9,999	$794	$794
10,000+	$3,274	$3,274
Transmission System or Water Wholesaler	$3,274	$3,274

[21] A mosquito and vector control activity involves discharge of pesticides into a designated area for the maintenance and control of mosquito larva for the protection of public health from the outbreak of lethal diseases. A mosquito and vector control agency discharges pesticides into surface waters for the control of mosquito larva.

Dischargers with Multiple Systems

Total Number of Service Connections	Application Fee	Annual Fee[22]
15 – 999	$158	No Annual Fee
1,000 – 9,999	$794	$794 per Primary System fee plus $158 per Secondary System
10,000+	$3,274	$3,274 per Primary System fee plus $158 per Secondary System
Transmission System or Water Wholesaler System	$3,274	$3,274 per Primary System fee plus $158 per Secondary System

(7) Seawater desalination facilities that have submitted a request for a determination of consistency with California Water Code section 13142.5(b) are subject to an annual fee according to the following fee schedule until a determination is made, with a maximum annual fee of $254,643:

Fee Basis[23]	Base Fee	Proposed Intake Volume Multiplier
Subsurface Only	$76,393	$1,283 per mgd
Surface, Combined Surface and Subsurface, or Alternative Intake Technology	$152,786	$1,283 per mgd

(8) Discharges from public wastewater treatment facilities that are regulated by a general NPDES permit adopted specifically for this purpose and all other NPDES permitted discharges, except as provided in (b)(9), (b)(10), and (c), shall pay a fee according to the following formula:

Fee equals $3,274 plus 5,791 multiplied by the permitted flow, in mgd, with a maximum fee of $818,779 plus any applicable surcharge(s).

If there is no permitted effluent flow specified, the fee shall be based on the design flow of the facility.

[22] All Transmission Systems and Water Wholesaler Systems are Primary Systems. If the Discharger does not have a Transmission System or a Water Wholesaler System, the Discharger's individual water system with the highest number of service connections will be designated as the Primary System. All systems that are not Primary Systems are designated as Secondary Systems.

[23] Fee shall be based on the intake type as defined in the Water Quality Control Plan for Ocean Waters of California Chapter III.M.2.d.(1)(a).

NPDES permitted industrial discharges[24] with a threat/complexity[25] rating of 1A, 1B, or 1C are subject to a surcharge as follows:

Threat/Complexity Rating 1A - $15,000
Threat/Complexity Rating 1B - $10,000
Threat/Complexity Rating 1C - $5,000

Public wastewater treatment facilities with approved pretreatment programs are subject to a surcharge of $10,000. Agencies with multiple facilities under one approved pretreatment program shall pay a $10,000 surcharge per program.

(9)(A) Flow for wet weather municipal facilities[26] will be based on the previous five years' actual monthly average flow,[27] as of the date the permit is issued.

(B) Notwithstanding (9)(A), the minimum annual fee for wet weather municipal facilities shall be $20,000.

[24] NPDES permitted industrial discharger(s) means those industries identified in the Standard Industrial Classification Manual, Bureau of Budget, 1967, as amended and supplemented, under the category "Division D-Manufacturing" and such other classes of significant waste producers as, by regulation, the U.S. EPA Administrator deems appropriate. (33 USC Sec. 1362).

[25] Threat/complexity categories are listed under (a)(1) of this document.

[26] Wet weather municipal facilities are intermittently operated facilities that are designated specifically to handle flows during wet weather conditions.

[27] The actual monthly average flow is defined as the average of the flows during each of the months that the discharge occurred during the previous five-year period.

(10) All other general NPDES permits and de minimis discharges[28] that are regulated by an individual or general NPDES permit, including those issued by a regional board, shall pay a fee as follows:

Category 1 – Discharges that require treatment systems to meet priority toxic pollutant limits and that could impair beneficial uses if limits are violated: $18,863

Category 2 – Discharges that require treatment systems to meet non-priority pollutant limits, but are not expected to impair beneficial uses if limits are violated. Examples of non-priority pollutants include, but are not limited to, nutrients, inorganic compounds, pH, and temperature: $11,400

Category 3 – Discharges that require minimal or no treatment systems to meet limits and pose no significant threat to water quality: $3,274

Category 4 – Discharges that require minimal or no treatment systems to meet limits and are authorized by the Regional Water Board to augment ambient streamflow conditions to support aquatic organisms during times of low streamflows where conditions threaten survival of aquatic organisms: $250

[28] De minimis discharge activities include, but are not limited to, the following: aquaculture activities (as defined in Chapter 40, Section 122.25(b) of the Code of Federal Regulations) defined as managed water areas that use discharges of pollutants into that designated area for maintenance or reproduction of harvestable freshwater, estuarine, or marine plants or animals including fish hatcheries; geothermal facilities that utilize, extract, or produce energy from geothermal fluids for heating, generating power, or other beneficial uses, and discharge geothermal fluids to surface waters; aquatic pesticide applications; evaporative condensate; swimming and landscape pool drainage; discharges from fire hydrant testing or flushing; discharges resulting from construction dewatering; discharges associated with supply well installation, development, test pumping, and purging; discharges resulting from the maintenance of uncontaminated water supply wells, pipelines, tanks, etc.; discharges resulting from hydrostatic testing of water supply vessels, pipelines, tanks, etc.; discharges resulting from the disinfection of water supply pipelines, tanks, reservoirs, etc.; discharges from water supply systems resulting from system failures, pressure releases, etc.; discharges of non-contact cooling water, not including steam/electric power plants; discharges resulting from diverted stream flows; water treatment plant discharges; and other similar types of wastes that have low pollutant concentrations and are not likely to cause or have a reasonable potential to cause or contribute to an adverse impact on the beneficial uses of receiving waters yet technically must be regulated under an NPDES permit.

(c) The annual fees for waste discharge requirements and waivers of waste discharge requirements for discharges from confined animal facilities shall be based on the following schedules. If a facility contains animals that fit multiple fee categories, the fee will be based on the number of animals in the category that results in the highest fee.

Dairies – Mature Dairy Cattle or Water Buffalo

Number of Animals	Fee
3,000 or more	$18,767
1,500 to 2,999	$11,728
700 to 1,499	$5,629
300 to 699	$2,815
150 to 299	$1,408
50 to 149	$704
0 to 49	$0

Feedlots – Cattle or Cow/Calf Pairs

Number of Animals	Fee
100,000 or more	$14,077
10,000 to 99,999	$7,037
5,000 to 9,999	$3,752
1,000 to 4,999	$1,876
100 to 999	$939
0 to 99	$0

Feedlots – Calves

Number of Animals	Fee
10,000 or more	$7,037
5,000 to 9,999	$3,752
1,000 to 4,999	$1,876
300 to 999	$939
0 to 299	$0

Feedlots – Heifers

Number of Animals	Fee
10,000 or more	$14,077
5,000 to 9,999	$7,037
1,000 to 4,999	$3,752
300 to 999	$1,876
137 to 299	$939
0 to 136	$0

Feedlots – Auction Yards

Number of Animals	Fee
1,000 or more	$3,752
300 to 999	$1,876
100 to 299	$939
0 to 99	$0

Dairies – Goat Dairies

Number of Animals	Fee
1,000 or more	$1,876
550 to 999	$939
0 to 549	$0

Hogs – Swine (≥ 55 Pounds)

Number of Animals	Fee
5,000 or more	$7,037
2,500 to 4,999	$3,752
750 to 2,499	$1,876
150 to 749	$939
0 to 149	$0

Hogs – Swine (< 55 Pounds)

Number of Animals	Fee
20,000 or more	$7,037
10,000 to 19,999	$3,752
3,000 to 9,999	$1,876
300 to 2,999	$939
0 to 299	$0

Horses

Number of Animals	Fee
500 or more	$3,752
150 to 499	$1,876
75 to 149	$939
0 to 74	$0

Sheep or Lambs

Number of Animals	Fee
10,000 or more	$3,752
3,000 to 9,999	$1,876
550 to 2,999	$939
0 to 549	$0

Poultry

Number of Animal Equivalent Units (AEU)	Discharges with Low Threat to Water Quality[29]	All Other Discharges
2000+	$3,286	$9,382
700 - 1,999	$2,346	$4,694
300 - 699	$1,642	$3,520
10 - 299	$939	$1,876
2 - 9	$470	$939
0 - 1	$0	$0

Animal Count to Animal Equivalent Unit (AEU) Conversion Matrix

Animal Type	AEU Multiplier	Number of Animals per AEU[30]
Turkey	0.0150000	67
Duck	0.0080000	125
Chicken – Broiler	0.0050000	200
Chicken – Layer	0.0040000	250
Guinea Fowl	0.0035000	286
Pheasant	0.0027500	364
Pullet	0.0024000	417
Squab	0.0015000	667
Chukar	0.0012500	800
Quail (Japanese)	0.0003750	2,667
Hatchery Chick (day old)	0.0000938	10,661

(1) Facilities that are certified under a Quality Assurance Program approved by the state board or under a County regulatory program approved by the appropriate regional board, will receive a 50 percent fee reduction. Any facility that is issued a notice of violation by a regional board for an off-property discharge shall not be eligible to receive this fee reduction for a minimum of one billing cycle, and for all subsequent billing cycles until recertification and all corrective actions are complete as determined by the regional board.

(2) Facilities that pose no potential to discharge, as determined by a regional board, shall pay a fee of $200. The fee shall be paid each time an application for initial certification or renewal of certification is submitted.

[29] These fees apply to discharges from poultry operations that are identified as posing a "low threat to water quality" in the applicable waste discharge requirements or waiver of waste discharge requirements.

[30] Rounded to the nearest whole number

(3) Facilities that are required to submit a report of waste discharge (ROWD) while the facility is under construction and remains so subsequent to the billing cycle will have the annual fee waived until the facility is in operation and animals are present at the facility.

(4) Facility closures that are required to maintain a permit until all requirements are met shall continue to be assessed a fee based at the same rate as when the facility was in operation.

(5) Facilities covered under a waste discharge requirement or waiver of waste discharge requirement that do not pay annual fees shall pay an application fee for initial coverage and renewals of coverage of $200. The fee shall be paid each time an application for coverage or report of waste discharge is submitted.

Note: Authority cited: Sections 185, 1058 and 13260 Water Code. Reference: Section 13260, Water Code.

Section 2200.1.

The state board shall notify each discharger annually of the fee to be submitted, the basis upon which the fee was calculated, and the date upon which the fee is due.

Note: Authority cited: Sections 185, 1058 and 13260, Water Code. Reference: Section 13260, Water Code.

Section 2200.2.

Persons proposing a new discharge shall submit to the state board or regional board a report of waste discharge. Unless Section 2200 provides otherwise, or the discharger is specifically instructed otherwise by the state board, a fee equal in amount to the annual fee based on the fee schedules in Section 2200 shall be submitted with the discharger's report of waste discharge. Except as otherwise provided in Section 2200, this fee shall serve as the first annual fee. If the submittal of this first annual fee does not coincide with the current fiscal year billing cycle, then the next, and only the next, fiscal year billing shall be adjusted to account for the payment of a full annual fee that accompanied the discharger's report of waste discharge. Persons proposing a material change in an existing discharge are not required to submit a fee with the report of waste discharge.

Note: Authority cited: Sections 185, 1058 and 13260, Water Code. Reference: Section 13260, Water Code.

Section 2200.3.

Failure to pay the annual fee is a misdemeanor and will result in the state board or regional board seeking the collection of fees through the enforcement provisions provided pursuant to Water Code Section 13261.

Note: Authority cited: Sections 185 and 1058, Water Code. Reference: Section 13261, Water Code.

Section 2200.4.

Any refund made pursuant to Water Code Section 13260(e) or for any other reason, shall withhold sufficient funds to cover actual staff time spent in reviewing the report of waste discharge, which shall be calculated using a rate of $185.00 per hour.

Note: Authority cited: Sections 185, 1058 and 13260, Water Code. Reference: Section 13260, Water Code.

Section 2200.5. No Exposure Certification.

Dischargers filing an application for a No Exposure Certification (NEC) shall pay a fee of $200 for each facility for which an application is submitted, as prescribed in a general industrial storm water permit. The fee shall be paid each time an application for initial certification is submitted. Dischargers shall pay a fee of $75 each time a renewal of certification is submitted. NEC fees are not subject to any surcharges.

Note: Authority cited: Sections 185, 1058 and 13260 Water Code. Reference: Sections 13260 and 13260.2, Water Code.

Section 2200.6. Annual Agricultural and Irrigated Lands Fee Schedule.

(a) Annual fees for waste discharge requirements and waivers of waste discharge requirements for discharges from agricultural lands,[1] including irrigated lands, shall be as follows:

(1) If a discharger is a member of a group that has been approved by the Regional Board or Regional Board Executive Officer to manage fee collection and payment, then the annual fee shall be based on agricultural activity according to the following fee schedule:

Agricultural Activity Tier for Group Enrollment	Per Acre Fee
Tier A – All agricultural activity except those identified in Tier B.	$1.35
Tier B – Discharger or group of dischargers whose agricultural activities are managed wetlands, irrigated pastures with no external nitrogen input, those belonging to the California Rice Commission third party group, or are determined by the Regional Water Board or the Executive Officer to be exempt from the precedential requirement to develop an Irrigation and Nitrogen Management Plan.[2]	$1.08

(2) If a discharger is not a member of a group that has been approved by the Regional Board or Regional Board Executive Officer to manage fee collection and payment, then the annual fee shall be based on agricultural activity according to the following fee schedule:

Agricultural Activity Tier for Individual Enrollment	Per Acre Fee
Tier A – All agricultural activity except those identified in Tier B.	$33.51 per acre up to 300 acres plus $16.76 per acre over 300 acres with a minimum fee of $668
Tier B – Discharger or group of dischargers whose agricultural activities are managed wetlands, irrigated pastures with no external nitrogen input or are determined by the Regional Water Board or the Executive Officer to be exempt from the precedential requirement to develop an Irrigation and Nitrogen Management Plan.[2]	$26.81 per acre up to 300 acres plus $13.40 per acre over 300 acres with a minimum fee of $668

[1] As used in this section, the acreage on which the fee is based refers to the area that has been irrigated or cultivated by the farmer or discharger at any time in the previous five years.

[2] Per State Water Board Order No. WQ 2018-0002, In the Matter of Review of Waste Discharge Requirements General Order No. R5-2012-0116 for Growers Within the Eastern San Joaquin River Watershed that are Members of the Third-Party Group.

(b) Upon approval by the regional board to join a group subject to waste discharge requirements or waivers of waste discharge requirements for discharges from agricultural lands, including irrigated lands, the discharger shall submit to the state board an application fee, unless such fee is not required by the regional board. The application fee is a one-time fee of $200 for dischargers that have received a written request to submit an application or report of waste discharge, and $50 for all other dischargers. This application fee shall not apply to dischargers who were members of a group on or before June 30, 2008.

(c) For purposes of this section, the words “agricultural lands,” “irrigated lands,” “farm,” and “discharger” have the meaning contained in the applicable regional board or state board waste discharge requirements or waiver of waste discharge requirements for discharges from agricultural lands, including irrigated lands. These fees shall apply whether or not a regional board or the state board has previously waived the payment of fees for the discharge of waste.

Note: Authority cited: Sections 185, 1058, 13260 and 13269 Water Code. Reference: Sections 13260 and 13269, Water Code.

2200.7. Annual Fee Schedule for Cannabis Cultivation.

(a) Annual fees for dischargers covered under Statewide General Waste Discharge Requirements for Discharges of Waste Associated with Cannabis Cultivation shall be as follows:

(1) Tier 1 – Dischargers that have a disturbed area greater than 2,000 square feet and less than one acre:

Risk Designation	Annual Fee
Low Risk	$725
Moderate Risk	$1,985
High Risk	$5,135

(2) Tier 2 – Dischargers that have a disturbed area equal to or greater than one acre:

Risk Designation	Annual Fee
Low Risk	$1,145
Moderate Risk	$3,245
High Risk	$8,495

Dischargers that have a disturbed area equal to or greater than two acres shall pay the applicable surcharge below to a maximum surcharge fee of $21,646:

Acres	Per Acre Surcharge
2-50	$194
51-100	$105
101+	$53

(3) Waiver of Waste Discharge Requirements – Dischargers with indoor cultivation sites that meet the requirements for a waiver of waste discharge requirements or conditionally exempt outdoor sites:

Discharge Type	Application Fee	Annual Fee
Waste Hauler	$725	$725
Municipal Sewer	$725	$194
Conditionally Exempt Outdoor Site	$725	$194
Other Permitted Discharges[1]	$725	$725

Note: Authority cited: Sections 185, 1058 and 13260 Water Code. Reference: Sections 13260 and 13269, Water Code.

[1] Includes discharges to Onsite Waste Treatment Systems.

2200.8. General Requirements for the Use of Recycled Water.

Any person who serves as an Administrator under a General Order authorizing the use of recycled water shall pay an annual fee in accordance with the threat/complexity ratings in Section 2200(a)(1) for each recycled water program that the person administers. The first annual fee shall be submitted with the Notice of Intent to be covered by the General Order.

Note: Authority cited: Sections 185, 1058 and 13260, Water Code. Reference: Section 13260, Water Code.

2200.9. Annual Fee Schedule for Waivers of Waste Discharge Requirements.

(a) Any person for whom waste discharge requirements have been waived pursuant to Section 13269 of the Water Code shall submit an annual fee to the state board if a fee is specified for the waiver in this section. These fees shall apply whether or not a regional board or the state board has previously waived the payment of fees for the discharge of waste.

(b) [reserved]

Note: Authority cited: Sections 1852, and 1058 and 13260, Water Code. Reference: Section 13260 and 13269, Water Code.

ATTACHMENT 8: SALT AND NITRATE CONTROL PROGRAMS NOTICE OF INTENT AND GUIDANCE

NOTICE OF INTENT GUIDANCE TO COMPLY WITH THE SALT CONTROL PROGRAM

PURPOSE

The Central Valley Regional Water Quality Control Board (Central Valley Water Board or Board) has established a Salt Control Program (Program) to regulate salinity impacts throughout the Central Valley. The Program requires all dischargers with permits issued by the Board (permittees) that include permit terms to limit salinity impacts to decide on one of two compliance pathways within 6 months of receiving a Notice to Comply (NTC):

Pathway 1: Conservative Salinity Permitting Approach

Pathway 2: Alternative Salinity Permitting Approach

The purpose of this document is to provide guidance to permittees on the two pathways.

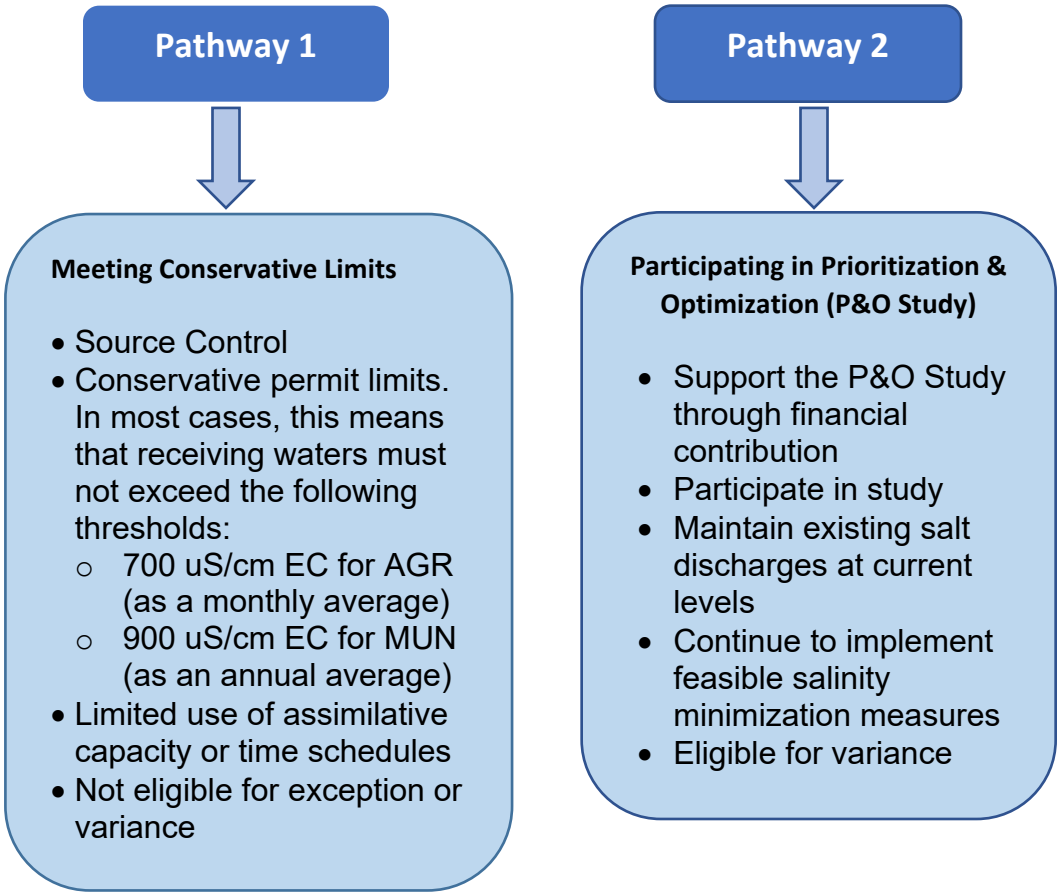
TIMELINE

Within **6 months** of receiving the NTC (please refer to the specific date listed in your letter), permittees must submit a Notice of Intent (NOI) to the Board. The NOI tells the Board which compliance pathway the permittee has chosen. The Board will then update the permittee's permit to reflect that choice. The NOI must include all necessary technical documentation that supports the decision.

BEFORE CHOOSING A PATHWAY

Before permittees decide which pathway to choose, the Board recommends visiting the website cvsalts.info (cvsalinity.org/public-info) for information. Pathway 1 is solely designed for permittees whose discharges have very low salinity concentrations, such as stormwater. To qualify for Pathway 1, a characterization study is required and must demonstrate that the permittee's discharges meet low numeric thresholds and do not threaten to further degrade groundwater or surface water. Most permittees in the Central Valley do not meet these thresholds, and therefore must choose Pathway 2. Since salts are conservative constituents (salts will continue to accumulate in water as water is reused), the Board may require all of these permittees to both limit salinity in their discharge through performance-based limits and through the implementation of salinity management planning, and will require these permittees to participate in a valley-wide study to better understand long-term salinity solutions. Figure 1, below, presents an overview of the two pathways.

Figure 1. Overview Comparison Between Pathway 1 and 2



IF YOU CHOOSE PATHWAY 1

Submit a Salinity Characterization Report that includes or considers all of the following:

1. General Information (can be found on the cover page of your NTC)

- CV-SALTS ID(s)
- Facility ID(s)
- Facility Name(s)

2. Characterization of Discharge

You must provide a characterization of discharge to surface water or groundwater.

- *Constituent(s) to Analyze* – Characterize the discharge by using electrical conductivity (EC) data. If EC data is not available, total dissolved solids (TDS) data may be used, but prior to analysis, the TDS results should be transformed to EC values using the following standard conversion:

  TDS/0.64 = EC

  If you want to use a site-specific conversion method for converting TDS data to EC, the technical justification for the alternative conversion factor should be attached to the end of the report as an appendix.

- *Locations of Permitted Discharge* – List all discharge points and include a map with labels indicating locations of discharge points. Describe and indicate on the map the predominate direction of water flow through the area. For discharge to groundwater, indicate on the map the basin/sub-basin name and boundary.

- *Period of Record for Discharge Data Analysis* – Data from at least two years prior to the date of the NTC should be utilized for the analysis (additional data is needed by water-year type for irrigated agriculture – see below). Historical data (within the past 5-10 years) and/or regional data may be used if local or current data is not available. If historical data is used, explain how historical data is representative of current discharge.

  The frequency of water quality analysis used should be sufficient to characterize any variability or trends in the discharge quality. There should be no significant gaps within the data. You should also be able to calculate monthly and annual averages from the data. Include or consider the following:

  - Provide a table summarizing monthly and annual average calculations.
  - Provide justification for any historical data used.
  - Provide sources of data.

- Include all data utilized at the end of the report as an appendix. Data should include name of discharge point, constituent analyzed, unit, and date.

Additional information needed to characterize discharges from large-scale, regional operations (e.g., agriculture) includes:

- Characterization of irrigation source waters throughout the discharge area by water year type (e.g., critical, dry, wet) to include EC, irrigation water application rates, evapotranspiration rates, rainfall averages, and leaching fraction estimates within the sub-basin.

3. Characterization of Receiving Water

Surface Water Characterization

If your receiving water is surface water, you must characterize ambient water quality around discharge locations.

- *Constituent(s) to Analyze* – Characterize the receiving surface water by using electrical conductivity (EC) data. If EC data is not available, total dissolved solids (TDS) data may be used, but prior to analysis, the TDS results should be transformed to EC using the following standard conversion:

  TDS/0.64 = EC

  If you want to use a site-specific conversion method for converting TDS data to EC, the technical justification for the alternative conversion factor should be attached to the end of the report as an appendix.

  The surface water characterization should provide a justification for the selection of the surface water locations used to characterize the receiving water.

- *Locations of Receiving Surface Water Stations* – For each discharge point to receiving water, data must be provided from three locations that are representative of ambient water quality:

  - Upstream of discharge point(s);
  - Downstream of the facility but relatively close to discharge point(s); and
  - Downstream of the facility at a location where discharge is fully mixed with receiving water.

  The characterization should provide a justification for the selection of the surface water monitoring stations used to characterize the receiving water.

  List all receiving water bodies and water monitoring stations where data was collected. Include a map with labels identifying locations of receiving water bodies

and the monitoring stations. Describe and indicate on the map the predominate direction of surface water flow through the area.

For permits that regulate discharges across a watershed, representative monitoring sites must be selected that sufficiently characterize the conditions throughout the watershed.

- *Period of Record for Receiving Surface Water Data Analysis* – Data from at least two years prior to the date of the NTC should be utilized for the analysis. Historical data (within the past 5-10 years) and/or regional data may be used if local or current data is not available. If historical data is used, explain how historical data is representative of current ambient water quality.

  The frequency of water quality analysis used should be sufficient to characterize any variability or trends in the receiving water such as flow conditions that may be affected by water year type. There should be no significant gaps within the data. You should also be able to calculate monthly and annual averages from the data. Include or consider the following:

  - Provide a table summarizing monthly and annual average calculations.
  - Provide justification for any historical data used.
  - Provide sources of data.
  - Include all data utilized at the end of the report as an appendix. Data should include name of monitoring station, constituent analyzed, unit, and date.

<u>Groundwater Characterization</u>

If your receiving water is groundwater (e.g., you discharge to ponds, spray fields, crops, and/or and application areas), you must characterize quality of groundwater within your area of contribution to the underlying basin/sub-basin groundwater quality.

- *Constituent(s) to Analyze* – Characterize the receiving groundwater by using electrical conductivity (EC) data. If EC data is not available, total dissolved solids (TDS) data may be used, but prior to analysis, the TDS results should be transformed to EC values using the following standard conversion:

  TDS/0.64 = EC

  If you want to use a site-specific conversion method for converting TDS data to EC, the technical justification for the alternative conversion factor should be attached to the end of the report as an appendix.

- *Locations of Receiving Groundwater Wells* – Characterize groundwater within and around area of contribution. This characterization should be conducted at first encountered groundwater without any volume-weighted averaging. For the purpose of the Salinity Characterization Report, first encountered groundwater is defined as

water that is first encountered when drilling underground whether it is sufficient to supply a well or not.

To determine first encountered groundwater depth, you should use drilling methods or tools such as Piezometers or Direct Push Drilling. Alternative types of drilling methods and/or tools may be necessary if depth of first encountered groundwater is beyond too deep. To ensure certainty in determining direction of groundwater flow, these tools should be installed, at a minimum, in a set of three in a triangular manner in each of the following locations:

- Upgradient of the area of contribution;
- Within the area of contribution; and
- Downgradient of the area of contribution.

Provide method and sources used to determine first-encountered groundwater depth. Include graphs of depth measurements and meter readings along with a geologic log. A California Licensed Professional Geologist should perform these analyses as appropriate.

Once first encountered groundwater depth has been determined, data that is representative of groundwater quality must be provided for each location. If there is existing data available, the characterization should provide a justification for the selection of the existing sampling locations used to characterize groundwater within and around the area of contribution. Well data should represent the depth of first encountered groundwater. Data from drinking water wells may not be representative because they are often screened lower in the aquifer system. If there is no existing data available, refer to Section 7.

List all basin/sub-basin(s) and monitoring well stations where data was collected. Include a map with labels identifying name and boundary of basin/sub-basins and location of monitoring well stations. Describe and indicate on the map the predominate direction of groundwater flow through the area.

- For permits that regulate discharges across an entire groundwater sub-basin, representative monitoring sites must be selected that sufficiently characterize the conditions throughout the entire sub-basin to include upgradient and downgradient conditions with adequate well density to capture variations in source water quality and geologic conditions. Characterization must include data for all water-year types (e.g., critical, dry, wet).

- *Period of Record for Receiving Groundwater Data Analysis* – If there is existing data available, data from at least two years prior to the date of the NTC should be utilized for the analysis. Historical data (within the past 5-10 years) and/or regional data may be used if local or current data is not available. If historical data is used, explain how

historical data is representative of current underlying groundwater quality within and around area of contribution.

The frequency of water quality analysis used should be sufficient to characterize any variability or trends in groundwater quality such as during drier and wetter than normal rainfall periods. The analysis should make best efforts to project the area of contribution over a 20-year horizon. There should be no significant gaps within the data. You should also be able to calculate monthly and annual averages from the data. Include or consider the following:

- Provide a table summarizing monthly and annual average calculations.
- Provide justification for any historical data used.
- Provide sources of data.
- Include all data utilized at the end of the report as an appendix. Data should include name of groundwater monitoring well, well location, well type, well depth, constituent analyzed, unit, and date.

4. Evaluation of Applicable Beneficial Uses and Appropriate Numeric Threshold(s)

Eligibility for Pathway 1 requires a finding that your discharge will not cause an exceedance of conservative numeric thresholds AND that your discharge will not further degrade groundwater or surface water. The appliable numeric threshold(s) apply based on whether the Board's Basin Plan designates the groundwater or surface water that receives your discharge as supporting the Agricultural Supply beneficial use (AGR) and/or the Municipal or Domestic Supply beneficial use (MUN). Note that your receiving water defaults to supporting the MUN use unless it is specifically de-designated in the Basin Plan.[1] Unless the Board's Basin Plans designate a site-specific numeric water quality objective, a permittee seeking to be regulated under Pathway 1 must meet the following thresholds:

AGR – 700 uS/cm EC, as a monthly average

MUN – 900 uS/cm EC, as an annual average

If the receiving water has a site-specific numeric water quality objective, that objective will be used for determining whether the permittee may be regulated under Pathway 1. Otherwise, the evaluation should rely on the above values. Fill out the table in III.A.2. of the Notice of Intent (NOI).

[1] State Water Resources Control Board Resolution No. 88- 63 (Sources of Drinking Water Policy) designates all surface and ground waters in California with the MUN use unless they have been specifically de-designated of the MUN use in the Basin Plan.

5. Evaluation of Whether Discharge Results in Exceedances of Numeric Thresholds or Threatens to Cause Additional Degradation of Groundwater or Surface Water[2]

Using findings from 2 through 4, you must both determine if your discharge will result in an exceedance of the MUN and/or AGR numeric thresholds in the receiving water and if your discharge will cause additional salinity degradation.

Surface Water

Compare discharge and receiving water data. Provide a table summarizing the results and indicate whether the discharge will result in an exceedance of the MUN and/or AGR numeric thresholds in the receiving water or if your discharge will cause additional salinity degradation. Consider the following:

- If the monthly or annual discharge averages exceed applicable thresholds, the discharge cannot be permitted under Pathway 1.

- If monthly or annual discharge averages do not exceed applicable thresholds but are above the receiving water average concentrations, and if that degradation has not been authorized by the Board in a Board-issued permit, this degradation precludes the discharge from being permitted under Pathway 1.

Groundwater

Compare discharge and receiving water data while making best effort to project the area of contribution over a 20-year horizon considering all water year types. Provide a table summarizing the results and indicate whether the discharge is degrading receiving water quality. The technical basis for a finding of no degradation now or in the future (e.g., findings from application of numerical models) must be attached to the end of the report as an appendix. Consider the following:

- If monthly or annual discharge averages, as they are calculated based on when they reach groundwater, exceed applicable thresholds, the discharge cannot be permitted under Pathway 1.

- If monthly or annual discharge averages, as they are calculated based on when they reach groundwater, do not exceed applicable thresholds, but if the discharge is anticipated to contribute to degradation that has not been authorized by the Board in

[2] For irrigated agriculture, biosolids, percolation ponds, manure application, and other discharges associated with soil amendments, the point of compliance would be defined as leachate below any existing root zone as it leaches downward to impact groundwater.

a Board-issued permit over a 20-year horizon, the discharge cannot be permitted under Pathway 1.

EXAMPLES

Surface Water

The City of Big Hills is the owner/operator of a municipal wastewater treatment plant subject to an individual NPDES Permit. Upon receipt of the Notice to Comply, the municipality will need to conduct an evaluation to determine if its discharges cause an exceedance of the conservative EC-based salinity values to protect AGR or MUN beneficial uses. The City conducts an evaluation as described above and the analysis of water quality data shows that the EC of the discharge has never exceeded 300 µS/cm, which is well below the conservative threshold values for protection of the AGR and MUN beneficial uses and of higher quality than the receiving water, which ranges from 450-650 µS/cm. The City is able to be permitted under the Conservative Permitting Approach and must provide its Notice of Intent within six months of receiving the Notice to Comply.

In contrast, when the City of Small Hills (which has a similar NPDES permit) conducted its analyses, the monthly average EC of the discharge ranged from 400 uS/cm to 700 uS/cm which was above the background receiving water quality of 150 to 350 uS/cm. Although the City of Small Hills discharges into a river that dilutes its discharge, the City of Small Hills had never conducted a thorough analysis of other salinity sources to support a site-specific objective. The City of Small Hills will need to either request that the Board allow the river's dilution to be used to help determine compliance (using "assimilative capacity," or the capacity of the river to absorb and dilute salinity) or pursue compliance under the Alternative Permitting Approach. Since the Amendments strongly discourage the use of assimilative capacity, preferring instead to conduct a larger analyses through the P&O Study, the City of Small Hills will likely find it more cost-effective to select compliance under the Alternative Permitting Approach, which will require the City to contact the lead entity managing the P&O Study and complete requirements necessary to be documented as fully participating. The City's permit would be amended to incorporate provisions related to the P&O Study and identify that the permittee is in compliance with salinity effluent limits as long as they continue to fully participate in the P&O Study.

Groundwater

Ripe Tomatoes, Inc. is a food processor in Merced County and has a WDR that authorizes the facility to discharge treated effluent to a nearby pasture owned and operated by Ripe Tomatoes. The facility assesses the quality of the groundwater within its area of contribution to the underlying groundwater sub-basin to determine background EC levels. The assessment must make best efforts to project the area of contribution over a 20-year horizon. The assessment finds that the monthly and annual average EC varies closely around 500 µS/cm. The land-applied effluent has a monthly average EC of 575 µS/cm. Through various processes, the EC increases as it percolates to the underlying groundwater and is typically around 800 µS/cm when it

enters the groundwater. The treated effluent that enters the groundwater is above the AGR threshold of 700 µS/cm and the facility cannot be permitted under the Conservative Permitting Approach unless Ripe Tomatoes can demonstrate that other cleaner water sources will interact with its wastewater in the aquifer, which would be considered using assimilative capacity to help determine compliance. However, the Basin Plan Amendments limit new salinity-related allocations of assimilative capacity and the Board will not likely authorize an allocation of assimilative capacity to determine whether the facility complies with the Salt Control Program. While the facility could potentially upgrade its treatment capabilities to reduce the EC of its treated effluent, it will likely be more cost-effective for Ripe Tomatoes to seek compliance under the Alternative Permitting Approach. The permittee's selected permitting approach and the required supporting documentation must be submitted to the Central Valley Water Board within six months of receiving the Notice to Comply.

6. Assessment of Compliance

Using findings from Section 5 above, you must determine your ability to comply with the requirements of Pathway 1.

The compliance assessment must be based solely on existing treatment controls and not include any planned changes in the facilities treatment controls or source of water. If planned modifications to the facility will allow the facility to comply with the Pathway 1 requirements in the future, see Section 7 ("Ability to Comply with Pathway 1 Requirements in the Future") below.

Note that Pathway 1 limits the availability of the use of compliance tools to achieve compliance over the long term, including:

- A time schedule order to meet a salinity–related effluent limit or waste discharge requirement; or

- A new or expanded allocation of assimilative capacity or mixing zone (if it exists).

Approval of either of these compliance tools is very limited and subject to the discretion of the Board. If the findings from Section 5 indicate that the facility cannot comply with Pathway 1 except through the use of one of these compliance tools, you must contact the Board regarding the potential to receive approval of a request for allocation of any available assimilative capacity, mixing zone, or a time schedule order. A request for the Board to consider one of these compliance tools may require you to complete additional technical analyses and documentation as needed. Alternatively, you can consider selecting Pathway 2 to comply with the Program and evaluate the potential to change your permitting approach at a later date (see Section 7 below).

If your existing permit already has an approved allocation of assimilative capacity or mixing zone, supported by a previously accepted antidegradation study or analysis, the Board may consider continuing previously-approved assimilative capacity.

A modification to the facility's current operation that improves effluent quality through changes in blending of source waters may be considered, if it can be demonstrated that the facility has the authority and capability to implement that change at the time this assessment is submitted to the Central Valley Water Board.

7. Ability to Comply with Pathway 1 Requirements in the Future

You may find that it is not possible to demonstrate an ability to comply with the Pathway 1 requirements within the time frame allowed to submit the NOI. Reasons may include:

- Lack of sufficient data to adequately characterize a receiving water or facility's effluent (which could be remedied with additional data collection in the future).

- Planned facility modifications that will result in compliance with Pathway 1 requirements that will not be completed in time to meet the Program's timeline for submitting an NOI.

Under these scenarios or others, you should consider selecting Pathway 2 when submitting an NOI. At a later date, you have the option to revisit the selected permitting approach. Specifically, the Program states:

> *Permittees may switch from one approach to another by submitting a written request to the Executive Officer of the Central Valley Water Board to change its selected compliance pathway. This request must include documentation regarding how the permittee will comply with the requirements applicable to the compliance pathway it is now requesting to be permitted under and the basis for the change. If the permittee requests to change from the Alternative to the Conservative Permitting Approach, the permittee must demonstrate to the Board that it has complied with all provisions associated with the Alternative Permitting Approach, including financial support to the P&O study, up through the time of permit revision to incorporate requirements for the Conservative Permitting Approach.*

Permittees that decide to implement this provision of the Program will need to submit the information that is required in the assessment, as described in Sections 1 through 6. At the time of submittal of a request to change the permitting approach and until the Board approves the change, you must continue to comply with the Pathway 2 requirements.

IF YOU CHOOSE PATHWAY 2

You must contact the lead entity of the P&O Study which is Central Valley Salinity Coalition (CVSC) through cvsalts.info (cvsalinity.org/public-info) or contacting the CVSC Executive Director, Daniel Cozad, at dcozad@cvsalinity.org to determine the annual fee required to participate in the P&O Study. Annual fees are set by CVSC and vary by permit type or industry category. For general fee breakdown, see the P&O Fee Summary by Industry/Permit Type Tables

(https://www.cvsalinity.org/images/P&O%20Fees.pdf). Once you provide the appropriate level of financial support, CVSC will provide you with documentation to submit with the NOI.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

NOTICE OF INTENT (NOI) TO COMPLY WITH SALT CONTROL PROGRAM
RESOLUTION R5-2018-0034

You must complete this entire form. Please send the completed, signed form and all necessary attachments to the Central Valley Water Board by the date indicated on the Notice to Comply (NTC). Permittees that do not provide a NOI are subject to enforcement actions.

I. CONTACT INFORMATION
(if there are multiple facility, owner, and operator, please submit information as attachment)

A. Facility

Name:			Phone Number:
Address:			
City:	County:	State:	Zip Code:
Email Address:			
CIWQS Facility ID (can be found in the NTC):			

B. Owner

Name:			Phone Number:
Mailing Address:			
City:	County:	State:	Zip Code:
Email Address:			

C. Operator

Name:			Phone Number:
Mailing Address:			
City:	County:	State:	Zip Code:
Email Address:			

D. CV-SALTS ID(s) (can be found in the NTC)

II. COMPLIANCE PATHWAY

You must select from one of the two compliance pathways to comply with the Salt Control Program.

☐ **Pathway 1** - Conservative Salinity Permitting Approach (**PLEASE COMPLETE SECTIONS III.A.**)

☐ **Pathway 2 -** Alternative Salinity Permitting Approach (**PLEASE COMPLETE SECTION III.B.**)

III. DOCUMENTATION TO SUPPORT COMPLIANCE PATHWAYS

A. Documentation needed to support selection of Conservative Salinity Permitting Approach (Pathway 1).

If you are an existing permittee, you must submit the following items by the date indicated on the Notice to Comply. If you are a new or expanding permittee, you must submit the following items with a Report of Waste Discharge. Attachments are to be submitted along with this NOI. Please refer to the **Salt NOI Guidance document** (www.waterboards.ca.gov/cvsalts/forms_temps_guide/salt_guidance) for how to comply with the following requirements for Pathway 1.

You must submit a Salinity Characterization Report which is an assessment of how your discharge to groundwater or surface water will comply with the requirements of this permitting approach. The report includes all of the following:

1) Characterization of Discharge and Receiving Water using Electrical Conductivity (EC) (measured as uS/cm)

You must provide a characterization of discharge to surface water or groundwater. If your receiving water is surface water, you must characterize ambient water quality around discharge locations. And if your receiving water is groundwater, you must characterize quality of groundwater within your area of contribution to the underlying basin/sub-basin groundwater quality. Your characterization should include constituents analyzed, location of discharge or receiving monitoring sites/wells, and period of record for data analysis.

2) Evaluation of Applicable Beneficial Uses and Appropriate Numeric Threshold(s)

The applicable conservative numeric threshold(s), apply based on whether the Board's Basin Plan designated the groundwater or surface water that receives your discharge as supporting the Agricultural Supply beneficial use (AGR) and/or the Municipal or Domestic Supply beneficial use (MUN). Unless the Board's Basin Plans designated a site-specific numeric water quality objective, a permittee seeking to be regulated under Pathway 1 must meet the following thresholds:

AGR Beneficial Use - 700 uS/cm EC, as a monthly average
MUN Beneficial Use - 900 uS/cm EC, as an annual average

For surface water discharges, list S for surface water. List all receiving water(s) Water Body names and check the beneficial use(s) or site specific objective (SSO) that apply.

For groundwater discharges, list G for groundwater. List all DWR groundwater basin names and check the beneficial use(s) or (SSO) that apply to the underlying groundwater.

Receiving water information can be found in your permit.

Surface Water Body Name / Groundwater Basin Name	S or G?	AGR	MUN	SSO
		☐	☐	☐
		☐	☐	☐
		☐	☐	☐
		☐	☐	☐
		☐	☐	☐
		☐	☐	☐
		☐	☐	☐
		☐	☐	☐

3) Evaluation of Whether Discharge Results in Exceedances of Numeric Thresholds or Threatens to Cause Additional Degradation of Groundwater or Surface Water

You must both determine if your discharge will result in an exceedance of the MUN and/or AGR numeric thresholds in the receiving water and if your discharge will cause additional salinity degradation.

4) Assessment of Compliance

Using findings from sections above, you must determine your ability to comply with the requirements of Pathway 1. Compliance assessment must be based solely on existing treatment controls.

B. Documentation needed to support selection of Alternative Salinity Permitting Approach. (Pathway 2). Attachments are to be submitted along with this NOI.

Participation in the P&O Study requires you to meet the requirements of the lead entity including any minimum level of financial support. Needed level of participation as well as governance procedures and stakeholder participation elements will be established by the lead entity. The level of participation may vary based on salinity in the discharge, local conditions or other factors.

You must contact the lead entity, Central Valley Salinity Coalition (CVSC), through cvsalts.info (cvsalinity.org/public-info) or contacting the CVSC Executive Director, Daniel Cozad, at dcozad@cvsalinity.org to determine the annual fee required to participate in the P&O Study. Annual fees are set by CVSC and vary by permit type or industry category. For general fee breakdown, see the P&O Fee Summary by Industry/Permit Type Tables (https://www.cvsalinity.org/images/P&O%20Fees.pdf). Once you provide the appropriate level of financial support, CVSC will provide you with documentation to submit with the NOI.

IV. CERTIFICATION

I certify under penalty of law that this document, including all attachments and supplemental information, were prepared under my direction and supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including possibility of fine and imprisonment.

Print Name:	Title:
Signature:	Date:

NOTICE OF INTENT GUIDANCE FOR THE NITRATE CONTROL PROGRAM'S INDIVIDUAL PERMITTING APPROACH (PATH A)

PURPOSE

In 2019, the Central Valley Water Board (Board) established new regulations that will affect all Board-issued permits that regulate nitrate discharges. These new regulations are called the "Nitrate Control Program." The Nitrate Control Program requires permittees to choose between an individual permitting approach (Path A) or an approach that allows permittees to work together to reduce nitrate impacts in local areas (Path B).

As the Board begins to implement the Nitrate Control Program, the Board is issuing Notices to Comply (NTC). A Notice to Comply legally requires a permittee to tell the Board which approach they will choose.

The purpose of this document is to help permittees understand the requirements of the individual approach (Path A), which is expected to be technically challenging and expensive for many permittees in the Central Valley Region.

TIMELINE

Within **330 days** of receiving the NTC (please refer to the specific date listed in your letter), permittees must submit a Notice of Intent and all necessary documents to the Board.

BEFORE CHOOSING A PATHWAY

Before deciding which compliance approach, or pathway, to choose, the Board recommends that you visit the website cvsalts.info for information. Please note that if your discharge is causing nitrate impacts to groundwater, Path A may require you to undertake some or all of the following:

- You to significantly upgrade your facility
- You to conduct extensive regular monitoring of your discharge and of local groundwater
- You to provide replacement drinking water to local residents [1]
- You to provide the Board with a rigorous technical hydrogeologic justification of what groundwater will look like in your area in 20 years

Path B, the collaborative approach, was developed so that individual permittees could cooperatively marshal resources to address nitrate impacts. Path B was developed collaboratively with many industries and stakeholders that saw advantages to this approach. However, the Board retained Path A as an option for those permittees that have high-quality discharges that meet nitrate drinking water standards or who have the resources to tackle localized nitrate issues on their own. The cvsalts.info website has

[1] Both Path A and Path B dischargers must provide replacement drinking water to affected residents.

more information on the Path B approach and how you can get involved with other permittees in your area that are developing “Management Zones” to work together to meet the requirements of the Nitrate Control Program.

BY CHOOSING PATH A, YOU WILL BE REQUIRED TO SUBMIT AN INITIAL ASSESSMENT NITRATE REPORT THAT INCLUDES AND/OR CONSIDERS THE FOLLOWING:

1. **General Information (can be found in the NTC)**
    - Facility ID(s)
    - Facility Name(s)
    - CV-SALTS ID

2. **Characterizing Your Area of Contribution and Assessing Ambient Water Quality Conditions in the Groundwater Shallow Zone**

You must characterize your area of contribution to determine the locations where your discharge and groundwater meet and where the presence of the discharge can be detected. The characterization should be conducted in the groundwater Shallow Zone, which is the depth of the shallowest 10% of the domestic wells in an area.

The Shallow Zone can be determined by using available sources such as:

- Domestic well completion records from the Department of Water Resources or County sources,
- The Irrigated Lands Regulatory Program (ILRP) trend monitoring program, or
- High-resolution data developed by the Central Valley Salinity Coalition.

Facility-specific investigations can also be used. You will be required to provide methods and sources used to determine the Shallow Zone, groundwater flow direction, and the area of contribution. The Board highly recommends that a California-licensed Professional Geologist perform these analyses.

Once the Shallow Zone, groundwater flow direction, and the area of contribution have been determined, you must determine the ambient nitrate concentrations in the Shallow Zone. Estimate the impact of nitrate in your discharge on groundwater in the Shallow Zone over a 20-year planning horizon using one of several available options:

- Use readily-available data and information to calculate ambient nitrate concentrations for the shallowest ten percent (10%) of the domestic water supply wells in the Upper Zone of a groundwater basin/sub-basin as defined and established in *Region 5: Updated Groundwater Quality Analysis and High Resolution mapping for Central Valley Salt and Nitrate Management Plan* (June 2016),
- Conduct a site-specific or area-specific evaluation based on various types of available data and information, including but not limited to, depth and age of

domestic wells in the area of contribution, groundwater table, well completion report data, and other available and relevant information, or

- An equivalent alternative approved by the Central Valley Water Board's Executive Officer.

Period of Record for Data Analysis – It is recommended that data from the past 5-10 years should be utilized for the analysis. The frequency of water quality analysis used should be sufficient to characterize trends in groundwater quality in the Shallow Zone and there should be no significant data gaps. Include or consider the following:

- Provide a table summarizing the data. The table should include basic statistical analysis, including monthly and annual minimum, maximum, mean, and median values for nitrate in mg/L-N.
- Provide a table summarizing the nitrate concentration trends and whether nitrate concentrations are decreasing/increasing, and information to support the trend analysis.
- Provide a map with labels identifying name and boundaries of basin/sub-basins and the locations of domestic wells.
- Provide a map that shows the area of contribution now and over a 20-year planning horizon.
- Provide sources for the data used.
- Include all data utilized with the report as an appendix. Data should include name of domestic well, DWR Bulletin 118 groundwater basins/sub-basins the wells are located in, date, and any other pertinent information.

3. Determine if your nitrate discharge is causing or contributing to nitrate impacts in any public water supply well or domestic well

You must conduct a survey of the area where your discharge occurs to identify if water from any public water supply or domestic wells has nitrate levels that exceed the drinking water standard (10 mg/L-N), and determine if your discharge is causing or contributing to the nitrate exceedance(s).

- To identify drinking water wells that may exceed the nitrate drinking water standard, you may use Google Earth to identify locations of domestic wells, the State Water Board's GeoTracker database, State Water Board Division of Drinking Water information, local County Public Health Department information, and other data sources.
- Provide a table summarizing the number of drinking water wells exceeding the nitrate drinking water standard, including the name of the drinking water well, DWR Bulletin 118 groundwater basins/sub-basins the wells are located in, sampling dates, and any other pertinent information. The table should include basic statistical analysis, including monthly and annual minimum, maximum, mean, and median values for nitrate in mg/L-N.

- Provide a map with labels identifying name and boundaries of basin/sub-basins and the locations of domestic wells.
- Provide sources for the data used.

4. Develop an Early Action Plan (EAP) if applicable

If your discharge is causing or contributing to an exceedance of a drinking water standard in a public water supply well or domestic well, then you must prepare and submit an EAP with your initial assessment and a NOI to the Central Valley Water Board. The EAP must include the following:

- A process to identify affected residents and the outreach utilized to ensure that impacted groundwater users are informed of and given the opportunity to participate in the development of proposed solutions,
- A process for coordinating with others that are not dischargers to address drinking water issues, which must include consideration of coordinating with affected communities, domestic well users and their representatives, the State Water Board Division of Drinking Water, local planning departments, local county health officials, sustainable groundwater management agencies, and others, as appropriate,
- Specific actions and a schedule of implementation to address the immediate drinking water needs of those initially identified within the area of contribution for an individual permittee that are drinking groundwater that exceeds nitrate standards and that do not otherwise have interim replacement water that meets drinking water standards, and
- A funding mechanism for implementing the EAP, which may include seeking funding from local, state, and federal funds that are available for such purposes.

Implementation of the EAP should begin as soon as reasonably feasible, but no later than 60 days after submittal, unless an objection is received from the Central Valley Water Board. Guidance on EAP development and implementation was developed as part of an Early Implementation Grant for two Priority 1 Management Zones. The document is available at the cvsalinity.org website.

5. Categorize the Discharge

Based on the impact of your discharge in the Shallow Zone and the quality of the discharge, you are required to categorize your nitrate discharge into one of the five categories described below.

If your discharge is categorized as Category 4 or 5, you must identify and propose an Alternative Compliance Project (ACP) as outlined in Step 6 of this guidance.
Explanation of each category:

- Category 1 (Your wastewater discharge is high-quality and is not causing any nitrate degradation): Nitrate concentration of your discharge as it reaches the Shallow Zone must be lower than the applicable nitrate water quality objective (<10 mg/L-N) and must be lower than the average nitrate concentration in the

Shallow Zone. The average nitrate concentration in the Shallow Zone may be less than, equal to, or greater than the applicable water quality objective, but because your discharge itself is less than the objective, and less than the average concentration in the Shallow Zone, it will improve water quality conditions. Nitrate discharges in this category are considered to not increase nitrate levels in the Shallow Zone, thus an ACP is not required.

- Category 2 (Your discharge may be slightly above the drinking water standard, but because it is so minor and/or because high-quality groundwater recharge is abundant, your discharge is only causing *de minimis* impacts, and groundwater already meets drinking water standards): Your nitrate discharge in combination with other nitrate discharges to the same Shallow Zone will not cause the average concentration of nitrate in the Shallow Zone to exceed a nitrate trigger of 75% of the applicable water quality objective. Your discharge may be above the applicable water quality objective (>10 mg/L-N) but your discharge will use less than 10% of available assimilative capacity, and your discharge along with other discharges of nitrate to the Shallow Zone (over a 20-year planning horizon) will not cause the Shallow Zone to exceed 75% of the applicable water quality objective.

  Any degradation that will occur due to your discharges must be supported with an antidegradation analysis. Such analysis needs to be part of the initial assessment, unless the Central Valley Water Board previously granted the use of assimilative capacity was supported with an antidegradation analysis.

  Nitrate discharges in this category have little adverse impact on groundwater quality in the Shallow Zone, thus an ACP is not required. However, some form of groundwater monitoring may be required to continue to monitor nitrate impacts on the Shallow Zone.

- Category 3 (Your discharge is above the drinking water standard, but because high-quality groundwater recharge is abundant, you are able to demonstrate that the most sensitive portion of the aquifer will remain below 75% of the drinking water standard decades into the future): Concentrations of nitrate in your discharge may be greater than the applicable water quality objective (>10 mg/L-N) and the impact of your discharge of nitrate is more than *de minimis* (i.e., use more than 10% of available assimilative capacity). Further, your discharges cannot cause the average nitrate concentration in the Shallow Zone to exceed 75% of the applicable water quality objective over a 20-year planning horizon.

  Like Category 2, use of assimilative capacity must be supported with an antidegradation analysis and must be part of the initial assessment.

  Nitrate discharges in Category 3 will generally be determined by the Central Valley Water Board to be consistent with the Nitrate Control Program, and an ACP will not be required. However, you will likely be required to conduct additional monitoring to ensure that the trigger level of 75% of the applicable water quality objective is not being exceeded.

- Category 4 (Your discharge is above the drinking water standard, but because high-quality groundwater recharge is abundant, you are able to demonstrate that the most sensitive portion of the aquifer will remain between 75% of the drinking water standard and the drinking water standard decades into the future – extensive monitoring may be required to ensure that assumptions are accurate, and an alternate compliance project is also needed): Your discharge will cause the average nitrate concentration in the Shallow Zone to exceed the 75% trigger, but not the applicable water quality objective over the 20-year planning horizon (e.g., Shallow Zone will be between 7.5 mg/L and 10 mg/L in 20 years).

  The request for use of assimilative capacity must be supported with an antidegradation analysis and must be part of the initial assessment. An ACP is required when requesting the use of assimilative capacity because your discharge will cause the average nitrate concentration in the Shallow Zone to exceed the 75% trigger.

- Category 5 (Your discharge is above the nitrate drinking water standard and will continue to impact groundwater, but instead of collaborating with other permittees in your area to set up a Management Zone that will provide nearby residents with a source of replacement drinking water, monitor groundwater quality, and upgrade facilities, you are choosing to assume all of these obligations on your own): Nitrate concentrations in your discharge exceed the applicable water quality objective (10 mg/L-N) as it reaches the Shallow Zone and the Shallow Zone has no assimilative capacity, or your discharge causes the Shallow Zone to exceed 10 mg/L-N. In this case, you must submit an application that meets the requirements set forth in the Exceptions Policy in order to be granted an Exception to permit the discharge. The granting of an exception is an alternative permitting approach that must be accompanied with an ACP.

6. Proposing an Alternative Compliance Project

Required for Category 4 and Category 5 Permittees

The Central Valley Water Board requires permittees that develop and implement an ACP to support the request of an allocation of assimilative capacity, above a trigger level, or to authorize an exception to meeting nitrate limitations. The request for Alternative Compliance must be accompanied by sufficient documentation to verify that the proposed approach meets the goals of the Nitrate Control Program.

An ACP is a project proposed by a permittee that must assure short and long-term safe drinking water supplies while moving toward long-term managed restoration by reducing nitrate discharge within the basin or sub-basin. ACPs may include both emergency actions (e.g., bottled water) in the short-term, permanent solutions in the intermediate term (such as reliable well-head treatment or connection to or integration with nearby municipal water providers), and efforts to re-attain the water quality objective over the long-term.

For more information and guidelines for proposing an acceptable ACP, please refer to Appendix H of the 2018 Staff Report. To request a copy, please email cvsalts@waterboards.ca.gov.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

NOTICE OF INTENT (NOI) TO COMPLY WITH NITRATE CONTROL PROGRAM
RESOLUTION R5-2018-0034

You must complete this entire form. Please send the completed, signed form and all necessary attachments to the Central Valley Water Board by the dates indicated on the Notice to Comply. Permittees that do not provide a NOI are subject to enforcement actions.

I. CONTACT INFORMATION
(if there are multiple facility, owner, and operator, please submit information as attachment)

A. Facility

Name:			Phone Number:
Mailing Address:			
City:	County:	State	Zip Code:
Email Address:			
CIWQS Facility ID (can be found in the NTC):			

B. Owner

Name:			Phone Number:
Address:			
City:	County:	State	Zip Code:
Email Address:			

C. Operator

Name:			Phone Number:
Address:			
City:	County:	State	Zip Code:
Email Address:			

D. CV-SALTS ID(s) (can be found in the NTC)

II. COMPLIANCE PATHWAY

You must select from one of the two compliance pathways to comply with the Nitrate Control Program. *Please note - Permittees that are identified as an Initial Participant in a Management Zone's Preliminary Management Zone Proposal shall be assumed to be electing Pathway B for complying with the Nitrate Control Program, unless they otherwise notify the Central Valley Water Board of their intent to withdraw from Pathway B.*

☐ **Pathway A** - Individual Permitting Approach (**PLEASE COMPLETE SECTIONS III.A.**)

☐ **Pathway B** - Management Zone Permitting Approach (**PLEASE COMPLETE SECTION III.B.**)

III. DOCUMENTATION TO SUPPORT COMPLIANCE PATHWAYS

A. Documentation needed to support selection of Individual Permitting Approach (Pathway A).

If you are an existing permittee, you must submit the following items by the date indicated on the Notice to Comply for Priority 1 Basins/Sub-basins. If you are a new or expanding permittee, you must submit the following items with a Report of Waste Discharge. Attachments are to be submitted along with this NOI. Please refer to the Nitrate NOI guidance document for how to comply with the following requirements for Pathway A.

1) Assess Water Quality Conditions in the Shallow Zone

You must estimate the impact of nitrate in your discharge(s) on groundwater in the Shallow Zone over a 20-year planning horizon. The Shallow Zone is defined as the vertical extent of the aquifer representing the shallowest 10% of the domestic water supply wells in a given area. Use of an equivalent alternative to this definition of the Shallow Zone must first be approved by the Central Valley Water Board's Executive Officer.

When evaluating such impacts, you should be looking to determine the impact of your nitrate discharge(s) on average nitrate concentrations in the Shallow Zone.

You may conduct such assessments by using simple mass balance calculations that assume 20 years of nitrate loading as it reaches the water table, and by using readily available information. Alternatively, you may collect data and information, to model your nitrate discharge impacts on groundwater in the applicable Shallow Zone. You are not required to develop expensive, high resolution models. However, you have the option to conduct a more sophisticated analysis should you desire. Further, you are encouraged to use existing assessments that may already exist.

2) Determine if Nitrate is Causing Any Public Water Supply Well or Domestic Well to Exceed Nitrate Drinking Water Standard

You must conduct a survey of the area where the discharge(s) occurs to identify if there are public water supply or domestic wells that have nitrate levels in exceedance of the drinking water standard, and determine if your discharge(s) are the cause of the nitrate exceedance in drinking water well in question.

If it is determined that your discharge(s) will cause exceedance in nitrate levels, you will be required to develop an Early Action Plan (**PLEASE COMPLETE SECTION III.A.3**)

3) Develop Early Action Plan *(If Applicable)*

If you have determined that you have caused a public water supply well or domestic well to exceed the nitrate drinking water standard of 10 parts per million (ppm), then you must prepare and submit an Early Action Plan. You are required to implement the Early Action Plan as soon as reasonably feasible, but no later than **60 days** after submittal.

The Early Action Plan must include the following items:

- ☐ A process to identify affected residents and the outreach utilized the ensure that impacted groundwater users are informed and given the opportunity to participate in the development of proposed solutions;

- ☐ A process for coordinating with others that are not dischargers to address drinking water issues, which must include consideration of coordinating with affected communities, domestic well users and their representatives, the State Water Board's Division of Drinking Water, Local Planning Departments, Local County Health Officials, Sustainable Groundwater Management Agencies and others;

- ☐ Specific actions and a schedule of implementation that is as short as practicable to address the immediate drinking water needs of those initially identified within the management zone, or area of contribution for a Pathway A discharger, that are drinking groundwater that exceeds nitrate standards; and

- ☐ A funding mechanism for implementing the Early Action Plan, which may include seeking funding from Management Zone participants, and/or local, state and federal funds that are available for such purposes.

4) Categorize the Discharge

You are required to categorize your impact for nitrate in the Shallow Zone. Please see the five categories below to make your determination. If your discharge is categorized as **4 or 5**, you may need to submit an Alternative Compliance Project (**PLEASE COMPLETE SECTION III.A.5**).

What is your nitrate discharge category? Select a Category

Category	Discharge Quality and Impact to Groundwater
Category 1 No Degradation	Discharge quality, as it reaches the Shallow Zone, is better than the applicable water quality objective and is better than the average nitrate concentration in the Shallow Zone.
Category 2 *De Minimis* Impacts	The average nitrate concentration in the Shallow Zone is better than the applicable water quality objective, and, over a 20-year planning horizon: 1) The effect of the discharge on the average nitrate concentration in the Shallow Zone is expected to use less than 10% of the available assimilative capacity in the Shallow Zone; and 2) The discharge, in combination with other nitrate inputs to the Shallow Zone, is not expected to cause average nitrate concentrations in the Shallow Zone to exceed a nitrate trigger of 75% of the applicable water quality objective.
Category 3 Degradation Below Trigger	The average nitrate concentration in the Shallow Zone is better than the applicable water quality objective. Estimated that discharge is more than de minimus,but will not cause the average nitrate concentration in the Shallow Zone to exceed a trigger of 75% of the applicable water quality objective over a 20-year planning horizon.
Category 4 Degradation Above Trigger	The average nitrate concentration in the Shallow Zone is better than the water quality objective. Though the discharge is reasonably expected to cause the average nitrate concentration in the Shallow Zone to exceed a trigger of 75% of the applicable water quality objective over a 20-year planning horizon, the average nitrate concentration in the Shallow Zone is expected to remain at or below the applicable water quality objective over the same 20-year planning horizon.
Category 5 Discharge Above Objective	Either: 1) The average nitrate concentration in the Shallow Zone is better than the applicable water quality objective, but the discharge may cause the average nitrate concentration in the Shallow Zone to exceed the water quality objective over a 20-year planning horizon; or 2) The average nitrate concentration in the Shallow Zone exceeds the applicable water quality objective and the discharge quality, as it reaches the Shallow Zone, also exceeds the applicable water quality objective.

5) Propose an Alternative Compliance Project *(If Applicable)*

If you seek the use of assimilative capacity above the trigger level of need an Exception, you must submit an Alternative Compliance Project. It must include the following:

- ☐ Identification of public water supply and domestic wells that exceed nitrate water quality objectives and that are within the discharge areas zone of contribution;
- ☐ A schedule, with identified milestones, for addressing those nitrate-related drinking water issues; and
- ☐ Identification of steps to be taken to meet the management goals of the Nitrate Control Program, which may be phased in over time.

B. Documentation needed to support selection of Management Zone Permitting Approach (Pathway B).

If you choose Pathway B, you need to participate in a Management Zone to ensure that all program deliverables and timelines are met. Please refer to cvsalts.info website for how to comply with requirements for Pathway B.

1) If you are participating in a Management Zone, submitting a NOI is optional since the Preliminary Management Zone Proposal (PMZP) will serve as the NOI.

Please provide the following information if you are listed in a Preliminary Management Zone Proposal (PMZP) (if available):

A. Name of Management Zone

B. Primary Contact

Name:			Phone Number:
Address:			
City:	County:	State	Zip Code:
Email Address:			

2) If you are not already listed in a PMZP and wishes to join one, you may check out the CV-SALTS Program website for Management Zone being proposed for your area and contact to join.

IV. CERTIFICATION

I certify under penalty of law that this document, including all attachments and supplemental information, were prepared under my direction and supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including possibility of fine and imprisonment.

Print Name:	Title:
Signature:	Date:

ATTACHMENT 9: OPINION OF CONSTRUCTION COSTS AND OPERATIONS AND MAINTENANCE

Kimley-Horn and Associates, Inc.

Client:	**Seefried Industrial Properties**	**Date:**	**6/15/2023**
Project:	**Project Ware Malcomb 2**	**Prepared By:**	**MV**
KHA No.	**195170029**	**Checked By:**	**RC**

Title: Conventional Wastewater Treatment Facility and Percolation Basins - Opinion of Probable Construction Costs

Item #	Item	Quantity	Unit	Unit Price	Cost
1	Mobilization	1	LS	$396,070.00	$396,070
2	Installation, Commissioning, and Start-Up	1	LS	$160,000.00	$160,000
3	Package Lift Station (Sized for 25-100 GPM Duty Point)	1	LS	$80,000.00	$80,000
4	Equalization Storage (32,000 gallons)	1	LS	$320,000.00	$320,000
5	Pre-Package Conventional Treatment System (55,000 GPD)	1	LS	$1,250,000.00	$1,250,000
6	UV Disinfection System	1	LS	$400,000.00	$400,000
7	Additional Miscellaneous Improvements (Influent Screens, Disposal Pump, etc.)	1	LS	$275,000.00	$275,000
8	Sludge Processing and Storage Facility	1	LS	$400,000.00	$400,000
9	Odor Control	1	LS	$100,000.00	$100,000
10	Miscellaneous Yard Piping	1	LS	$10,000.00	$10,000
11	Percolation Basins	2	EA	$65,000.00	$130,000
12	Emergency Storage Pond with Liner	1	EA	$78,000.00	$78,000
13	AC Pavement	550	CY	$200.00	$110,000
14	Concrete Pavement (Parking/Staging Area)	40	CY	$500.00	$20,000
15	Gravel	26,900	SF	$3.00	$80,700
16	Fence/Screening Wall	1,270	LF	$100.00	$127,000
17	Entry Gate	1	EA	$10,000.00	$10,000
18	Electrical Equipment	1	LS	$250,000.00	$250,000
19	Operations Building	1	LS	$160,000.00	$160,000
		Subtotal:			$4,356,770
		Conting. (%,+/-)		30	$1,307,031
		Total			**$5,670,000**

- [x] Conceptual Design
- [ ] Preliminary Design
- [ ] Final Design

The Engineer has no control over the cost of labor, materials, equipment, or over the Contractor's methods of determining prices or over competitive bidding or market conditions. Opinions of probable costs provided herein are based on the information known to Engineer at this time and represent only the Engineer's judgment as a design professional familiar with the construction industry. The Engineer cannot and does not guarantee that proposals, bids, or actual construction costs will not vary from its opinions of probable costs.

Kimley-Horn and Associates, Inc.

Client:	**Seefried Industrial Properties**	**Date:**	**6/15/2023**
Project:	**Project Ware Malcomb 2**	**Prepared By:**	**MV**
KHA No.	**195170029**	**Checked By:**	**RC**

Title: **Conventional Wastewater Treatment Facility and Percolation Basins (55,000 GPM Design Flow)**
Opinion of Probable Annual Operation and Maintenance Costs

Item #	Item	Quantity	Unit	Unit Price	Annual Cost
	Pre-Packaged Membrane Bioreactor Plant Equipment				
1	Consumables (Oil, Grease, Belts, Filters, etc.)	1	Annual Cost	$2,000.00	$2,000
2	Spare Parts (Seals, Bearings, Brushes, etc.)	1	Annual Cost	$2,500.00	$2,500
3	Replacement of Parts	1	Annual Cost	$35,000.00	$35,000
	Pre-Packaged Conventional Treatment Plant Labor				
4	Routine Operations	22	Hours per Week	$100.00	$114,400
5	Required Sampling/Analysis	2	Hours per Month	$100.00	$2,400
6	Preventative Maintenance	8	Hours per Week	$100.00	$41,600
7	Compliance and Reporting	3	Hours per Month	$100.00	$3,600
	Pre-Packaged Conventional Treatment Plant				
8	Power	365	Daily Cost	$55.00	$20,075
9	Chemical: Hypochlorite or Equal	25	Gallons per Month	$4.00	$1,200
10	Chemical: Citric Acid or Equal	20	Gallons per Month	$12.00	$2,880
	UV Disinfection System (2 units)				
11	Replacement of Parts	1	Annual Cost	$8,000.00	$8,000
12	Maintenance	1	Hours per Week	$100.00	$5,200
13	Power (assumes only 1 unit in service, daily)	365	Daily Cost	$25.00	$9,125
	Sludge Processing, Storage, and Disposal				
14	Power	365	Daily Cost	$60.00	$21,900
15	Maintenance	4	Hours per Month	$100.00	$4,800
16	Hauling	52	Weekly Cost	$3,500.00	$182,000
17	Chemical: Polymer	1	Annual Cost	$4,000.00	$4,000
	Percolation Ponds				
18	Maintenance	4	Hours per Month	$100.00	$4,800
	Emergency Overflow Storage System				
19	Maintenance	4	Hours per Quarter	$100.00	$1,600
	Odor Control				
20	Power	12	Cost per Month	$15.00	$180
21	Maintenance	2	Hours per Month	$100.00	$2,400
22	Chemicals	1	Annual Cost	$5,000.00	$5,000
	Lift Station				
23	Power	365	Daily Cost	$50.00	$18,250
24	Maintenace	4	Hours per Quarter	$100.00	$1,600

	Subtotal:		$494,510
☑ Conceptual Design	Conting. (%,+/-)	30	$148,353
☐ Preliminary Design			
☐ Final Design			
	Total		**$650,000**

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Kimley-Horn and Associates, Inc.

Client:	**Seefried Industrial Properties**	**Date:**	**6/15/2023**
Project:	**Project Ware Malcomb 2**	**Prepared By:**	**MV**
KHA No.	**195170029**	**Checked By:**	**RC**

Title: **Conventional Wastewater Treatment Facility and Percolation Basins (55,000 GPM Design Flow)**
Opinion of Probable Annual Operation and Maintenance Costs

Item #	Item	Quantity	Unit	Unit Price	Annual Cost

Kimley-Horn and Associates, Inc.

Client:	**Seefried Industrial Properties**	**Date:**	**6/15/2023**
Project:	**Project Ware Malcomb 2**	**Prepared By:**	**MV**
KHA No.	**195170029**	**Checked By:**	**RC**

Title: **MBR Wastewater Treatment Facility and Percolation Basins - Opinion of Probable Construction Costs**

Item #	Item	Quantity	Unit	Unit Price	Cost
1	Mobilization	1	LS	$445,070.00	$445,070
2	Installation, Commissioning, and Start-Up	1	LS	$200,000.00	$200,000
3	Package Lift Station (Sized for 25-100 GPM Duty Point)	1	LS	$80,000.00	$80,000
4	Equalization Storage (32,000 gallons)	1	LS	$320,000.00	$320,000
5	Pre-Packaged Membrane Bioreactor Plant (Cloacina MEMPAC-M1)	1	LS	$1,700,000.00	$1,700,000
6	UV Disinfection System	1	LS	$400,000.00	$400,000
7	Additional Miscellaneous Improvements (Influent Screens, Disposal Pump, etc.)	1	LS	$275,000.00	$275,000
8	Sludge Processing and Storage Facility	1	LS	$400,000.00	$400,000
9	Odor Control	1	LS	$100,000.00	$100,000
10	Miscellaneous Yard Piping	1	LS	$10,000.00	$10,000
11	Percolation Basins	2	EA	$65,000.00	$130,000
12	Emergency Storage Pond with Liner	1	EA	$78,000.00	$78,000
13	AC Pavement	550	CY	$200.00	$110,000
14	Concrete Pavement (Parking/Staging Area)	40	CY	$500.00	$20,000
15	Gravel	26,900	SF	$3.00	$80,700
16	Fence/Screening Wall	1,270	LF	$100.00	$127,000
17	Entry Gate	1	EA	$10,000.00	$10,000
18	Electrical Equipment	1	LS	$250,000.00	$250,000
19	Operations Building	1	LS	$160,000.00	$160,000
		Subtotal:			$4,895,770
		Conting. (%,+/-)		30	$1,468,731
		Total			**$6,370,000**

- [x] Conceptual Design
- [ ] Preliminary Design
- [ ] Final Design

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Kimley-Horn and Associates, Inc.

Client:	**Seefried Industrial Properties**	**Date:**	**6/15/2023**
Project:	**Project Ware Malcomb 2**	**Prepared By:**	**MV**
KHA No.	**195170029**	**Checked By:**	**RC**

Title: **Wastewater Treatment Facility and Percolation Basins (55,000 GPM Design Flow)**
Opinion of Probable Annual Operation and Maintenance Costs

Item #	Item	Quantity	Unit	Unit Price	Annual Cost
	Pre-Packaged Membrane Bioreactor Plant Equipment				
1	Consumables (Oil, Grease, Belts, Filters, etc.)	1	Annual Cost	$2,000.00	$2,000
2	Spare Parts (Seals, Bearings, Brushes, etc.)	1	Annual Cost	$2,500.00	$2,500
3	Replacement of Parts	1	Annual Cost	$50,000.00	$50,000
	Pre-Packaged Membrane Bioreactor Plant Labor				
4	Routine Operations	15	Hours per Week	$100.00	$78,000
5	Required Sampling/Analysis	2	Hours per Month	$100.00	$2,400
6	Preventative Maintenance	5	Hours per Week	$100.00	$26,000
7	Compliance and Reporting	3	Hours per Month	$100.00	$3,600
	Pre-Packaged Membrane Bioreactor Plant Operations				
8	Power	365	Daily Cost	$75.00	$27,375
9	Chemical: Hypochlorite or Equal	25	Gallons per Month	$3.00	$900
10	Chemical: Citric Acid or Equal	20	Gallons per Month	$12.00	$2,880
	UV Disinfection System (2 units)				
11	Replacement of Parts	1	Annual Cost	$8,000.00	$8,000
12	Maintenance	1	Hours per Week	$100.00	$5,200
13	Power (assumes only 1 unit in service, daily)	365	Daily Cost	$25.00	$9,125
	Sludge Processing, Storage, and Disposal				
14	Power	365	Daily Cost	$50.00	$18,250
15	Maintenance	4	Hours per Month	$100.00	$4,800
16	Hauling	52	Weekly Cost	$2,000.00	$104,000
17	Chemical: Polymer	1	Annual Cost	$3,000.00	$3,000
	Percolation Ponds				
18	Maintenance	4	Hours per Month	$100.00	$4,800
	Emergency Overflow Storage System				
19	Maintenance	4	Hours per Quarter	$100.00	$1,600
	Odor Control				
20	Power	12	Cost per Month	$15.00	$180
21	Maintenance	2	Hours per Month	$100.00	$2,400
22	Chemicals	1	Annual Cost	$5,000.00	$5,000
	Lift Station				
23	Power	365	Daily Cost	$50.00	$18,250
24	Maintenace	4	Hours per Quarter	$100.00	$1,600

	Subtotal:		$381,860
☑ Conceptual Design	Conting. (%,+/-)	30	$114,558
☐ Preliminary Design			
☐ Final Design			
	Total		**$500,000**

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Kimley-Horn and Associates, Inc.

Client:	**Seefried Industrial Properties**	**Date:**	**6/15/2023**
Project:	**Project Ware Malcomb 2**	**Prepared By:**	**MV**
KHA No.	**195170029**	**Checked By:**	**RC**

Title: **Wastewater Treatment Facility and Percolation Basins (55,000 GPM Design Flow)**
Opinion of Probable Annual Operation and Maintenance Costs

Item #	Item	Quantity	Unit	Unit Price	Annual Cost